



US 287 Vision Zero Safety & Mobility Study

December 2023





GLOSSARY

BRT – Bus Rapid Transit

CDOT – Colorado Department of Transportation

Channelized Right Turn – at signalized intersections, right turn lanes that bypass the traffic signal with a triangular shaped island.

Countermeasure – an engineering solution that can be implemented to correct a crash problem or mitigate the likelihood of a crash occurring.

Crash Modification Factor – used to compute the expected number of crashes after implementing a countermeasure on a street or at an intersection.

DRCOG – Denver Regional Council of Governments

Fatal Crash – a crash resulting in one or more deaths.

High Injury Network (HIN) – defined by DRCOG, the Regional High Injury Network identifies the roadways with the highest number of fatal and serious injury crashes (KSI crashes).

KSI Crash – Killed or Serious Injury (KSI); a crash resulting in a fatality (killed) or serious injury.

Level of Service of Safety – a qualitative measure that reflects how a roadway segment or intersection is performing compared to other similar segments or intersections in terms of crash frequency and severity.

Leading Pedestrian Interval (LPI) – an LPI gives pedestrians the opportunity to enter the crosswalk at an intersection 3-7 seconds before drivers are given a green indication.

NFRMPO – North Front Range Metropolitan Planning Organization

Protected left-turn – consists of providing a separate phase for left-turning traffic and allowing left-turns to be made only on a green left arrow signal indication, with no pedestrian movement or vehicular traffic conflicting with the turn.

Regional Transportation District (RTD) – the regional agency operating public transit services in the Boulder County area.

Safe Streets for All (SS4A) – a federal, discretionary grant program providing \$5 billion in grants from 2022 through 2026 to prevent roadway deaths and serious injuries.

Serious Injury Crash – a crash that results in an incapacitating (life altering) injury.

Signal Head – the portion of a traffic signal containing the red, yellow, and green lights.

USDOT – United States Department of Transportation

Vision Zero – a transportation strategy to eliminate all traffic fatalities and serious injuries while increasing safe, healthy, equitable mobility for all. Vision Zero recognizes that humans make mistakes and therefore the transportation system should be designed to minimize the consequences of human error.

Walk-Bike Path – a paved path separated from motor vehicle traffic designed to accommodate the movement of pedestrians and bicyclists. Often referred to as a multi-use path, bikeway, trail, or shared-use path, it is referred to as a Walk-Bike Path in this study.

WOTUS (Waters of the United States) – refers to bodies of water such as rivers, lakes, and streams that the federal government protects.





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US 287 Vision Zero Safety & Mobility Study

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Community

We'd like to say thank you to all of the members of the community that reviewed and provided feedback informing this project.



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Executive Summary





EXECUTIVE SUMMARY

US 287 is a major north-south regional and inter-regional state highway that parallels I-25 and has the highest number of fatal crashes in Boulder County. US 287 links three urban centers, Longmont, Lafayette, and Erie, in Boulder County and connects Boulder County to Larimer County in the north and to Broomfield and Denver Counties in the south.

Study Process

Boulder County, in partnership with the Colorado Department of Transportation and local community partners, has developed this US 287 Vision Zero Safety and Mobility Study, which is the second phase planning study for the corridor. The study area is 24 miles, from the intersection of US 287 & US 36 in Broomfield in the south to US 287 & the Boulder County/Larimer County line in the north. The first phase of planning (Phase I), the US 287 Bus Rapid Transit (BRT) Feasibility Study, was completed in the spring of 2022. Phase I recommendations included three BRT service patterns with modifications to operations, stations, intersections, and permitting transit to utilize sections of right turn lanes to avoid congestion.

This study consisted of a collaborative effort to eliminate traffic-related fatalities and serious injuries, while addressing multimodal needs and opportunities along US 287 that will align with future BRT.

Study elements included:

- A detailed crash analysis to identify crash trends and recommendations with the goal of eliminating all traffic fatalities and serious injuries along the corridor.
- A multimodal analysis to determine the feasibility of a Walk-Bike Path adjacent to US 287 and identify gaps in the multimodal network within local municipalities to recommend strong connections to proposed BRT stations and existing and proposed key destinations.
- A planning-level environmental analysis to provide an understanding of the environmental context and potential constraints within the corridor that will need to be considered in future phases.
- Robust community engagement including two on-demand meetings and a review of the final report, as well as outreach with local stakeholders and non-profit organizations to gather further feedback and support in advertising the outreach opportunities.
- Frequent collaboration with local elected officials and stakeholders to review the results of the analysis and partner in developing the recommendations.

Study Need

- **830** crashes annually with 4% resulting in a serious injury or fatality
- **30+** crashes per mile
- **29%** of all fatal crashes in Boulder County were on US 287 (2021-22)
- **34** people died and 311 persons were seriously injured (2011-20)
- **24** more loved ones have lost their lives on the corridor since 2021*
- **18** bicycle or pedestrian crashes annually
- **24%** of bike/ped crashes result in a serious injury or fatality

**As of September 2023*



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Multimodal Safety

Existing Conditions

Traffic crashes along the US 287 corridor were analyzed from January 1, 2011, to December 31, 2020 to identify overrepresented crash locations and categorize the crashes by location, mode, severity, and crash type. At the time of the study, official crash data beyond 2020 had not been released, but Boulder County tracked additional crashes during the time period, and preliminary analysis indicated that fatal crashes continued to be on the rise. Analysis of the US 287 corridor revealed some common crash types, shown below, that are resulting in serious injury or fatal crashes.



Community Feedback

Public input reinforced the need to:

- Slow vehicle speeds.
- Improve the safety and comfort of people walking and biking, particularly from turning vehicles.
- Prioritize installation of rumble strips and implement a center median.

Recommendations

All crash trends were evaluated to recommend detailed engineering mitigation measures at specific locations along the corridor, organized into themes shown in the table above. Additionally, 12 locations along the US 287 corridor were selected for further evaluation and development of conceptual designs and cost estimates. A planning-level environmental analysis was also completed to identify environmental considerations at each of the conceptual design locations.

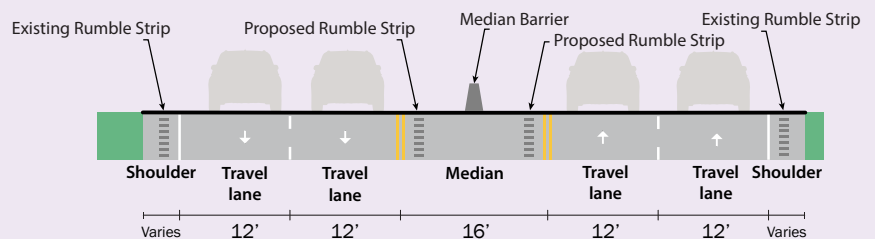
Engineering Mitigation Theme	
Traffic Signal Improvements	
Signage Improvements	
Turning Movement Improvements	
Access Management	
Pedestrian & Bicycle Improvements	
Center Median Barrier	

Center Median Barrier

The crash analysis revealed two segments that had an overrepresented amount of fatal and serious injury crashes, where the majority of the fatal and serious injury crashes were caused by vehicles crossing over the centerline into the opposite direction of traffic resulting in head-on crashes or sideswipe (opposite direction) crashes.

These crash types are occurring along rural areas where the highway is undivided with high posted speed limits, including the areas from (1) Pike Road to Arapahoe Road and (2) Park Ridge Avenue to the Boulder County/Larimer County border. A center median barrier is recommended in these two segments to improve safety and mitigate crossover crashes.

Figure 1. Proposed US 287 Center Median Barrier Cross Section



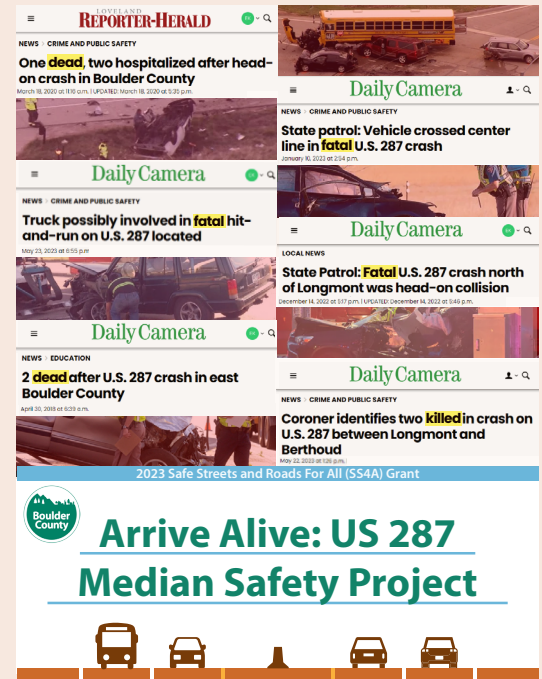


US 287 Vision Zero Safety & Mobility Study

Quick Action

Boulder County knows the need for these safety improvements are critical and urgent. Boulder County and our partners recognize that no moment is too soon to save lives. The following are near-term strategies that have been identified throughout this planning process. These near-term mitigations will not solve every safety issue, but we do not want to wait if we can make incremental improvements that might save a life. Some of these strategies are already in progress, and others will be added over time to be mutually beneficial to improve safety for all people using US 287.

- In July 2023, Boulder County submitted a Safe Streets for All Implementation Grant for funding for the construction of center median barriers in the two rural segments to the north and south of Longmont to reduce serious injury and fatal crossover crashes.
- In Fall 2023, CDOT completed a Speed Study Pilot to determine if speed limits should be lowered.
- Following the signing in June 2023 of Senate Bill 23-200 permitting automated speed camera enforcement, CDOT is now considering implementing speed photo radar along the US 287 corridor.
- Implementation of rumble strips along the center turn lane is recommended to be prioritized as an interim safety measure prior to center median barrier installation. Rumble strips currently exist along the edge of the shoulder in most locations along the corridor. CDOT is currently working on adding rumble strips where there are gaps.
- Traffic signal timing improvements and visibility enhancements, such as traffic signal backplates and advance warning signs, to reduce crashes resulting from red light running.



Walk-Bike-Transit Connectivity

Existing Conditions

The need for safe and comfortable north-south routes for walking and biking, including linking pedestrians and bicyclists with regional transit, was identified during the US 287 BRT Feasibility Study. Boulder County, City and County of Broomfield, Town of Erie, City of Lafayette, and City of Longmont have existing and planned walking and biking facilities along the corridor. These were analyzed in conjunction with key destinations and multimodal links to identify gaps in the walking and biking network along the corridor. There is a cohesive network of walking and biking facilities planned within the municipalities along the corridor. The analysis revealed that there are missing multimodal links in two rural segments between Longmont, Erie, and Lafayette and between Lafayette and Broomfield, including the areas from (1) Pike Road to Arapahoe Road and (2) Dillon Road and Miramonte Boulevard.

Community Feedback

Strong support for a north-south walk-bike connection along the corridor informed the planning of the proposed Walk-Bike Path. Public input will inform the future design including:

- The preference for the Walk-Bike Path to be separated as far as possible from the roadway.
- The importance of completing a paved connection between Dillon Road and Miramonte Boulevard.

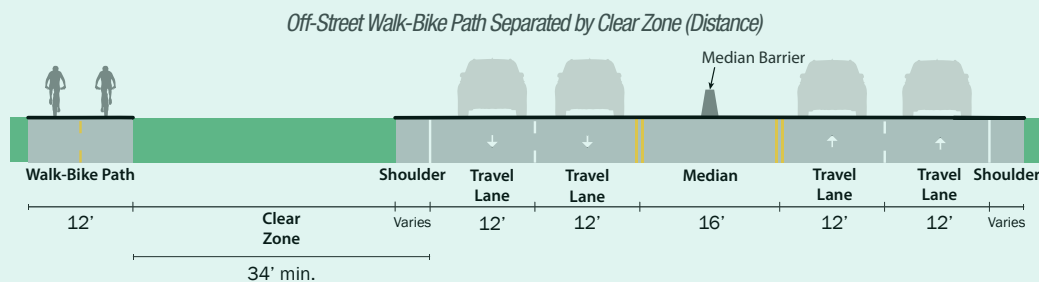


Recommendations

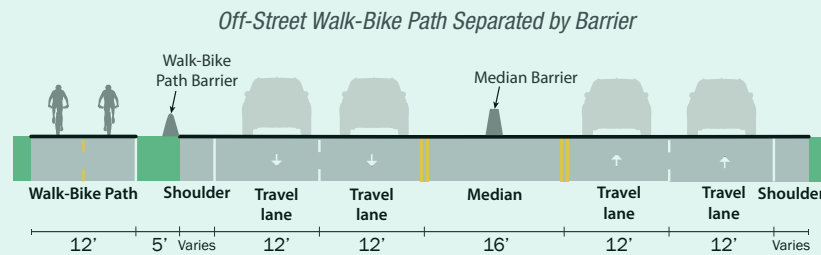
Vehicle volumes, vehicle speeds, and the number of lanes were used to determine the recommended facility type. Due to the high vehicle volumes and speeds, **an off-street, separated facility is recommended in both segments.** Right of way varies throughout the corridor, so based on best practices, two cross sections were developed to accommodate adequate separation between people walking and biking in the path from vehicles, (1) a Walk-Bike Path separated from US 287 by the clear zone (distance) and (2) Walk-Bike Path separated from US 287 by a barrier.

The project team reviewed environmental and historic constraints, utility pole impacts, number of bridges that would need to be constructed, right of way acquisition, and other factors to determine a preferred alignment for the proposed Walk-Bike Path. For the segment from Pike Road to Arapahoe Road, potential Waters of the United States (WOTUS), sensitive species, and historic resources are the primary environmental considerations along this segment. Given these considerations, **the west side of the roadway is the preferred alignment.** For the segment from Dillon Road to Miramonte Boulevard, potential WOTUS and historic resources are the main environmental considerations within this segment, and **the east side of the roadway is the preferred alignment.**

Figure 2. Recommended Off-Street Walk-Bike Path Cross Sections



A clear zone is an unobstructed area that allows a driver to stop safely or regain control of a vehicle that has left the road.



This cross section is necessary when there is not adequate right-of-way to accommodate a Walk-Bike Path separated by adequate distance.

Next Steps

Implementation of the recommendations from the US 287 Vision Zero and Mobility Study Plan will take additional funding and on-going partnerships. The timeline will be based on the types of recommendations that are identified in this plan and securing funding for implementation. Boulder County and our project partners are committed to actively pursuing grant funding to advance all of the additional study recommendations. The US 287 safety improvements dovetail with the recommendations from the US 287 Bus Rapid Transit Feasibility Study and funding to achieve the combined safety and multimodal mobility improvements are critical for the US 287 corridor as well as the inter-connected Northwest Area Mobility Study (NAMS) system. **The next steps working towards implementation of US 287 safety and mobility improvements will take all of our agency partners continuing to prioritize improvements and leverage creativity, determination, and commitment to this critical corridor.**





Introduction



INTRODUCTION

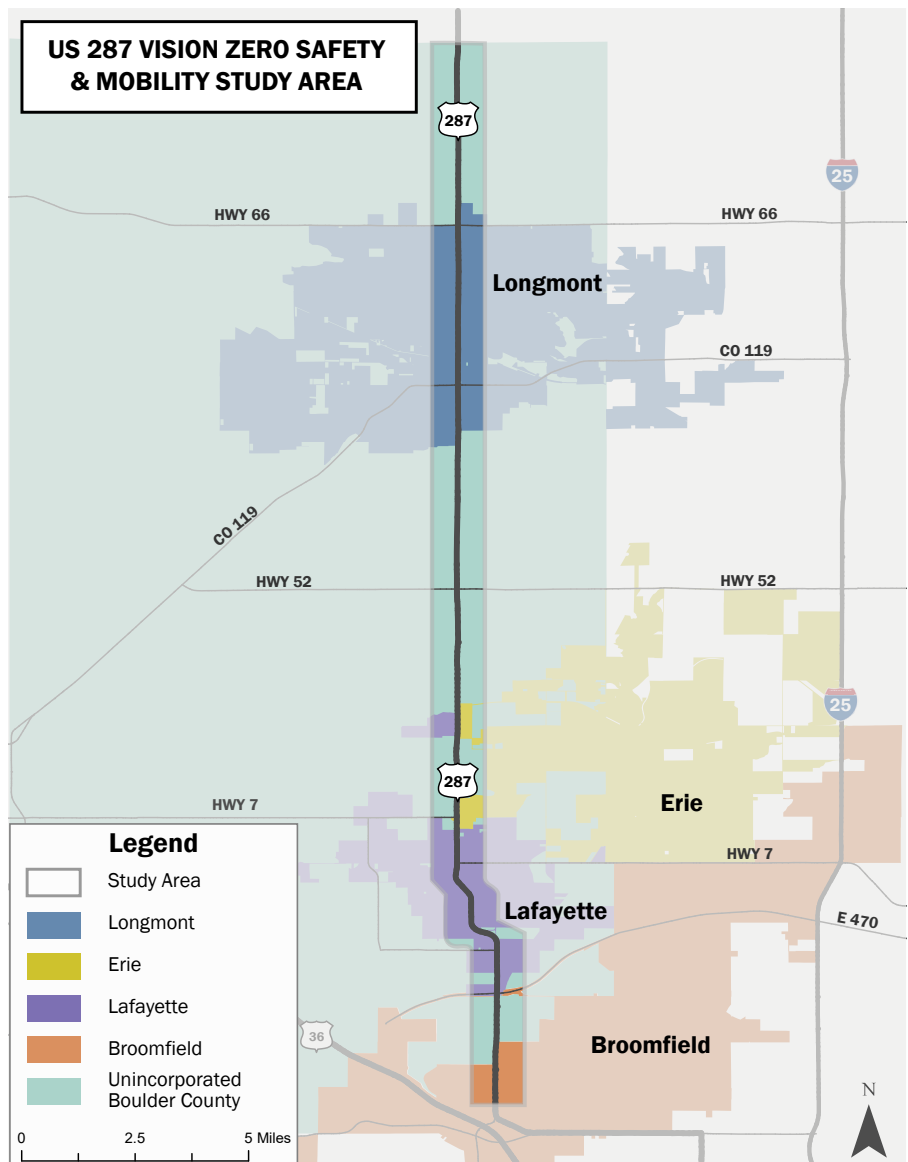
Study Background

Boulder County conducted a Vision Zero Safety and Mobility Study on the approximately 24-mile segment of the US 287 corridor between Midway Boulevard in Broomfield and Horseshoe Circle on the Boulder County/Larimer County border. The study began in the winter of 2022 and was finalized in December of 2023. The project was led by Boulder County in partnership with the Colorado Department of Transportation (CDOT), City of Longmont, Town of Erie, City of Lafayette, City and County of Broomfield, Denver Regional Council of Governments (DRCOG), Regional Transportation District (RTD), Commuting Solutions, and members of the traveling public.

The US 287 Vision Zero Safety and Mobility Study is the second phase of the planning for the corridor. The first phase of planning (Phase I), the US 287 Bus Rapid Transit (BRT) Feasibility Study, was completed in the spring of 2022. Phase I recommendations included three BRT service patterns with modifications to operations, stations, intersections, and permitting transit to utilize sections of right turn lanes to avoid congestion. The Phase I full study and executive summary detail these recommendations and can be found on the project website at <https://boco.org/287planning>.

US 287 is a major north-south regional and inter-regional state highway that parallels I-25 and has the highest number of fatal crashes in Boulder County. Most of the US 287 corridor was identified on the high-injury network as part of the DRCOG Vision Zero Action Plan, with some segments flagged as Critical Corridors, representing the “worst of the worst.” US 287 links three urban centers, Longmont, Lafayette, and Erie, in Boulder County and connects Boulder County to Larimer County in the north and to Broomfield and Denver Counties in the south. This corridor provides a regionally significant connection for passenger vehicles and freight. Current active planning efforts are aimed at improving multimodal travel, including Bus Rapid Transit (BRT), so the roadway can safely serve people of all ages, abilities, and modes. **Figure 3** displays the US 287 study area.

Figure 3. US 287 Study Area





Study Objectives

The US 287 Vision Zero Safety and Mobility Study is a collaborative effort to eliminate traffic-related fatalities and serious injuries, while addressing multimodal needs and opportunities. The study analyzed safety and multimodal mobility along the US 287 corridor from Midway Boulevard in Broomfield to the Boulder/Larimer County line. A detailed crash analysis was performed to identify crash trends and recommendations with the goal of eliminating all traffic fatalities and serious injuries along the corridor. A multimodal analysis was performed to determine the feasibility of a Walk-Bike Path adjacent to US 287. The study also identified gaps in the multimodal network to recommend strong connections to proposed BRT stations and existing and proposed key destinations. Finally, a planning-level environmental analysis was completed to provide an understanding of the environmental context and potential constraints within the corridor to be considered in future phases.

The project team worked with stakeholders and agency partners to evaluate corridor needs and develop potential multimodal and safety recommendations to improve safety, operations, and connectivity for all roadway users. The project team has also coordinated with each of the local municipalities along the corridor and CDOT to complete the safety and Walk-Bike feasibility analysis and development of the recommendations.

This report documents the existing safety conditions of the corridor and potential environmental constraints. It also identifies safety recommendations to improve safety for all users in the short-term and long-term, details recommended improvements to the multimodal network along the US 287 corridor, and outlines how ‘what we heard’ from the community outreach impacted safety and mobility recommendations.





Planning Context

This effort builds upon recently completed and ongoing planning efforts including the previously completed US 287 BRT Feasibility Study. This study reviewed and confirmed the alignment of safety recommendations in the short-term (prior to BRT implementation) and long-term (after BRT is implemented).

Below is a list of transportation related plans, studies, and designs that provided guidance on the previous safety and multimodal transportation improvements along the corridor:

Corridor or Regional Plans:

- US 287 BRT Feasibility Study
- Northwest Area Mobility Study (NAMS)
- DRCOG Vision Zero Action Plan
- CDOT Region 4 Bicycle & Pedestrian Safety Study
- CDOT State Highway 7 Planning and Environmental Linkage Study Segments B & C (63rd Street to 119th Street)

Boulder County:

- Boulder County Vision Zero Crash Analysis – DRAFT
- Boulder County Transportation Master Plan

Longmont:

- Envision Longmont/Multimodal Transportation Improvement Plan
- Main Street Corridor Plan
- CDOT Pedestrian Improvement Project
- 21st & Main TIP Application
- Coffman Street Multimodal Improvements
- Longmont Crash Analysis

Erie:

- Erie Transportation Master Plan
- Erie Crash Analysis

Lafayette:

- Multimodal Transportation Master Plan

Broomfield:

- 2009 US 36 Environmental Impact Statement
- Midway Boulevard Corridor Study
- US 287/120th Multimodal Corridor Study
- US 287 & Midway Boulevard Operational Improvements (CDOT)
- US 287 & Miramonte Boulevard Operational Improvements (CDOT)





Community and Stakeholder Outreach





COMMUNITY AND STAKEHOLDER OUTREACH

Study Partners

The project team has worked in close collaboration with stakeholders and the community to develop the study's safety and mobility recommendations. The project team met bi-weekly during the duration of the study and included key staff from Boulder County, CDOT, and the consultant team. The project team held individual work sessions with the municipal partners, including staff from the City of Erie, Lafayette, Longmont, and the City and County of Broomfield, to support the development of the safety analysis and recommendations.

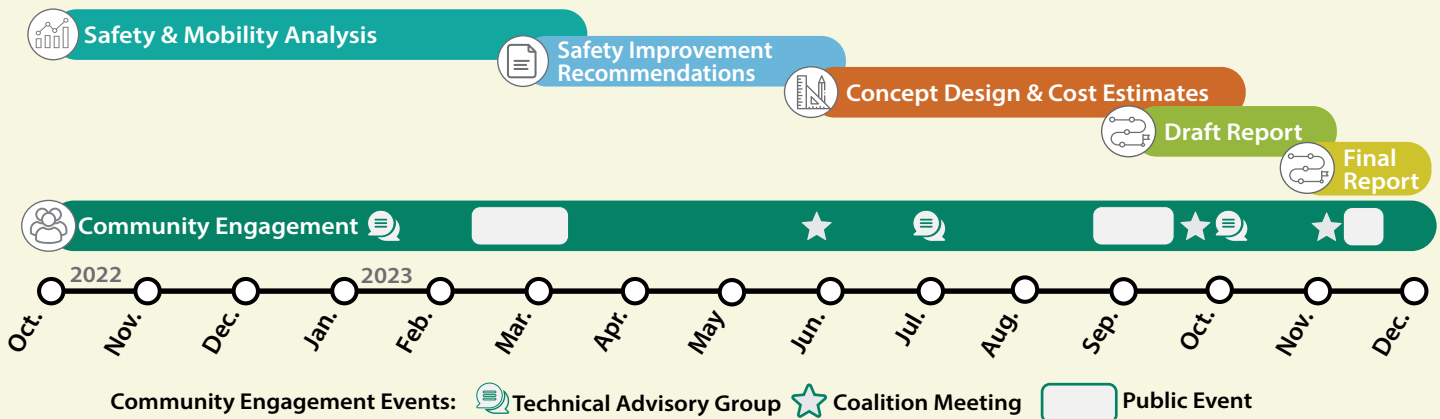
In addition to these meetings, the project team collaborated with stakeholders and the community.

- **The Community:** public feedback was a critical component of the project and was gathered during three phases including two on-demand virtual open houses and a review of the final report. The project team also conducted outreach with local stakeholders and non-profit organizations to gather further feedback and support in advertising the outreach opportunities.
- **The US 287 Coalition:** comprised of local elected officials and staff for Boulder County and the communities of Fort Collins, Berthoud, Loveland, Longmont, Erie, Lafayette, and Broomfield, as well as transportation partners like DRCOG, RTD, CDOT, and North Front Range Metropolitan Planning Organization (NFRMPO). The purpose of the US 287 Coalition is to create a forum for inter-regional planning and multi-agency collaboration to address the existing and growing travel demand and safety along the US 287 corridor connecting communities to/from Larimer, Boulder, and Broomfield counties. The Coalition met three times during the project, providing direction on the needs of the corridor and recommended improvements.
- **The Technical Advisory Group (TAG):** comprised of representatives from Boulder County, City of Erie, Lafayette, Longmont, City and County of Broomfield, DRCOG, RTD, CDOT, Federal Transit Administration (FTA), and Commuting Solutions. The TAG met four times during the study and provided coordination between the study and local operations and recommendations, as well as critical oversight of the analysis and proposed solutions.

Study Timeline

The timeline below shows the stages of the study and the dates of partner meetings.

Project Timeline





Community Outreach #1

The first phase of community outreach occurred February 28 – March 19, 2023. A self-paced, virtual meeting room was available for the public to learn about the study's background, goals, timeline, and safety and mobility analysis results to date.

The virtual open house also collected public feedback through a comment form, survey, and interactive map. The outreach was advertised through Boulder County and partner contact lists and websites, newspaper articles, and television news coverage. Outreach #1 goals and participation can be seen below, and a detailed summary of the feedback can be found in **Appendix A**.

Primary Engagement Goals

- Identify public priorities for eliminating fatal and serious accidents
- Gather feedback on locations and types of multimodal safety concerns
- Understand key destinations along the US 287 corridor

Public Input & Engagement

- **91** Open-Ended Responses
- **38** Purpose And Need Survey Responses
- **34** Map Comments **36** Likes/Dislikes
- **14** Top Three Zip Codes Are:
80026 (Lafayette), 80516 (Erie), 80501 (Longmont)

Community Outreach #2

The second phase of public outreach was also a self-paced virtual open house available from August 21 – September 17, 2023. The meeting provided an opportunity for the public to learn about the study's progress to date, including safety analysis, recommendations, concept for a Walk-Bike Path, and proposed median barrier. The meeting asked for public feedback through a comment form, surveys, and an interactive map. The outreach was advertised by the same channels as the first meeting and included a postcard with a QR code and URL address to the virtual open house mailed to all addresses within one quarter mile of the US 287 study area. Outreach #2 goals and participation can be seen below, and a detailed summary of the feedback can be found in **Appendix A**.



Primary Engagement Goals

- Gather feedback on proposed safety recommendations
- Learn about key destinations and support for the proposed Walk-Bike Path
- Share information about the proposed median barrier

Public Input & Engagement

- **208** Total Participants
- **98** Open-Ended Responses
- **82** Map Comments
- **23** Top three zip codes are:
80026 (Lafayette), 80504 and 80501 (Longmont)





Community Outreach #3

The final phase of public outreach, from November 17 to December 3, 2023, gave community members the opportunity to review the Draft US 287 Vision Zero Safety & Mobility Study. Following review, a survey was available to provide feedback regarding how well the recommendations met study goals and identify any additional corridor issues that should be examined in future studies. Outreach #3 goals and participation can be seen below, and a detailed summary of the feedback can be found in **Appendix A**.

Primary Engagement Goals

- Gather feedback on whether the recommendations will eliminate serious injury and fatal crashes along US 287.
- Gather feedback on whether the recommendations will improve mobility along US 287 for people using any travel mode.
- Identify additional corridor issues Boulder County and the US 287 Coalition should examine following completion of the study.

Public Input & Engagement

- **160** Total Participants
- **104** Open-Ended Responses
- **20** Top three zip codes are:
80026 (Lafayette), 80504 (Longmont),
and 80020 (Broomfield)





Existing Conditions



Existing Conditions

Field observations were performed along the corridor to observe safety and multimodal activity along the corridor. The images below document the transportation-related field observations.



Bicyclists crossing US 287 at Miramonte Boulevard are vulnerable to collisions with turning vehicles.



Bicyclists on US 287 at W Dillon Road are forced to ride on the shoulder, unprotected.



Pedestrians crossing 287 midblock north of Baseline lack adequate crossing infrastructure.



US 287 and Dillon Road is a complicated interchange.



The bus stop at US 287 and Dillon Road is very inhospitable and has no supporting infrastructure.



The bus stop at US 287 and Dawson Drive has no supporting pedestrian infrastructure.



Existing Conditions



US 287 has edgeline rumble strips.



US 287 has a sidewalk gap near Arapahoe Road, which creates a lack of connectivity.



US 287 has long pedestrian crossing distances which increases pedestrian vulnerability.





Environmental Evaluation





ENVIRONMENTAL EVALUATION

The project team completed an environmental conditions analysis to provide an understanding of the environmental context and potential constraints related to the recommended improvements. Planning-level evaluation of the following resources was conducted:

- Hazardous Materials
- Waters of the U.S., which include certain water bodies and associated wetlands (WOTUS)
- Wildlife, including Threatened and Endangered Species
- Historic Resources
- Parks and Recreational Resources
- Environmental Justice
- Land Use, including Farmlands

The analysis included a qualitative assessment of the location, sensitivity, and potential magnitude of impact based on the design provided. Anticipated types of environmental clearance(s), permitting, and next steps associated with each recommended improvement were identified. The level of environmental analysis needed is often dependent on numerous factors, such as the use of state or federal funding and approvals. For this analysis, it was assumed that at the very least, a state environmental clearance would apply as US 287 is a state-owned transportation facility maintained by CDOT; therefore, CDOT coordination and clearances would apply. In addition to federal funding (i.e., from FHWA), another common federal nexus would be permitting with the U.S. Army Corps of Engineers (USACE) should a WOTUS be impacted, in accordance with Section 404 of the Clean Water Act (Section 404), thus requiring authorization from the USACE.

High-level summaries of the results of the evaluation are included in the safety and Walk-Bike Path recommendation sections where applicable. Detailed results and the complete Environmental Conditions Report can be found in **Appendix I**.





Safety and Vision Zero





SAFETY AND VISION ZERO

What is Vision Zero?

Vision Zero is a transportation strategy to eliminate all traffic fatalities and serious injuries for people using all modes of transportation while increasing safe, healthy, equitable mobility for all. Vision Zero recognizes that humans make mistakes and therefore the transportation system should be designed to minimize the consequences of human error.

Boulder County's Vision Zero goal: eliminate serious injury and fatal crashes for people using all modes of travel in unincorporated Boulder County by 2035.

Safety Analysis Goals

This project aligns with Boulder County's Vision Zero goal by implementing advanced crash data analysis technology as well as in-depth stakeholder and community engagement to best understand and mitigate safety and mobility challenges along the US 287 corridor. The safety analysis and recommendations were crafted around infrastructure and non-infrastructure projects and programs. In the context of traffic safety analysis and recommendations, the five E's – engineering, education, encouragement, enforcement, and equity – work synergistically to create a robust framework for safeguarding lives on the road.

Engineering involves the design and construction of roads, intersections, and traffic control systems, aiming to minimize hazards and optimize flow. *Education* is fundamental, imparting knowledge about traffic rules, safe driving practices, and pedestrian awareness, empowering individuals with the skills needed for responsible road use. *Encouragement* fosters a culture of vigilance and consideration, motivating drivers, cyclists, and pedestrians to prioritize safety in their daily commutes. *Enforcement* maintains order, ensuring that traffic laws are obeyed and holding those who jeopardize the well-being of others accountable. *Equity* emphasizes fairness, advocating for accessible and safe transportation options for all, regardless of age, ability, or socio-economic status.

The following were the goals identified for the safety analysis that include elements of the five E's:

- Identify locations with fatal and serious injury crashes.
- Identify locations with crashes that involve vulnerable roadway users, including people walking and people biking.
- Identify over-represented crash types and contributing factors.
- Identify engineering mitigations at each location by short-term (operational) or long-term (likely needs funding source).
- Identify system-wide educational, encouragement, and enforcement recommendations.
- Identify recommendations that consider all individuals, irrespective of their mode of transportation, age, ability, or socio-economic background.
- Propose locations to complete conceptual designs for further investigation.





Safety Analysis Methodology & Overview

The project team analyzed all intersection, non-intersection, and driveway crashes along the US 287 corridor from the intersection of US 287 & Midway Boulevard in Broomfield in the south to US 287 & the Boulder County/Larimer County line in the north. Crashes were analyzed from January 1, 2011, to December 31, 2020 using DiExSys Vision Zero Suite (VZS) that is consistent with CDOT's standard practices. VZS uses Colorado Department of Transportation (CDOT) geocoded crash data and was used to identify overrepresented crash locations and categorize the crashes by location, mode, severity, and crash type. VZS is a Highway Safety Manual (HSM) compliant safety software that uses predictive analytics and diagnostic pattern recognition to help identify correctable crash trends to achieve zero traffic fatalities and serious injuries. VZS provides predictive, diagnostic, and analysis tools which reveal the nature and magnitude of the safety problems on the network, segment, and intersection levels. Several reports from VZS were utilized to determine crash trends and to identify crash types that were overrepresented in each of these segments.

To complete the safety analysis the project team:

1. Analyzed crashes at intersections, segments (non-intersection), and driveways.
2. Generated summary statistics and Level of Service of Safety reports for total crashes and injury crashes.
3. Tabulated Property Damage Only (PDO), injury, serious, and fatal crash numbers for all crashes and pedestrian/bicycle crashes.
4. Generated and reviewed diagnostic reports and crash directionality to identify trends that are most correctable.
5. Reviewed each location in Google Streetview to understand existing intersection/roadway geometry and infrastructure. Supplemented with field work at some locations.
6. Reviewed detailed crash report narratives for pedestrian and bicycle crashes.
7. Identified recommendations at intersections, driveways, and segments based on direct diagnostics/crash trends.
8. Collaborated with local municipalities to present safety findings and recommendations to ground truth data and recommendations.

What is LOSS (Level of Service of Safety)?

- Nationally established safety performance standards
- Identifies locations with overrepresented injury or fatal crashes
- Used for prioritization to focus efforts on most problematic roadway intersections and segments for further study

Inputs to Generate LOSS

- Crash Data
- Facility Setting
 - Urban or Rural
- Facility Geometry
 - Number of lanes on mainline
 - Divided (left-turn lanes are present) or Undivided intersection
 - Signalized or Unsignalized intersection
 - Number of legs of intersection
- Traffic Volume
 - Mainline Annual Average Daily Traffic (AADT)
 - Side street AADT



Safety Analysis Key Findings

Between January 2011 and December 2020, there were a total of 7,360 crashes at intersections, segments, and driveways along the study corridor according to CDOT crash data. **Figure 4** displays the total, serious injury, and fatal crashes by year. Key takeaways include:

- 34 people died in 29 crashes and 311 persons were seriously injured in 248 crashes (2011-2020).
- 24 more people have lost their lives on the corridor since 2021 (Source: Boulder County as of September 2023).
- 4% of all crashes resulted in a serious injury or fatality.
- Approximately 830 crashes annually between 2015 to 2019 (on average, more than two a day).
- 37% increase in annual crashes between 2011 and 2019.
- Crashes declined in 2020 because of reduced traffic volumes due to COVID-19.
- 29% of all fatal crashes in Boulder County were on US 287 (2021-2022).
- 3% of crashes involved a pedestrian or bicyclist but accounted for 15% of serious crashes and 28% of fatalities along the corridor.
- The crashes are not evenly distributed along the corridor. **Figure 6** segments the corridor into three urban and three rural areas and displays the total number of crashes in each.
- The majority of pedestrian and bicyclist involved crashes are occurring in Longmont.

Figure 5 displays the pedestrian and bicyclist involved crashes along the corridor. **Figure 7** through **12** display the locations of all crashes and pedestrians and bicyclist crashes along the corridor.

Figure 4. US 287 Total, Fatal, and Serious Injury Crashes By Year

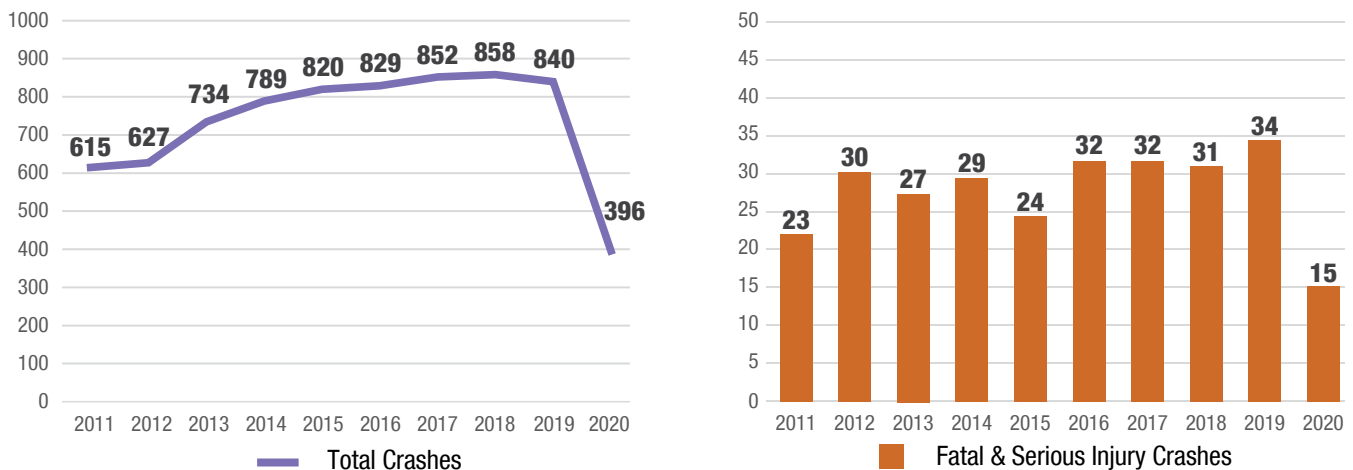
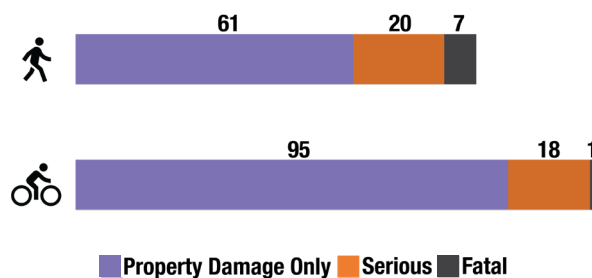


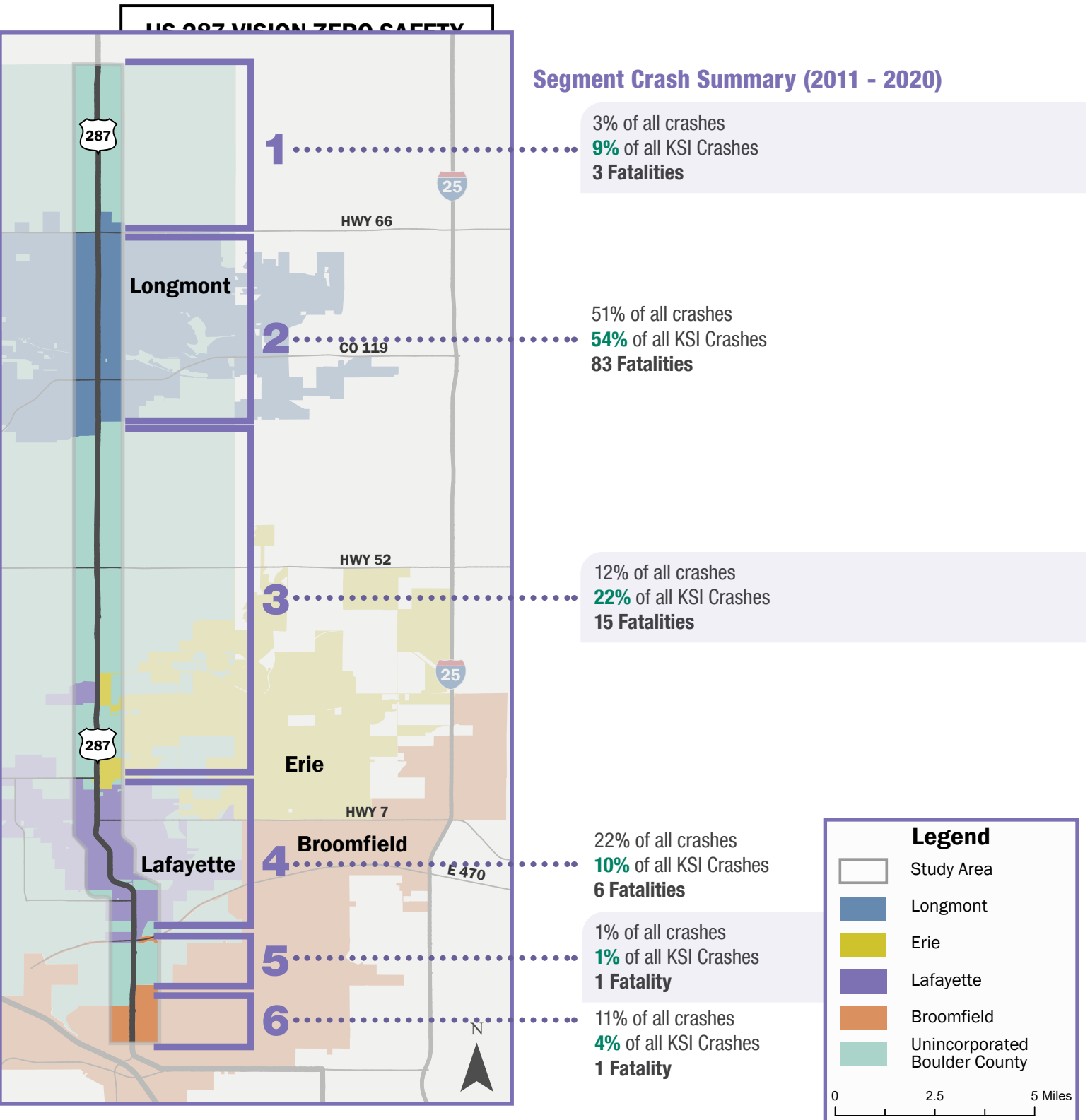
Figure 5. US 287 Number of Pedestrian and Bicycle Crashes





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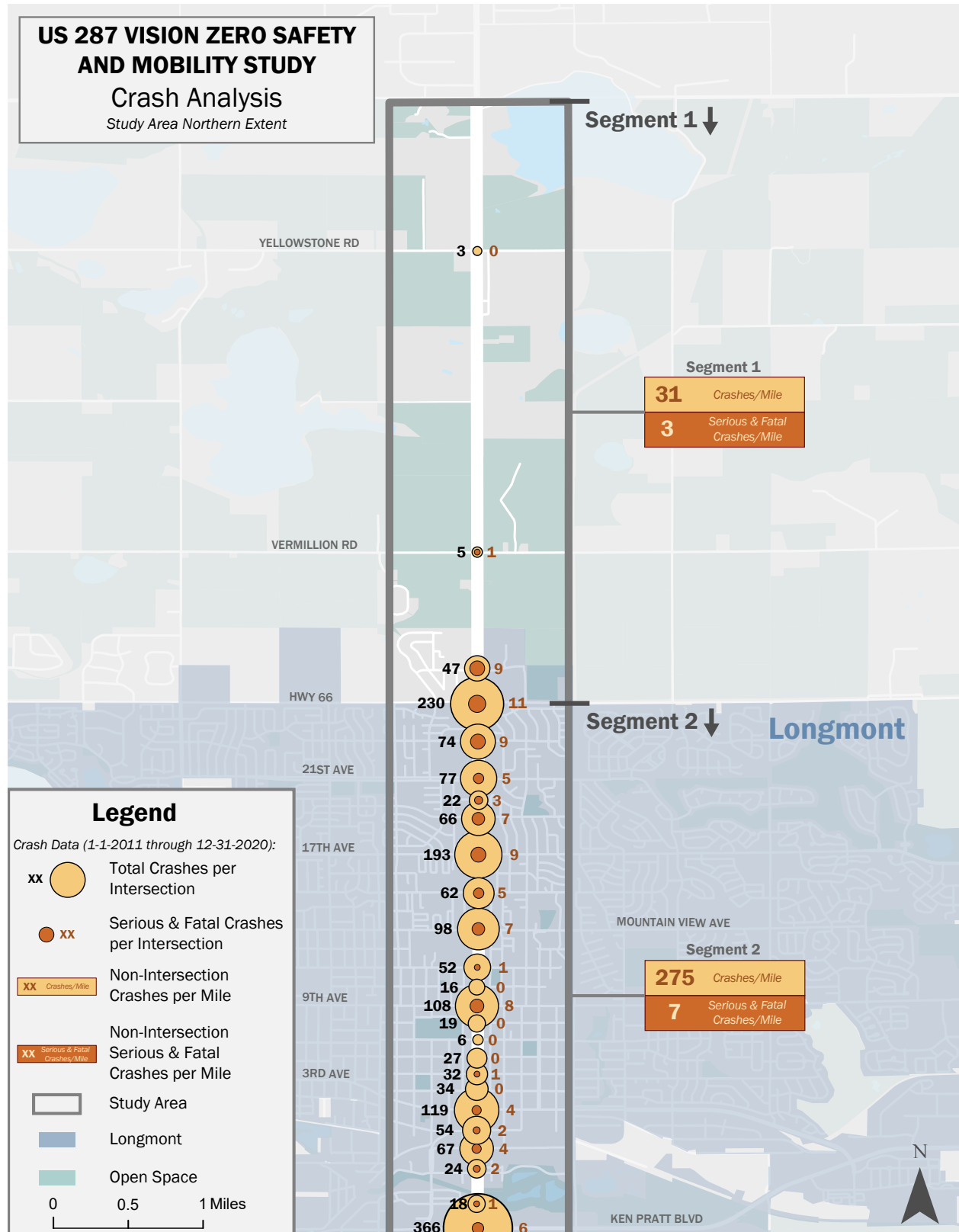
Figure 6. US 287 Total, Fatal, and Serious Injury Crashes By Year Map





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Figure 7. All Crash Summary – North Segment





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Figure 8. All Crash Summary – Middle Segment

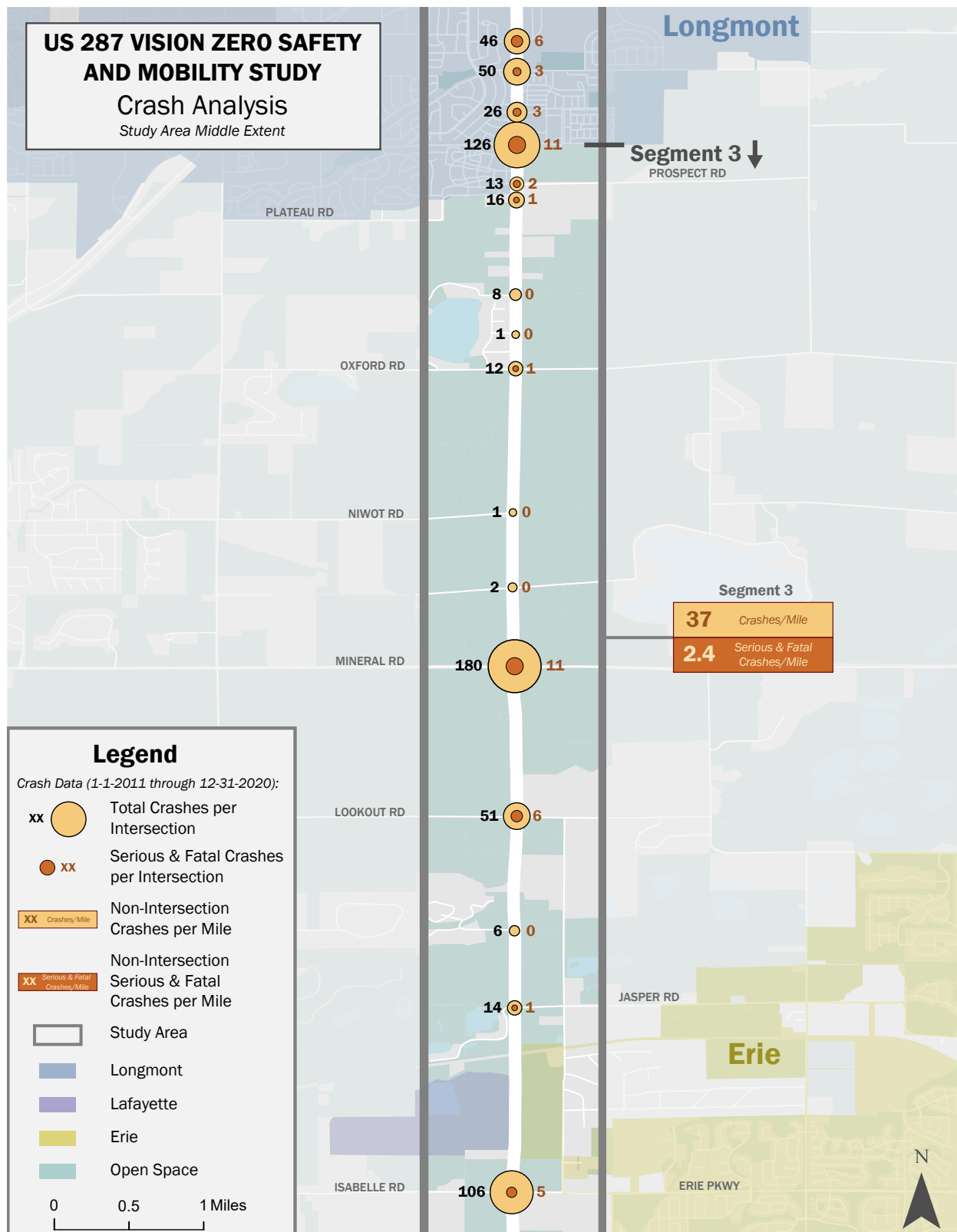


Figure 9. All Crash Summary – South Segment

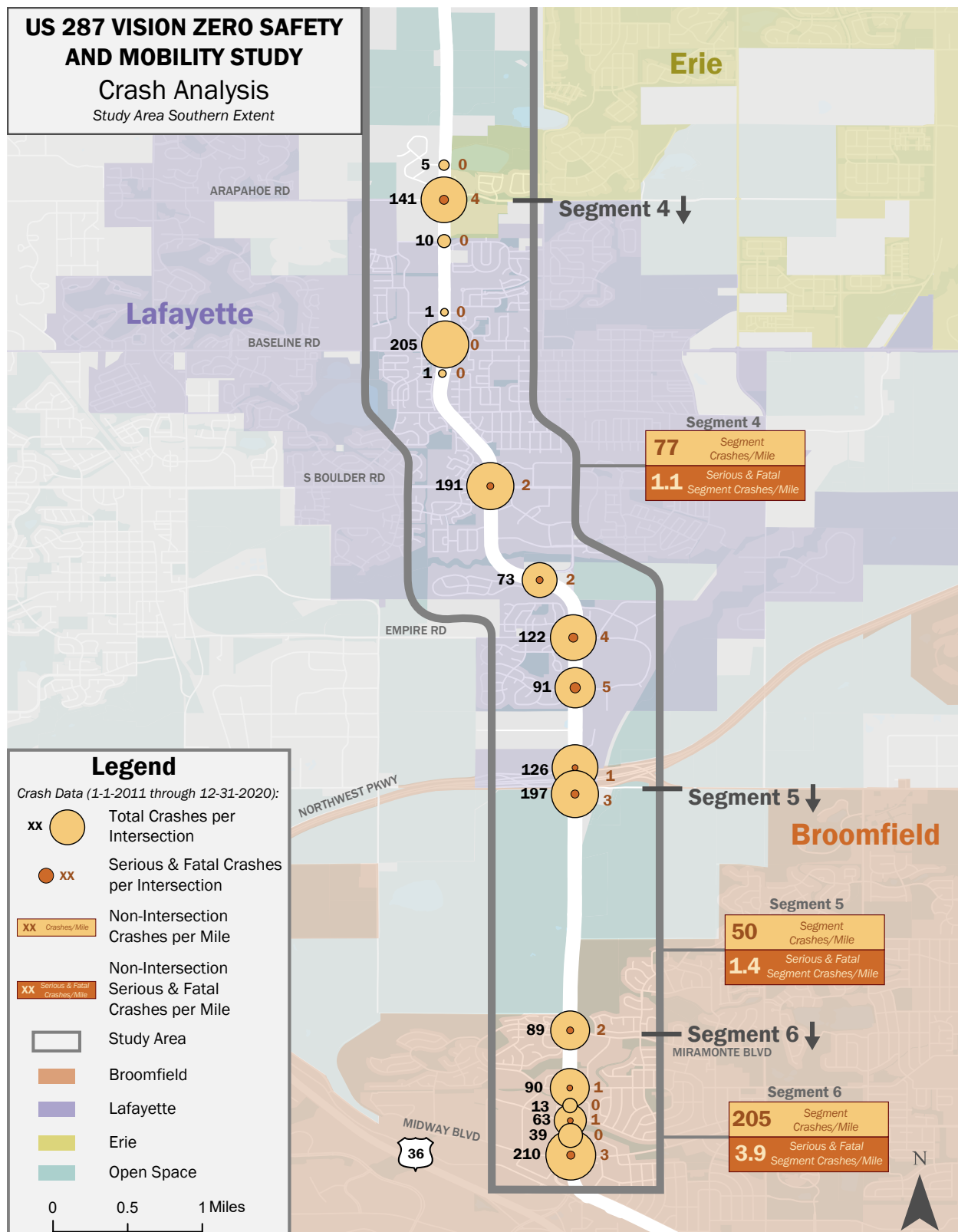
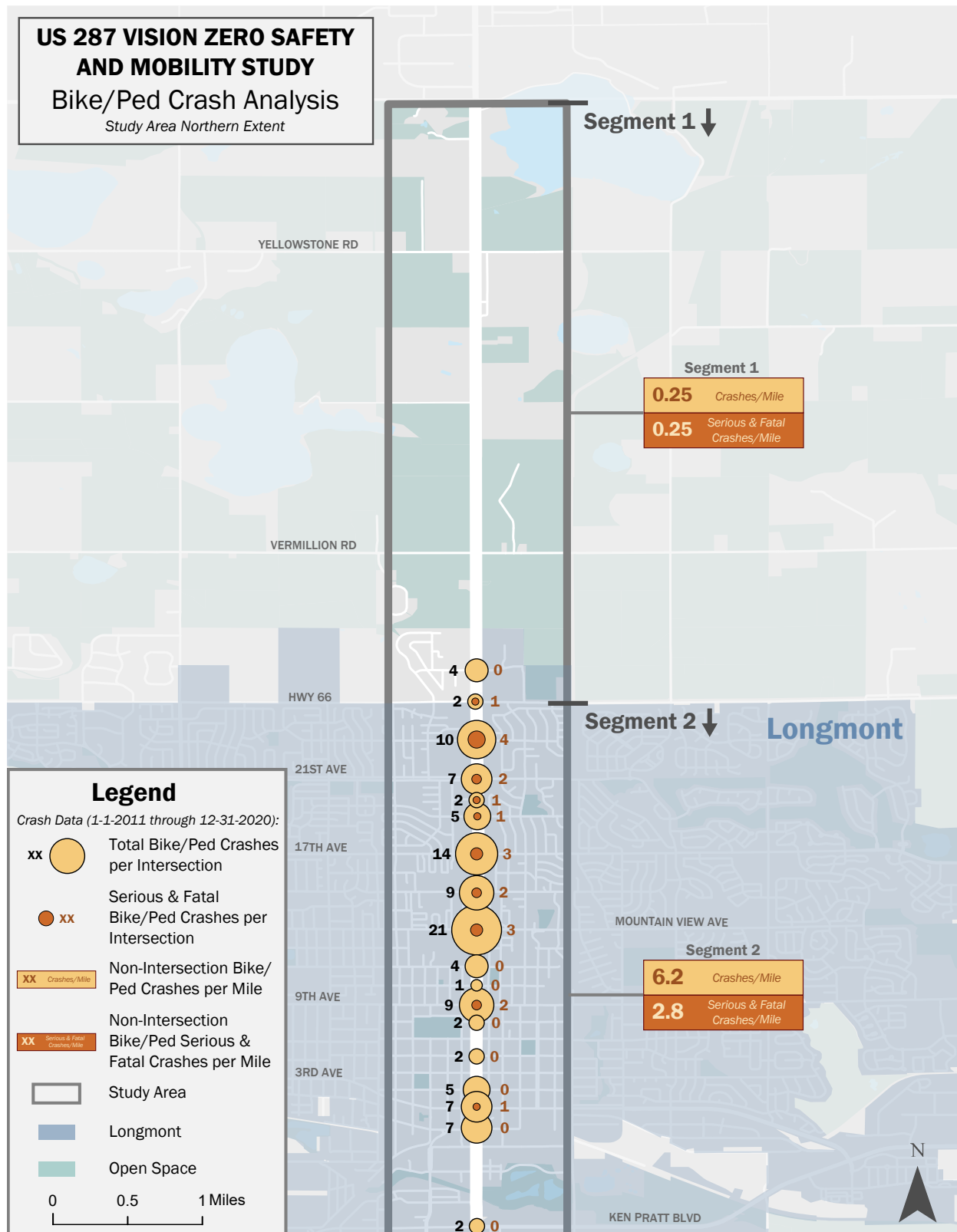


Figure 10. Pedestrian/Bicycle Crash Summary – North Segment





US 287 Vision Zero Safety & Mobility Study

Figure 11. Pedestrian/Bicycle Crash Summary – Middle Segment

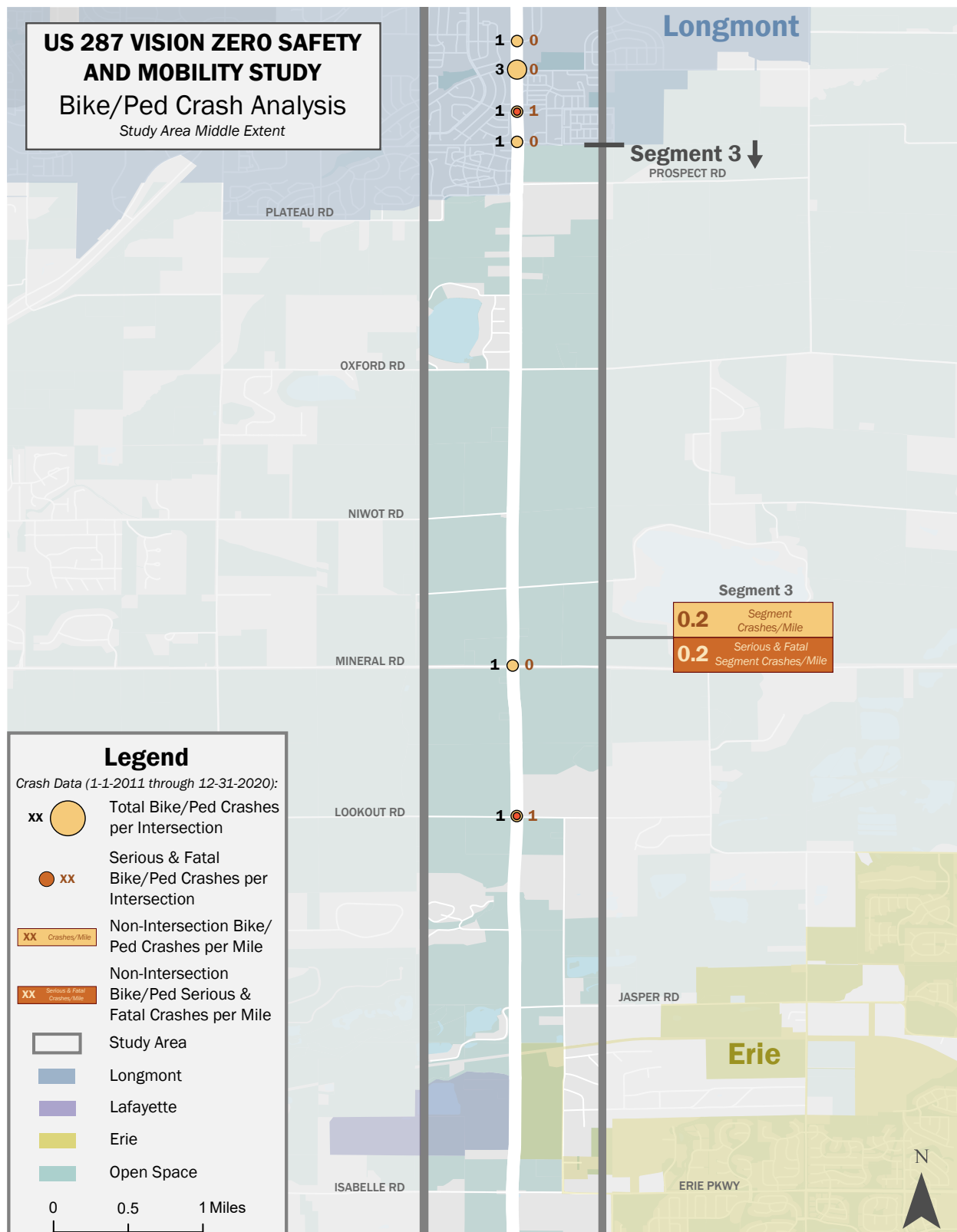
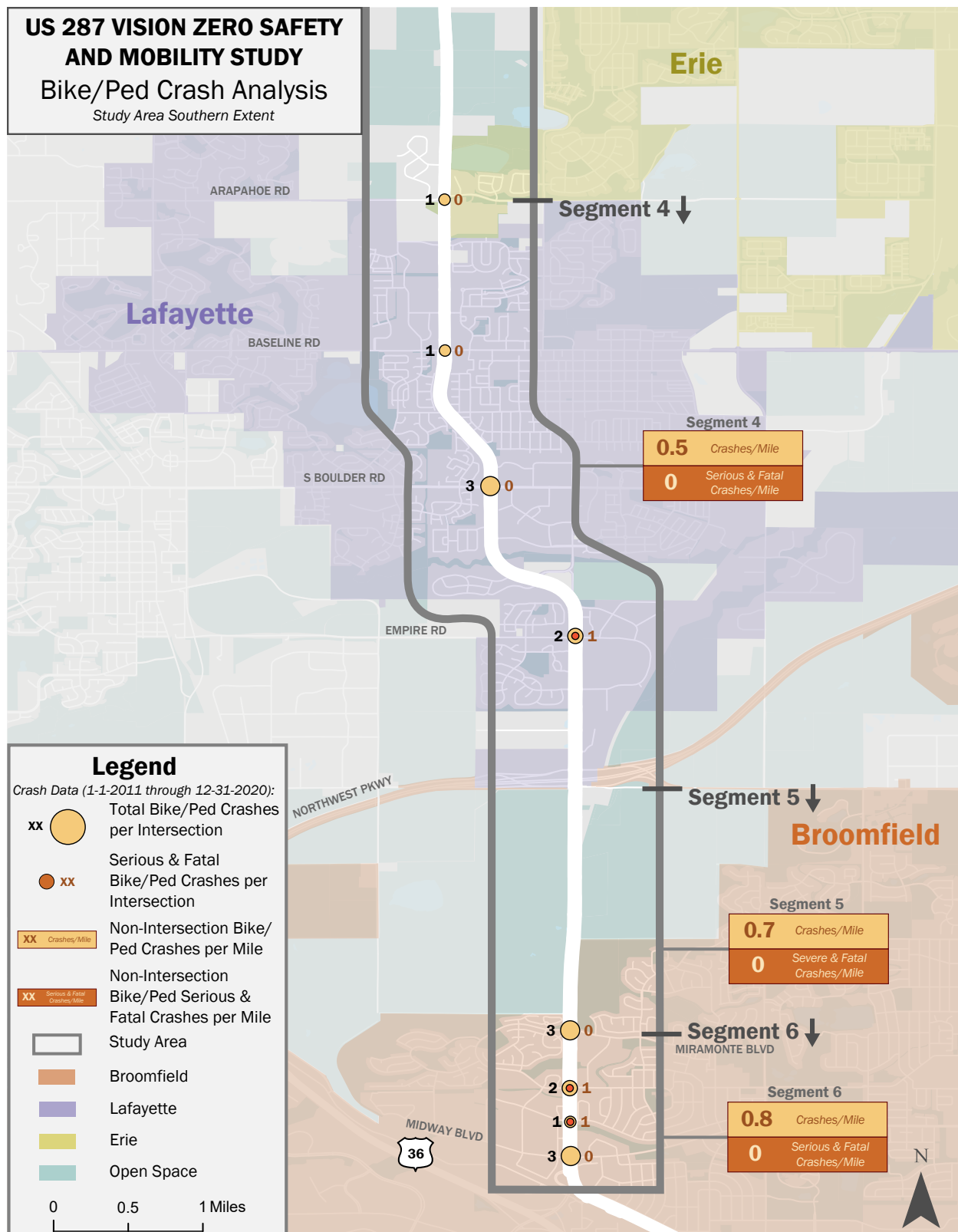


Figure 12. Pedestrian/Bicycle Crash Summary – South Segment





Common US 287 Crash Types

Analysis of the US 287 corridor revealed some common crash types that are resulting in serious injury or fatal crashes:



Left Turn/Approach Turn (Vehicle – Vehicle)



Left Turn (Vehicle – Bicyclist/Pedestrian)



Failure to Yield Right-of-Way from Side Street/Broadside



Right Turn On Red (Vehicle – Bicyclist/Pedestrian)



Right Turn (Vehicle – Bicyclist/Pedestrian)



Red Light Running/Broadside



Head-On



Sideswipe



Rear-End



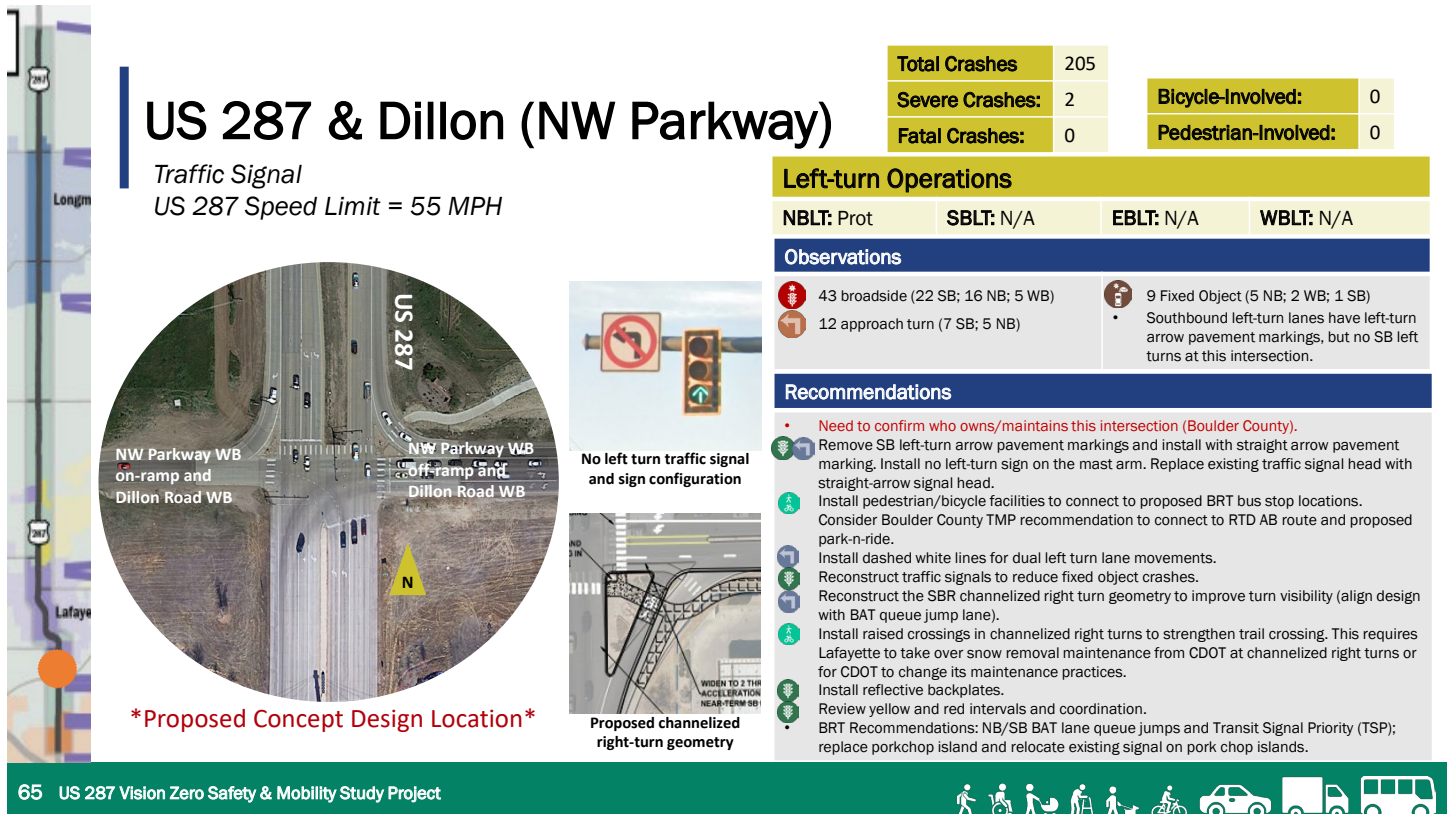
Fixed Object

The following pages summarize the description of the most common crash types resulting in serious injury or fatal crashes on US 287 in Boulder County. Refer to the US 287 Safety Toolbox in **Appendix C** for additional information about contributing factors and potential solutions for each crash type.

Additionally, crash data was analyzed for each intersection, driveway, and segment to identify crash types and trends. A crash trend refers to a pattern or trend related to traffic crashes. Identifying crash trends is important to make informed and focused recommendations to reduce the occurrence of serious and fatal crashes. Detailed summaries were created for each intersection documenting the existing intersection geometry and operations, findings from the crash analysis including number of crashes and key observations, and recommendations. **Figure 13** displays an example summary and **Appendix B** includes a detailed summary for each location along the corridor. **Figures 14** through **16** summarize the crash trends and mitigations for each location along the US 287 study corridor.



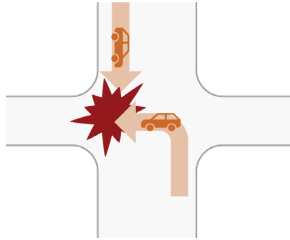
Figure 13. Example of the Detailed Safety Recommendations Summary



Crash Type Descriptions



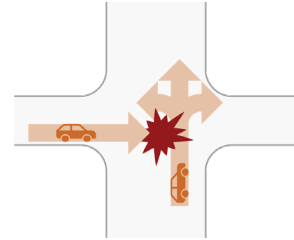
Left Turn/Approach Turn (Vehicle – Vehicle)



This crash type includes a left-turning driver that failed to yield right-of-way and collides with a vehicle traveling in the opposite direction straight through the intersection. These types of crashes can occur at unsignalized intersections or at signalized intersections where left-turns are permitted.



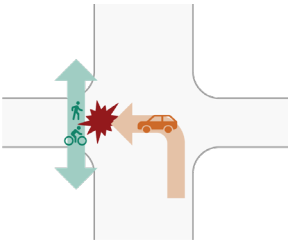
Failure to Yield Right-of-Way from Side Street/Broadside



This crash type occurs when a person attempting to cross from an unsignalized street misjudges a gap in traffic and is struck by a driver that has the right-of-way. This can also be called a T-bone crash.



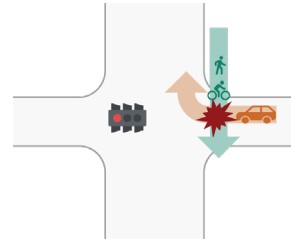
Left Turn (Vehicle – Bicyclist/Pedestrian)



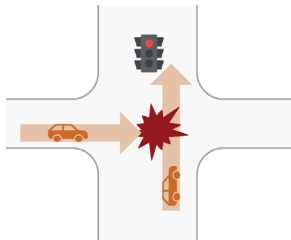
This crash type includes a left-turning driver failing to yield right-of-way and striking a pedestrian or bicyclist crossing in the crosswalk.



Right Turn On Red (Vehicle – Bicyclist/Pedestrian)



This crash type occurs when drivers are turning right at an unsignalized location or attempting to turn right on red at a signalized intersection and they are looking left to judge a gap in traffic and strike a pedestrian/bicyclist crossing in front of their vehicle from the right.



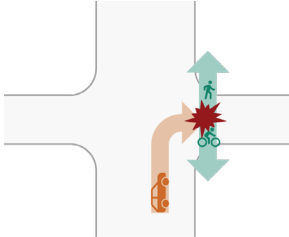
Red Light Running/Broadside

This crash type includes a driver inadvertently or deliberately running a red light at a signalized intersection and colliding with another roadway user that has the right-of-way. This can also be called a T-bone crash.

Crash Type Descriptions



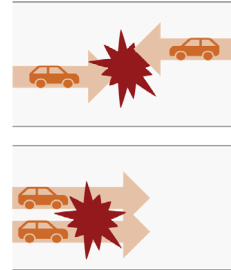
Right Turn (Vehicle – Bicyclist/Pedestrian)



This crash type occurs when a right-turning driver fails to yield right-of-way and strikes a pedestrian or bicyclist crossing in the crosswalk traveling parallel to the vehicle prior to the right-turn and or strikes a bicyclist traveling parallel to the vehicle prior to the right-turn in the on-street bicycle lane (right-hook crash).



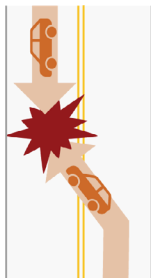
Sideswipe



This type of crash occurs when a driver departs from their expected path of travel and the side of their vehicle strikes the side of another vehicle. This can occur in the same direction of travel or in opposite directions of travel.



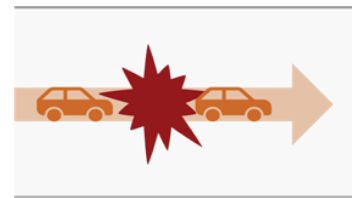
Head-On



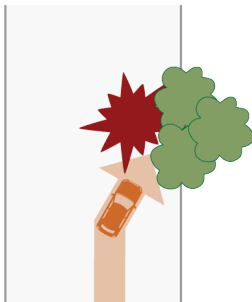
This type of crash occurs when two drivers are traveling in opposite directions and a driver crosses the centerline, colliding with the other vehicle.



Rear-End



This crash occurs when one driver fails to stop and collides with the back of another vehicle. These crashes typically occur when the front driver slows down or stops for a traffic signal or turning vehicle and the following driver cannot stop in time or is distracted.



Fixed Object

This type of crash occurs when a driver strikes a stationary object outside of the travel lane such as a tree, light pole, barrier, fence, etc.



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Figure 14. US 287 Crash Trend Summary Map – North

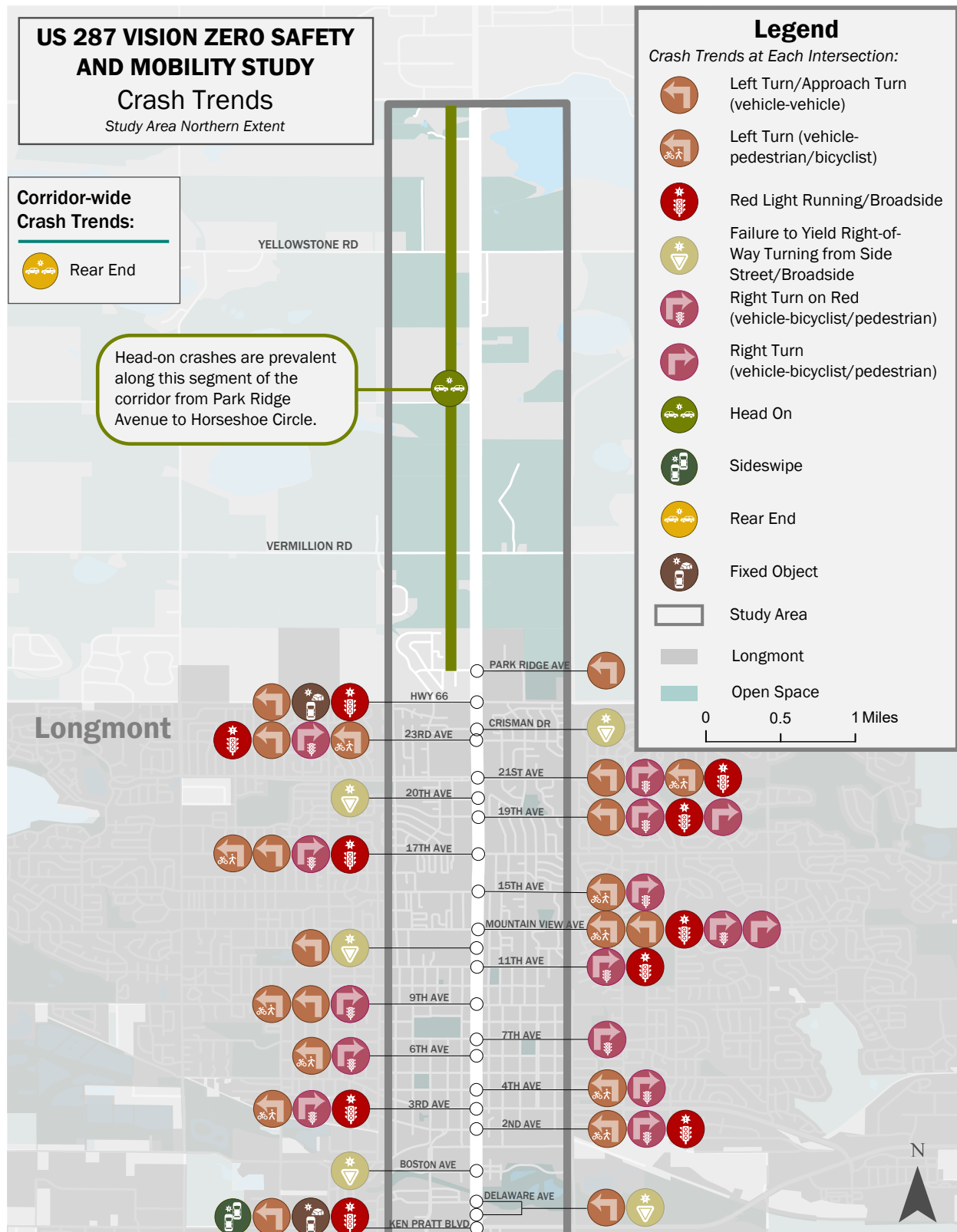
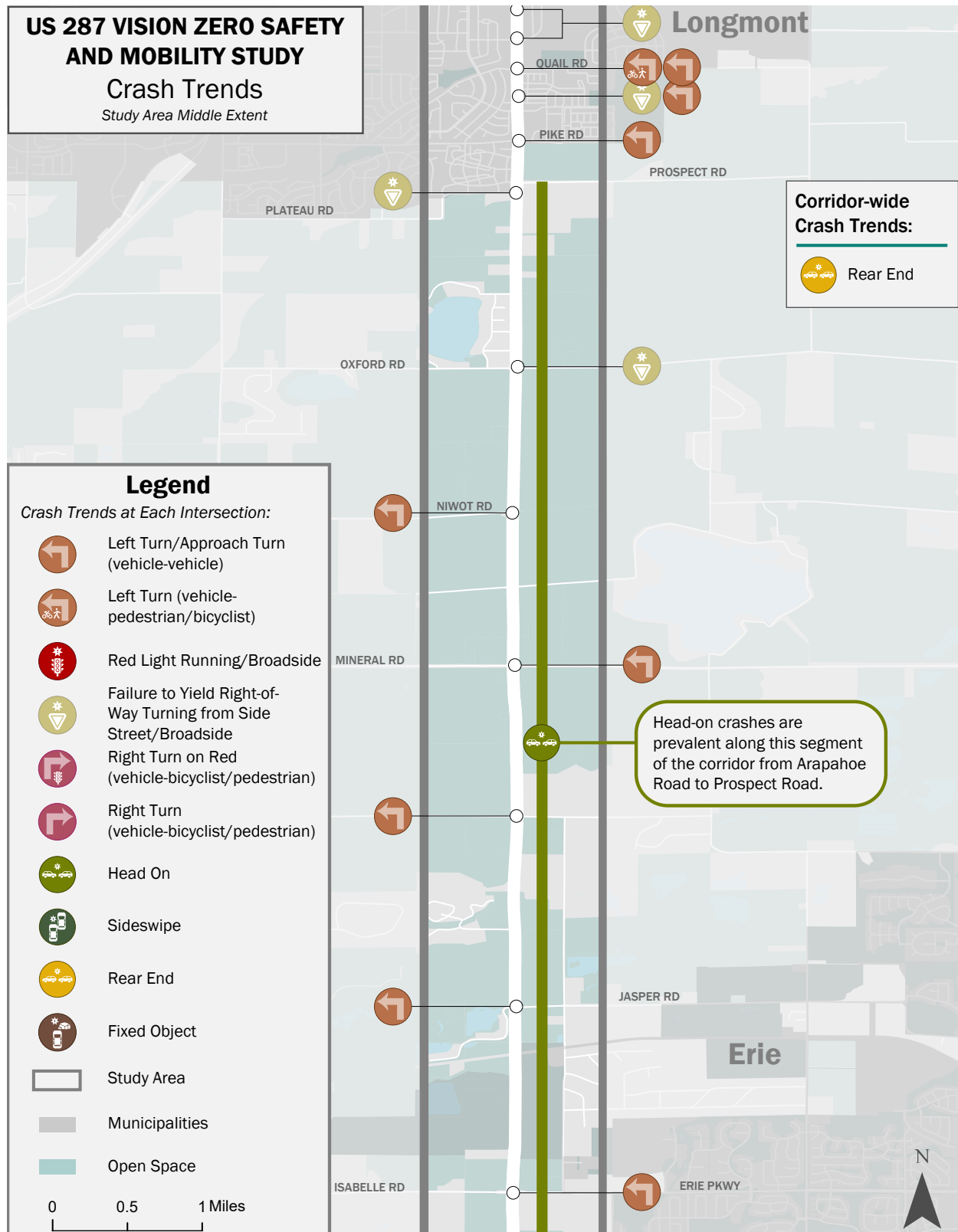


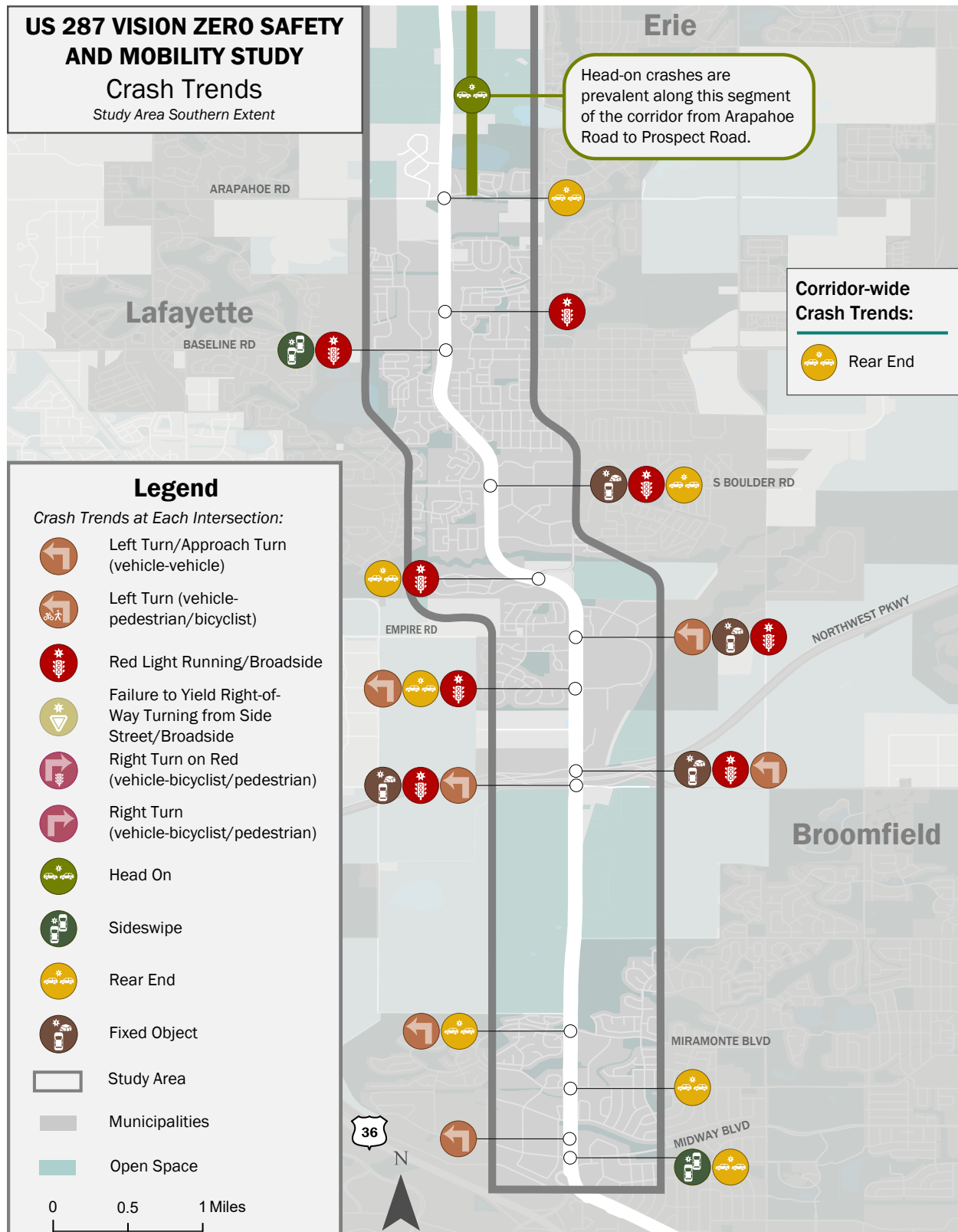
Figure 15. US 287 Crash Trend Summary Map – Middle





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Figure 16. US 287 Crash Trend Summary Map – South











Common US 287 Recommended Mitigations Measures

All crash trends were evaluated to determine recommended engineering mitigation measures at specific locations along the corridor. Recommendations were combined into themes. **Table 1** displays the engineering mitigation themes and specific mitigations for addressing each theme. **Figure 17** through **19** display the engineering mitigations recommended throughout the corridor. Enforcement, Education, Encouragement, and Equity mitigations were also evaluated. Specific recommendations can be found in the location-specific recommendations in **Appendix B** and more generally in the safety toolbox.

Table 1. US 287 Mitigation Measures

ENGINEERING MITIGATION THEME	SPECIFIC MITIGATIONS
 Traffic Signal Improvements	<ul style="list-style-type: none"> • Upgrade Left-Turn Operations • Update Clearance Intervals (Yellow Change Interval + Red Clearance Interval) • Red Light Cameras • Evaluate Intersection for New Traffic Signal • Install Near-Side Traffic Signal Head to Improve Visibility • Rebuild Existing Traffic Signal
 Signage Improvements	<ul style="list-style-type: none"> • Advance Warning Signage with Flashing Beacons • Install Object Markers • Intersection Conflict Warning System • Custom Two-Way Bicycle Crossing Sign at Driveway Access
 Turning Movement Improvements	<ul style="list-style-type: none"> • Improve Channelized Right-Turn Lane Geometry • Restrict Right-Turn-on-Red • Restricting Left-Turns at Signalized Intersections
 Access Management	<ul style="list-style-type: none"> • Right-In/Right-Out • 3/4 Movement • Consolidate Driveways
 Pedestrian & Bicycle Improvements	<ul style="list-style-type: none"> • High Visibility Crosswalks • Improve Bicycle Lane Crossing • Install Bulbouts (Curb Extensions) • Raised Pedestrian Crossings in Channelized Right-Turns Islands • Passive Pedestrian Detection • Protected Left-Turns when Push Button is Pressed • Install Leading Pedestrian Interval • Medians and Pedestrian Crossing Islands (Pedestrian Refuge Island) • Restrict Right-Turn on Red • Rectangular Rapid Flashing Beacon (RRFB) • Pedestrian Hybrid Beacon (PHB)
 Center Median Barrier	<ul style="list-style-type: none"> • Center Median Barrier • Center Median Rumble Strips





US 287 Vision Zero Safety & Mobility Study

Figure 17. US 287 Engineering Mitigation Summary Map – North

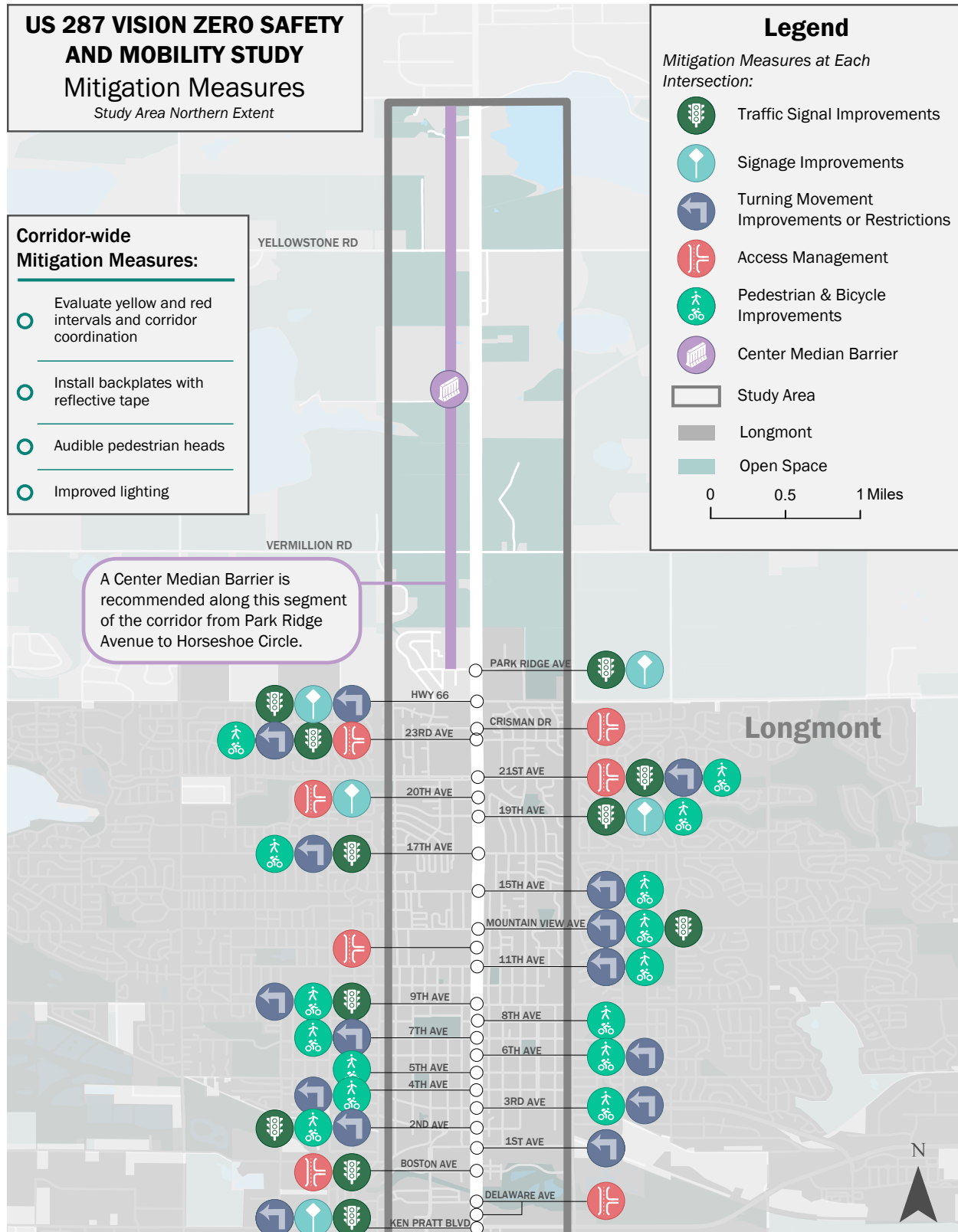
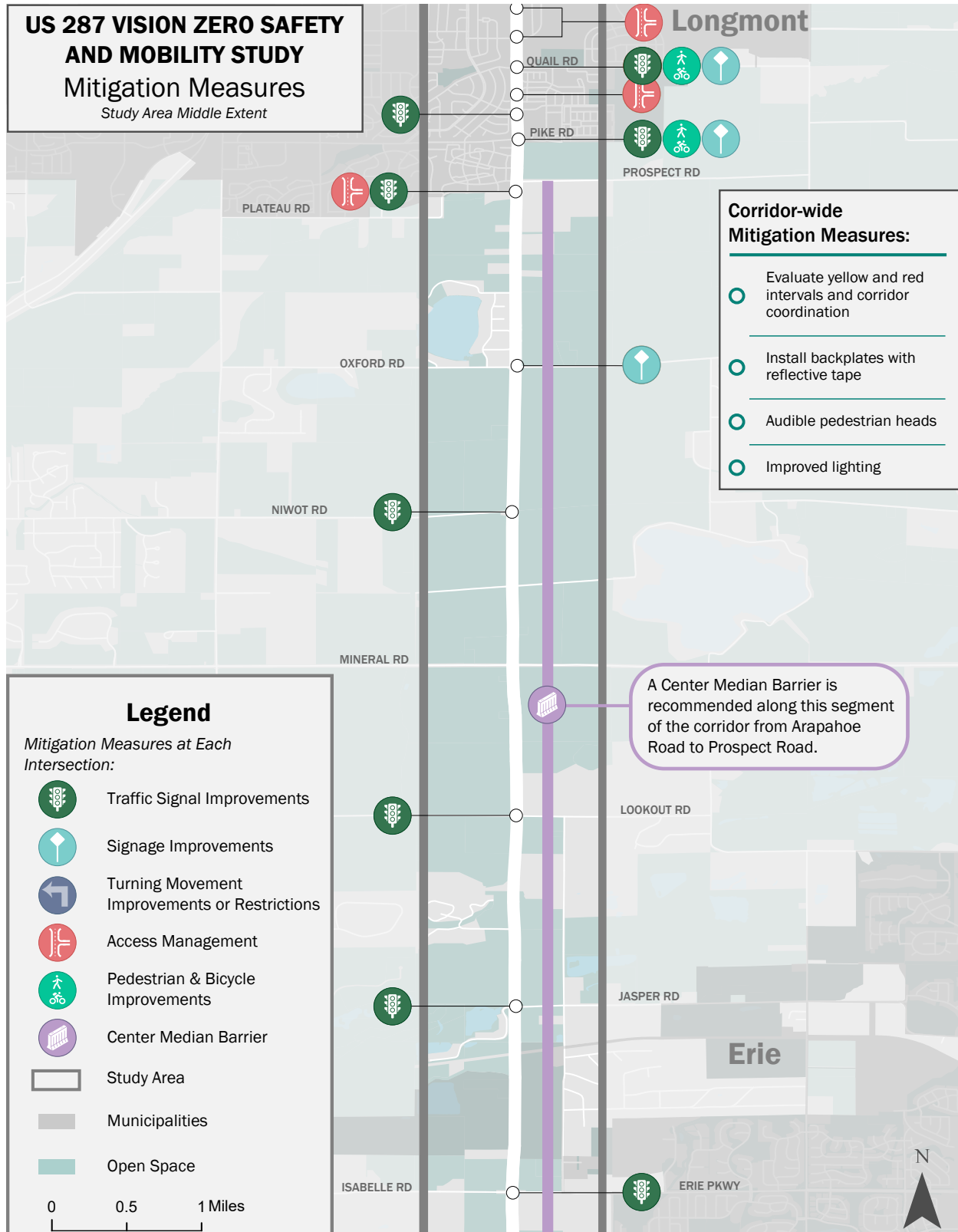


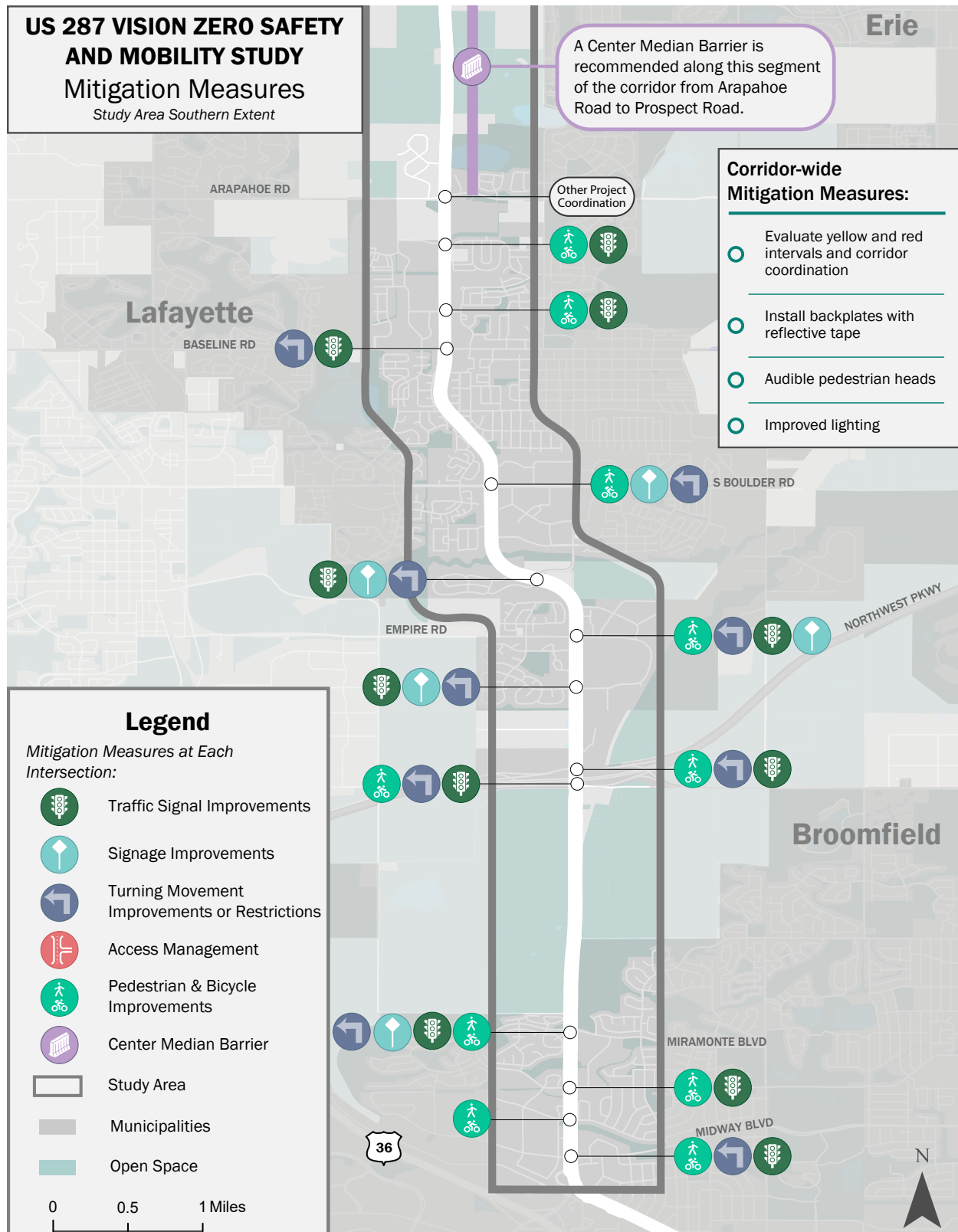
Figure 18. US 287 Engineering Mitigation Summary Map – Middle





US 287 Vision Zero Safety & Mobility Study

Figure 19. US 287 Engineering Mitigation Summary Map – South





How Community Feedback Informed Recommendations

Public feedback was a critical component of developing the safety and mobility recommendations. Summaries of the engagement and feedback can be found in **Appendix A**.

Community input from the first virtual open house provided the following direction:

- Confirmed study goals and gathered feedback for the future development of a Purpose and Need statement for the US 287 corridor. Purpose and need statements can help galvanize support to move recommended safety and mobility improvements forward toward implementation.
- Identified key destinations along the corridor. Creating safe and comfortable access for all modes of travel to these destinations was prioritized in the development of the safety improvements.
- Identified safety and mobility concerns along the corridor. All general and locational concerns noted by the public were evaluated during the safety analysis and mitigations were included in the recommendations where applicable. Notably, the top categories of safety concerns aligned with the study scope including evaluating the feasibility of a connected Walk-Bike Path along the corridor and improving intersection safety for all modes.

Community input from the second virtual open house informed the development of the recommendations, including:

- Provided feedback on safety recommendations such as engineering mitigations to improve the visibility of people walking and biking.
- Confirmed engineering and enforcement mitigations to reduce speeding along the corridor and evaluate the reduction of posted speed limits in Lafayette.
- Informed the future design of the Walk-Bike Path along segments of unincorporated Boulder County, such as preference for a path separated by distance from the roadway rather than a barrier and need for a paved connection between Dillon Road and Miramonte Boulevard.

Recommendations from the Community Considered but Not Moved Forward

There were also recommendations from public comments that were received but ultimately not moved forward. This section summarizes the recommendations from comments received and highlights why they were not moved forward.

Install a Roundabout: Based on design elements outlined in CDOT's Roadway Design Guide Chapter 18: Roundabouts, entering daily traffic volumes on US 287 are higher than what is acceptable for a multilane roundabout. Additionally, roundabouts often require an area outside of the footprint of existing intersections which typically requires right-of-way acquisition, and drives the implementation cost up significantly. Therefore, roundabouts were not recommended as a mitigation in this study. Moving forward, CDOT policy is to consider roundabouts for any intersection that meets signal warrants using CDOT's Intersection Control Analysis Tool (ICAT).

Do Not Install More Traffic Signals: Some intersections were identified as having a broadside crash trend of drivers on the side street failing to yield right-of-way to vehicles on US 287. At these intersections, traffic signals can reduce or eliminate the broadside crashes and therefore reduce fatal and serious injury crashes. In order to recommend a new traffic signal, the intersection must meet traffic signal warrants outlined in the Manual on Uniform Traffic Control Devices (MUTCD) Chapter 4C. Traffic Control Signal Needs Studies. Traffic signals were considered for Plateau and Dawson Road, but neither intersection met traffic signal warrants. A traffic signal warrant analysis is recommended for Jasper Road.

Do Not Reduce Speed Limits: Traffic crashes involving higher vehicular speeds are more likely to result in serious injury or fatalities. Additionally, there are specific areas along the corridor where land use has changed in the past years and a reduction to the posted speed limit was re-evaluated.



US 287 Safety Toolbox

In conjunction with the project, a Safety Toolbox was developed that includes information about the crash types that are most frequent on US 287 and identifies supporting engineering, enforcement, education, encouragement, and equity countermeasures. It is intended to help Boulder County staff with decision making and provide community members context about what recommendations mitigate crash trends to improve safety and mobility along US 287. Each crash trend is described in detail with a summary of potential contributing factors and potential mitigations. There is also a summary of safety mitigations which provide a description, benefits, cost range, complexity, design considerations, and other considerations. The US 287 Safety Toolbox is located in **Appendix C**.

The assortment of crash types located in the US 287 Safety Toolbox is not a complete list of crash types that may be found in other locations. Crash mitigation techniques included in this toolkit should not be implemented along other roadways without first studying the crashes that occur in those areas. The following alternative sources provide descriptions of additional crash trends and mitigations:

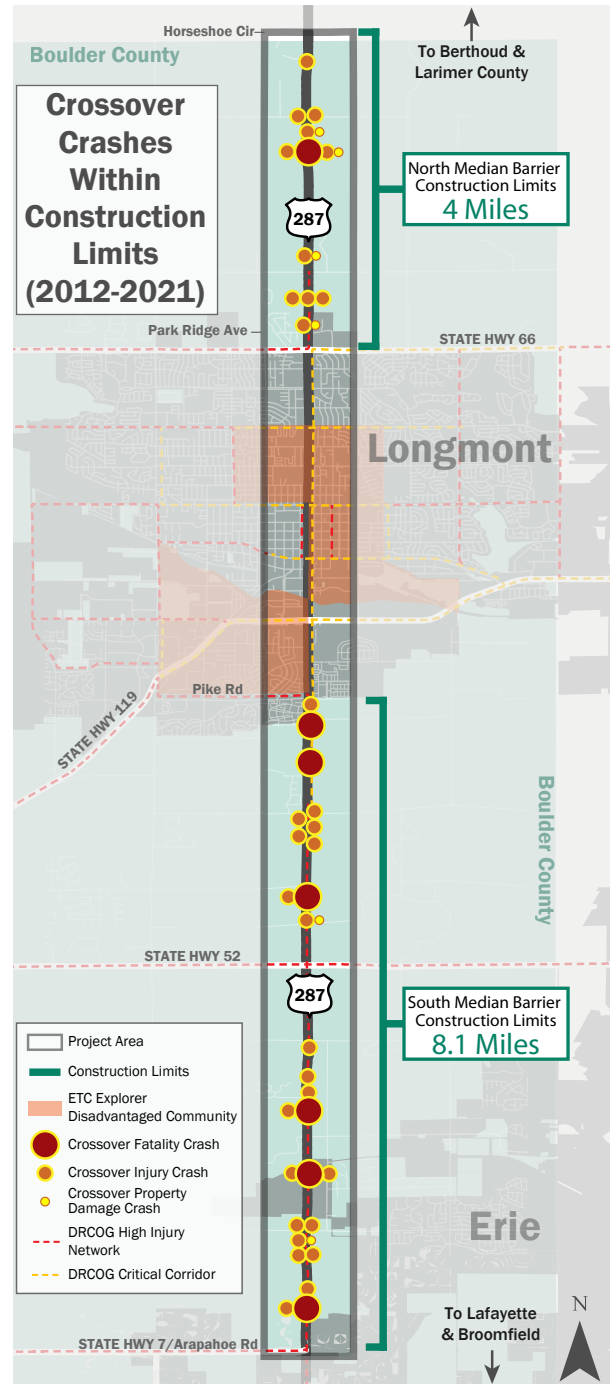
- [Federal Highway Administration Proven Safety Countermeasures](#)
- [Crash Modification Factors Clearinghouse](#)

Center Median Barrier Conceptual Design

The Need for a Median Barrier

The crash analysis revealed two segments that had an overrepresented amount of fatal and serious injury crashes. Most of the fatal and serious crashes were caused by drivers crossing over the centerline into the opposite direction of traffic resulting in head-on crashes or sideswipe (opposite direction) crashes. These crash types are occurring along rural areas where the highway is undivided with high posted speed limits. **Figure 20** displays the two segments including the areas from (1) Pike Road to Arapahoe Road and (2) Park Ridge Avenue to the Boulder County/Larimer County border. A center median barrier is recommended in these two segments to improve safety and mitigate crossover crashes. **Appendix E** displays the conceptual design and cost estimate for the two segments identified for installing a center median barrier.

Figure 20. Center Median Extents and Crossover Crashes





US 287 Vision Zero Safety & Mobility Study

Table 2 and **Table 3** display the number of head-on and sideswipe (opposite direction) crashes in the two segments. Although crossover crashes are about 11-13% of total crashes in this segment, they result in a significant number of serious and fatal crashes. Half of the serious injury crashes and 83% of the fatal crashes in the Arapahoe Road to Pike Road segment are the result of a crossover crash. Over half of the serious injury crashes and one-third of the fatal crashes in the Park Ridge Avenue to Boulder County/Larimer County border segment are the result of a crossover crash.

Table 2. Non-Intersection Crash Data Summary from Arapahoe Road to Pike Road

ARAPAHOE ROAD TO PIKE ROAD SUMMARY	ALL CRASHES (#)	HEAD-ON CRASHES (#)	SIDESWIPE -OPPOSITE DIRECTION (#)	CROSSOVER CENTERLINE CRASHES (HEAD-ON AND SIDESWIPE)	
				# OF CRASHES	% OF CRASHES
Total Crashes	311	18	17	35	11%
Serious Injury Crashes	16	5	3	8	50%
Fatal Crashes	6	5	0	5	83%

**Crossover crashes are a summary of head-on and sideswipe (opposite direction) crashes.*

Table 3. Non-Intersection Crash Data Summary from Park Ridge Avenue to Boulder County/Larimer County Border

PARK RIDGE AVENUE TO BOULDER COUNTY/ LARIMER COUNTY BORDER SUMMARY	ALL CRASHES (#)	HEAD-ON CRASHES (#)	SIDESWIPE -OPPOSITE DIRECTION (#)	CROSSOVER CENTERLINE CRASHES (HEAD-ON AND SIDESWIPE)	
				# OF CRASHES	% OF CRASHES
Total Crashes	128	5	12	17	13%
Serious Injury Crashes	11	2	4	6	55%
Fatal Crashes	3	1	0	1	33%

**Crossover crashes are a summary of head-on and sideswipe (opposite direction) crashes.*

Table 4 displays the corridor-wide crossover crashes compared to crossover crashes that occurred on the two identified median segments. All the fatalities caused by crossover crashes along the US 287 study area are occurring in these two segments. Over 90% of the serious crashes caused by crossover crashes along US 287 study area are occurring in the two segments.

Table 4. Corridor-wide versus Two Identified Median Barrier Segment Crossover Crash Summary

	CORRIDOR WIDE CROSSOVER CRASHES	PIKE TO ARAPAHOE CROSSOVER CRASHES	PARK RIDGE TO BOCO BORDER CROSSOVER CRASHES	IDENTIFIED MEDIAN SEGMENTS COMBINED CROSSOVER CRASHES	IDENTIFIED MEDIAN SEGMENTS % OF TOTAL CORRIDOR CROSSOVER CRASHES
Total Crashes	73	35	17	52	71%
Serious Injury Crashes	15	8	6	14	93%
Fatal Crashes	6	5	1	6	100%

**Crossover crashes are a summary of head-on and sideswipe (opposite direction) crashes.*





SS4A Grant Application

The total number of crashes, serious injuries, and fatal crashes on US 287 are growing each year, and it is clear from our analysis that the addition of a median barrier in the rural segments of US 287 will help change this trend through crash reduction. Boulder County has not waited to pursue funding strategies until the study was completed. In July 2023, Boulder County submitted a Safe Streets for All Implementation Grant for funding for the construction of median barriers in the two rural segments to the north and south of Longmont to reduce serious injury and fatal crossover crashes.

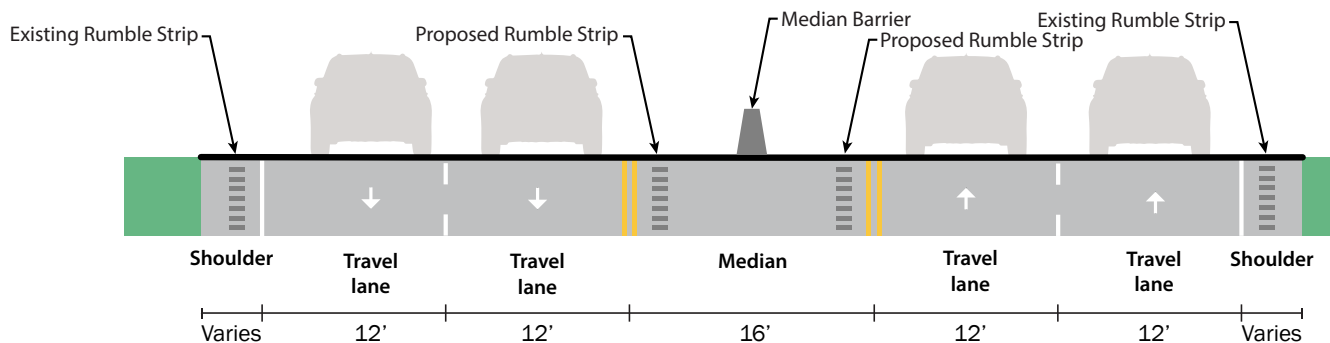
Types of Median Barrier Considered

Several types of median barriers were analyzed, and an alternatives analysis was performed to recommend the preferred type of median barrier. Discussion of the alternatives analysis can be found in the Median Barrier Alternatives Analysis Memorandum located in **Appendix D**. From the analysis and conversations with Boulder County and CDOT, it was determined that cast-in-place concrete (example shown in the image below) was the preferred median barrier selection. **Figure 21** displays the proposed median barrier cross section on US 287.

Example of a Cast-In-Place Concrete Barrier, US 85 (Santa Fe) between Aspen Grove and Sumner



Figure 21. US 287 Proposed Median Barrier Cross Section

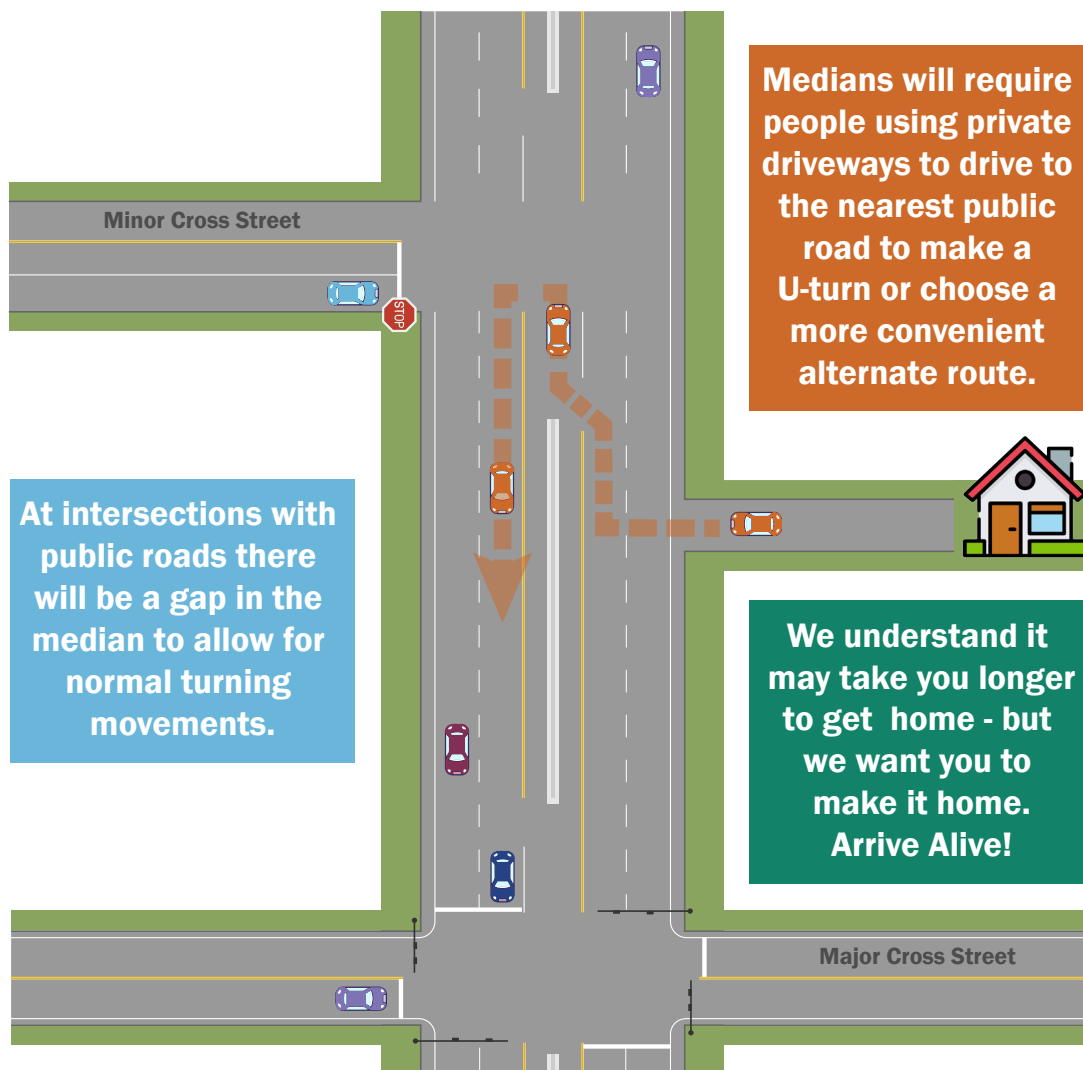


Access Changes and Coordination with Emergency Services

The center median barrier will allow left-turns and U-turns at all signalized and stop-controlled public roadways and will restrict left-turns at most or all private accesses. Drivers accessing private residences will be expected to make a U-turn in one direction of travel or take an alternate route to access the property. **Figure 22** displays a visual of the out of direction travel and U-turn movement expected to and from private properties.

A meeting with Emergency Services was hosted virtually on September 15, 2023 to learn the needs required by emergency services for the U-turns so that the center median barrier does not impact emergency response times. **Appendix F** displays the meeting materials and notes from the emergency services coordination meeting. Emergency services were provided with the conceptual design for review and comment, and comments received were incorporated into the conceptual design

Figure 22. Visualization of U-turn Movements to/from Private Accesses



Note: This diagram provides a visual representation of travel for drivers entering or leaving private driveways restricted by center medians. The intersections shown in the graphic are conceptual only and do not represent roadway characteristics found at many intersections, such as turn lanes.



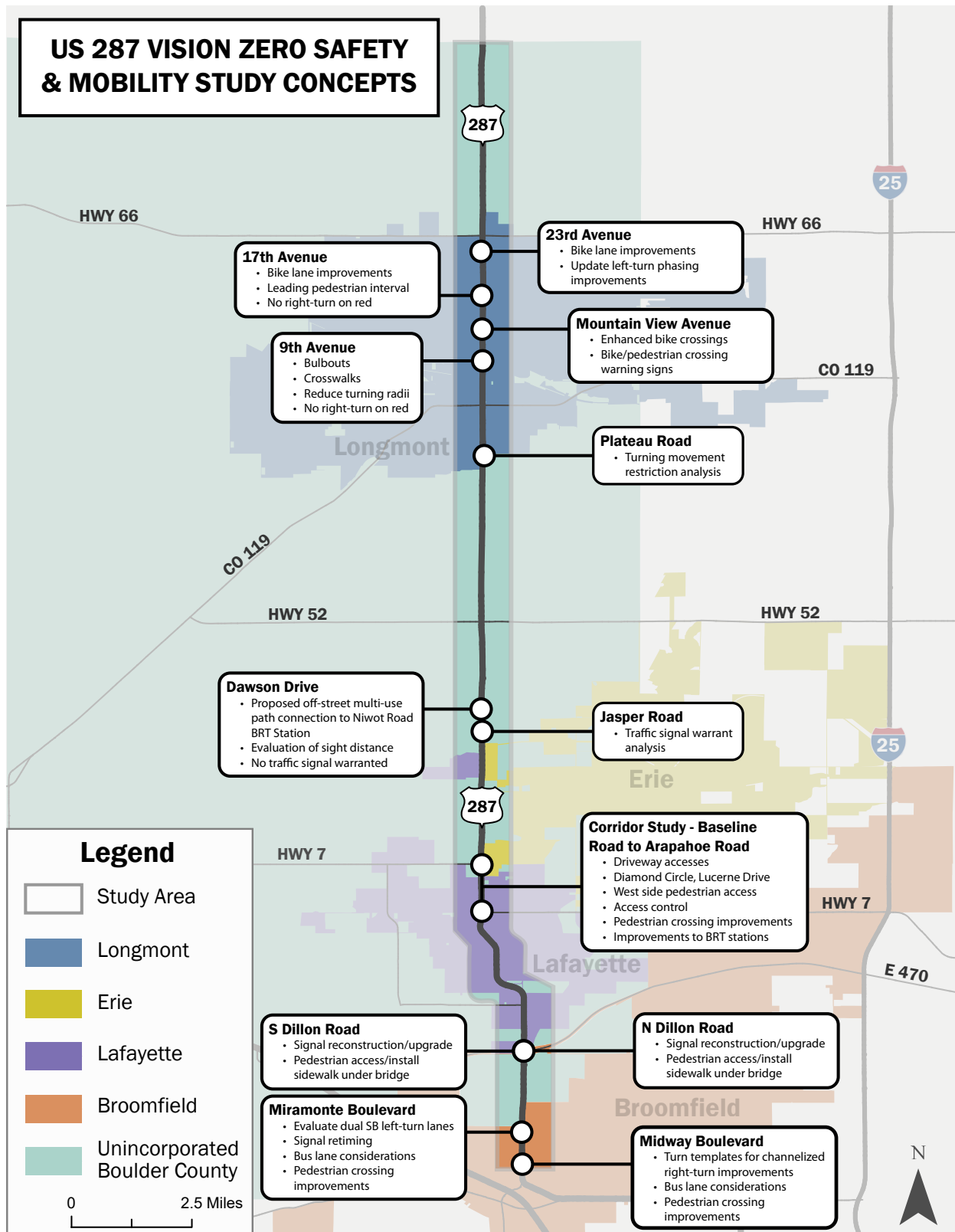
Center Median Barrier Next Steps

The following items will continue to be analyzed as the center median barrier moves into the final design phase:

- Additional outreach to property owners whose access will be impacted.
- Identification of location of additional median openings for U-turns (mid-block) based on emergency services needs and distances between public accesses.
- Consideration of additional locations of median openings to accommodate U-turns where openings between public access roadways are greater than one mile.
- Accommodation and typical operations of emergency services vehicles along the US 287 corridor.
- Evaluation of signal operations that may need to be updated to accommodate U-turns during emergency vehicles responses to ensure opposing traffic has a red light when fire trucks are making a U-turn to ensure there are no conflicting movements.



Figure 23. US 287 Concept Design Locations





Conceptual Design Locations

Locations along the US 287 corridor were selected for further evaluation and development of conceptual designs. **Figure 23** displays a summary of the locations that were selected for the creation of conceptual design and a summary of the recommendations. A planning-level environmental analysis was also completed to identify environmental considerations at each of the conceptual design locations. The conceptual design locations are described in more detail in this section and detailed conceptual designs and cost estimates are located in **Appendix H**.

Longmont Pedestrian Improvement Intersections

Project Background and Existing Conditions

There are several intersections in downtown Longmont that were identified as having a pedestrian and bicycle crash trend. CDOT has completed conceptual designs to improve pedestrian and bicycle safety at 9th Avenue, Mountain View Avenue, 17th Avenue, and 23rd Avenue. At the time this report is published, CDOT is in the process of contracting with a subconsultant to advance the concepts into final design. Many of the crashes at this intersection involve pedestrians and bicyclists including left and right turns failing to yield to pedestrians and bicyclists and right-turn-on-red drivers striking a bicycle traveling on the sidewalk in the counterflow direction. Our study recommends moving these CDOT concepts forward to improve multimodal safety.

Recommendations

Many of the recommendations at 9th Avenue, Mountain View Avenue, 17th Avenue, and 23rd Avenue include improving pedestrian and bicycle safety at the intersection. These improvements include upgrading left-turn phasing to protected-only or permitted protected to minimize vehicle-vehicle and vehicle-pedestrian/bicycle conflicts, restricting right-turn-on-red, improving signage to raise awareness for turning drivers to yield to pedestrians and bicyclists, leading pedestrian intervals, and adding signage on the sidewalk to educate bicyclists to not ride on sidewalks and in the opposite direction of traffic. It is recommended that signage and restrictions to encourage multimodal safety improvements are consistent throughout the corridor so drivers, pedestrians, and bicyclists can expect and have consistent restrictions throughout the corridor.

Plateau Road

Project Background and Existing Conditions

The US 287 & Plateau Road is a three-leg intersection that is side street stop controlled on Plateau Road. The intersection has a broadside crash trend where eastbound left-turns are failing to yield right-of-way. A traffic signal warrant analysis was recently completed as part of the Wallace 4th Addition Traffic Study and the intersection did not meet traffic signal warrants in the existing conditions, but met warrants in the future conditions. However, the City of Longmont does not have plans to signalize this intersection in the next 10 (ten) years.

Recommendations

Turning movement restrictions are recommended to update the intersection to a right-in/right-out or $\frac{3}{4}$ movement. A traffic and diversion analysis was performed which determined that the turning movement restrictions would not have negative impacts on adjacent intersections.

Dawson Drive

Project Background and Existing Conditions

The US 287 & Dawson Drive intersection is a three-leg intersection that is side street stop controlled on Dawson Drive. Although there is not a crash trend at this intersection, it is the entrance to the Alexander Dawson School and was identified as a high priority location based on the extensive public feedback received. CDOT completed a traffic signal warrant in Spring 2023 and the intersection did not meet traffic signal warrants per Chapter 4C in the Manual on Uniform Traffic Control Devices (MUTCD). Dawson Drive would likely be a location where U-turns are allowed after median barrier installation. There were comments during the Technical Advisory Group Meeting about sight distance concerns regarding U-turns due to the downgrade slope north of the intersection. As a result, the project team performed a sight distance evaluation at this intersection.





Analysis Results

The project team referenced AASHTO guidelines and standards to determine the required stopping sight distance based on the speeds on the corridor. It was found that there is over 1,000 feet of sight distance, which is greater than the required sight distance outlined by AASHTO. No right of way (ROW) acquisition or easement is anticipated, and therefore the potential to impact historic and environmental resources is low. When geometric changes to the intersection occur, such as installation of a center median barrier or a barrier as part of a Walk-Bike Path, it is recommended that the sight distance be re-evaluated.

Jasper Road

Project Background and Existing Conditions

The US 287 & Jasper Road intersection is a four-leg side street stop-controlled intersection. The intersection was identified as having a westbound left-turn broadside crash trend. A traffic signal was initially recommended as a mitigation measure and a traffic signal warrant analysis was conducted utilizing guidelines and methodology provided in the Federal Highway Administration's (FHWA) Manual on Uniform Traffic Control Devices (MUTCD, 2009 Edition). Under Chapter 4C: Traffic Control Signal Needs Studies in the MUTCD, there are nine warrants for installation of traffic control signals. Three of the nine warrants were evaluated: Warrant 1-Eight-Hour Vehicular Volume, Warrant 2-Four-Hour Vehicular Volume, and Warrant 3-Peak Hour.

Analysis Results

Updated traffic counts were not collected as part of this project, but there were historical counts recorded close to the intersection. Historical CDOT Online Transportation Information System (OTIS) data was used from June 15, 2017 on US 287 south of Lookout Road. Town of Erie collected Average Daily Traffic (ADT) data on August 13, 2023 on Jasper Road west of 119th Street. The traffic count location was approximately 1.5 miles east of the US 287 & Jasper Road intersection. The two historical counts were used for estimation purposes only to determine if a traffic signal warrant was estimated to be clearly met, clearly not met, or could be met due to data being close to thresholds. Based on the available data, it is estimated that the intersection may meet traffic signal warrants as the threshold for Warrant 2: Four-Hour Warrant is very close to being met. As a result, it is recommended that updated traffic data be collected, and a signal warrant analysis should be completed.

Baseline to Arapahoe

Project Background and Existing Conditions

The US 287 corridor between Baseline Road and Arapahoe Road has seen an increase in development over the last several years which has created the need for improved pedestrian and bicycle connections and access control management. There is also a BRT Super Station planned south of the US 287 & Arapahoe Road intersection that would serve both the future CO 7 BRT and US 287 BRT routes. Additionally, speed limits in the area are inconsistent in the northbound and southbound directions and may be too high for the new land uses.

Recommendations and Cost Estimate

Cost: \$5,100,000

Arapahoe Road

- Two historic stone pillars are located within the ROW (5BL.432 - Road to Remembrance Gateway - Officially Eligible), which may require evaluation for direct and indirect impacts as a result of improvements to Arapahoe Road. Coordination with local jurisdictions and compliance with the Colorado State Register of Historic Places (SRHP) may be required.
- Install raised crossing in the channelized right-turn lane to improve pedestrian and bicycle crossings. This improvement requires local municipalities to assume maintenance responsibilities or for CDOT to change its maintenance practices.
- Install new Walk-Bike Path connection on the west side of the street south of the intersection.
- Widen the existing sidewalk on the east side of the street south of the intersection.
- All other improvements will be recommended as part of the Super Station project.





US 287 Vision Zero Safety & Mobility Study

Lucerne Drive

- Reconstruct corners of intersection to accommodate directional pedestrian ramps and realign pedestrian crossings.
- Install median islands for the north leg and south leg crossings. The pedestrian crossing interval on the north and south legs of the intersection will accommodate a pedestrian crossing the entire distance, but the refuge islands will force turning drivers to slow down.
- Restrict westbound right-turn on reds to eliminate vehicle-pedestrian/bicycle conflicts due to insufficient sight distance due to the brick wall on the southeast corner of the intersection.

Diamond Circle

- Reconstruct corners of intersection to accommodate directional pedestrian ramps and realign pedestrian crossings.

Baseline Road

- Reconstruct channelized right-turn islands to accommodate future BRT along US 287. Accommodate 30-60-90 geometry in the channelized right-turn lanes where there is no receiving acceleration lane.
- Install raised crossing in the channelized right-turn lane to improve pedestrian and bicycle crossings. This improvement requires local municipalities to assume maintenance responsibilities or for CDOT to change its maintenance practices.

Driveway Accesses

- Install raised crossings. This improvement requires local municipalities to assume maintenance responsibility or for CDOT to change its maintenance practices.

Segment Level Recommendations

- CDOT recently conducted a speed study in this area to evaluate reducing speed limits and updating speed limits to be consistent in each direction. Results of the speed study are expected to be published in early 2024.
- Install 12-foot Walk-Bike Path where there is not one existing (on both east and west sides of street). There are potential WOTUS impacts if the new path is constructed outside of the existing ROW.
- Widen all existing sidewalks that are less than 12-feet to formalize a Walk-Bike Path.

Dillon Road (North and South)

Project Background and Existing Conditions

The US 287 & Dillon Road intersections are four-leg signalized intersections. The Dillon Road North intersection is the on- and off-ramps for the Northwest Parkway Westbound and the Dillon Road South intersection is the on- and off-ramps for the Northwest Parkway Eastbound. Crash trends at these intersections include fixed object crashes, approach turns, broadsides, and rear ends. Fixed object crashes at these intersections typically involve a driver striking a traffic signal pole.

Recommendations and Cost Estimate

Cost: \$4,200,000

The conceptual design was developed to identify multimodal and safety improvements that align with future BRT on US 287. No ROW acquisition or easement is anticipated, and proposed improvements do not extend beyond the existing roadway footprint; therefore, the potential to impact environmental resources is low. The following are the major recommendations identified in the conceptual design:

- Rebuild traffic signals to eliminate traffic signal poles in medians.
- Add signage that will clarify left-turn movements onto Northwest Parkway.
- Reconstruct channelized right-turn islands to accommodate future BRT along US 287. Accommodate 30-60-90 geometry in the channelized right-turn lanes where there is no receiving acceleration lane.
- Install raised crossing in the channelized right-turn lane to improve pedestrian and bicycle crossings. This improvement requires local municipalities to assume maintenance responsibilities or for CDOT to change its maintenance practices.
- Install Walk-Bike Path between Dillon Road North and Dillon Road South to enhance pedestrian connections.
- Provide multimodal connections to the existing Walk-Bike Path north of the intersection and proposed future Walk-Bike Path connection to the south of the intersection.





Miramonte Boulevard

Project Background and Existing Conditions

The US 287 & Miramonte Boulevard intersection is a four-leg signalized intersection. CDOT is proposing to complete updates at the US 287 & Miramonte Boulevard intersection in the short-term. Improvements will include updating intersection geometry to accommodate dual southbound left-turn lanes and updates to signal timing to reduce delay. There is also a crash trend of rear end crashes in the northbound and southbound directions, likely due to congestion and the transition between rural and urban land uses. The 11-mile Lake Link Trail used by bicyclists and pedestrians crosses at this intersection.

Recommendations and Cost Estimate

Cost: \$650,000

The conceptual design was developed to identify multimodal and safety improvements that align with future BRT on US 287. One high potential hazardous materials site, a former landfill facility, is located on the northeast corner of Miramonte Boulevard. This is a hydrogeologically downgradient facility, where potentially impacted soil, soil vapor, groundwater, and Regulated Asbestos-contaminated Soils could be present. Improvements more than eight feet below ground surface (bgs) may result in workers encountering impacted media. Special handling and/or disposal protocols may be required to properly manage impacted media to protect workers, the public, and the environment. Further, the 287 Detention Pond is located west of US 287, north of Miramonte Boulevard, and potential WOTUS near the proposed bus stop improvements may be associated with this feature. Should impacts occur, Section 404 permitting and compliance with the ESA and Section 106 may be required. The following are the major recommendations identified in the conceptual design:

- Install dual SB left-turn lanes (recommendation from CDOT project).
- Shorten cycle lengths to reducing queuing (recommendation from CDOT project).
- Install directional ramps and re-align pedestrian crossings to improve multimodal connections.
- Extend median noses on north and south legs to accommodate pedestrian refuge island and slow turning drivers.
- Relocate southbound bus stop from near side to far side of intersection (recommendation from US 287 BRT Study).
- Evaluate updating WB left turn to protected only.
- Consider Leading Pedestrian Intervals.

Midway Boulevard

Project Background and Existing Conditions

The US 287 & Midway Boulevard intersection is a four-leg signalized intersection with protected left-turns in the northbound and southbound direction and permitted-protected lefts in the eastbound and westbound directions. There have been several previous planning efforts at the US 287 & Midway Boulevard intersection including: Midway Boulevard Corridor Study, 120th Multimodal Corridor Study, Future US 287 Bus Rapid Transit Study, US 287 & Midway Boulevard Operational Improvements (CDOT), and 2009 EIS for US 36.

Recommendations and Cost Estimate

Cost: \$4,400,000

The conceptual design was developed to identify multimodal and safety improvements that align with future BRT on US 287. There are minor ROW impacts at this location. One high potential hazardous materials site, a current gasoline station, is located on the southwest corner of US 287 and West Midway Boulevard. Underground storage tanks are located on the northern extent of parcel (hydrogeologically upgradient and adjacent to the proposed improvements). Improvements greater than eight feet bgs may result in workers encountering impacted soil and/or groundwater. Special handling and/or disposal may be required to protect workers, the public, and the environment. The potential to impact other environmental resources is low. The following are the major recommendations identified in the conceptual design:

- Install dual SB left-turn lanes (recommendation from CDOT project).
- Evaluate shorter cycle lengths to reduce queuing (recommendation from CDOT project).
- Reconstruct channelized right-turn islands to accommodate future BRT along US 287. Accommodate 30-60-90 geometry in the channelized right-turn lanes where there is no receiving acceleration lane.
- Install raised crossing in the channelized right-turn lane to improve pedestrian and bicycle crossings. This improvement requires local municipalities to assume maintenance responsibilities or for CDOT to change its maintenance practices.
- Consider Leading Pedestrian intervals.
- Discuss potential driveway consolidation with adjacent business owners.





Multimodal Mobility





MULTIMODAL MOBILITY

The need for safe and comfortable north-south routes for walking and biking was identified during the US 287 BRT Feasibility Study. Boulder County, City and County of Broomfield, Town of Erie, City of Lafayette, and City of Longmont all have existing and planned walking and biking facilities along the corridor. These were analyzed in conjunction with key destinations and multimodal links to identify gaps in the walking and biking network along the corridor. **Figures 24** through **27** display the existing and proposed multimodal facilities and connections to future BRT routes and stations within the US 287 study area.

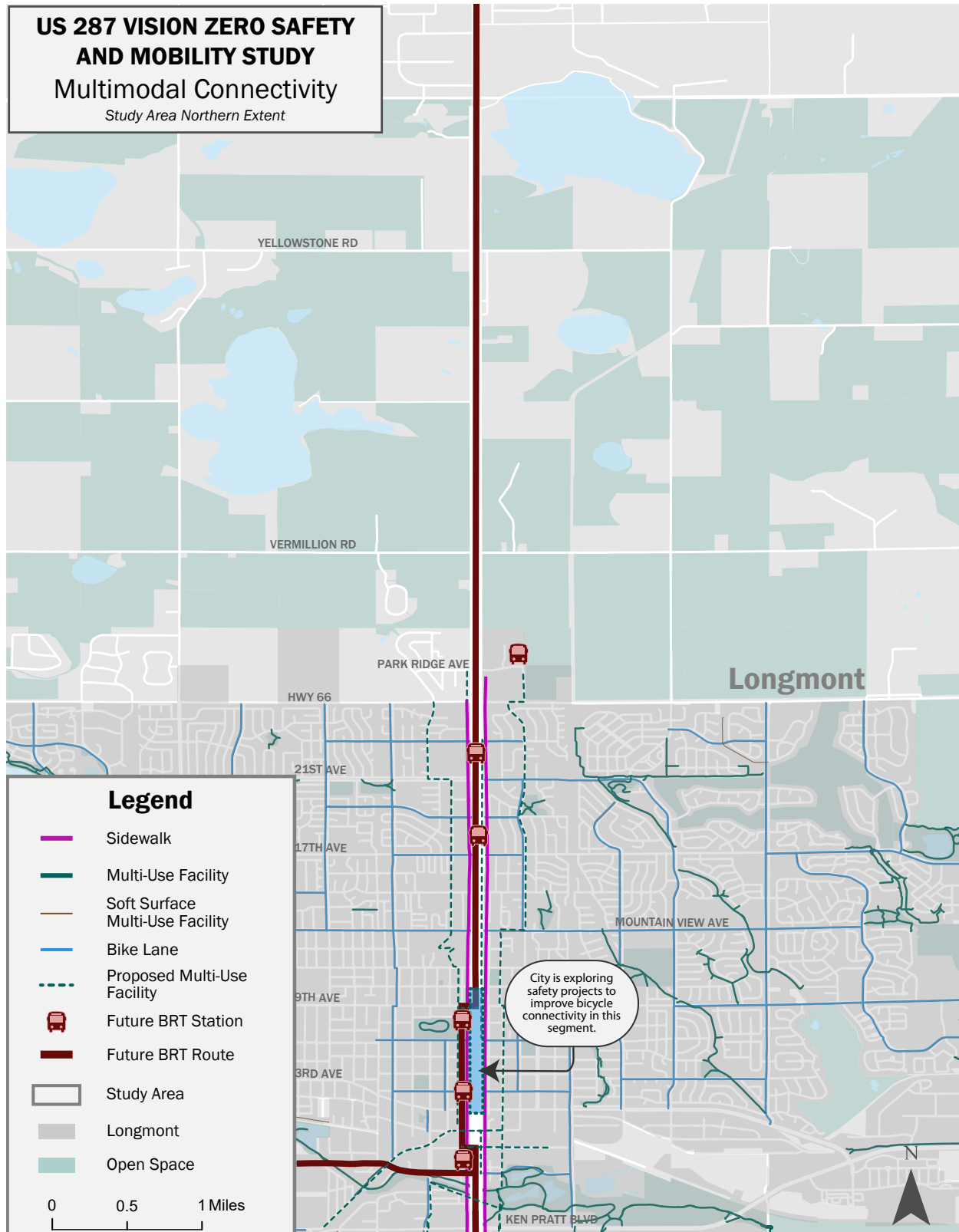
There is generally a cohesive network of walking and biking facilities planned within the municipalities along the corridor. The analysis revealed that there are missing multimodal links between Longmont, Erie, and Lafayette and between Lafayette and Broomfield that require additional planning and were evaluated as part of this study. A feasibility analysis was performed of a north-south facility between Longmont, Erie, and Lafayette and between Lafayette and Broomfield to provide walking and biking connections between municipalities, displayed in **Figure 27**.





US 287 Vision Zero Safety & Mobility Study

Figure 24. US 287 Multimodal Mobility Map – North Segment





US 287 Vision Zero Safety & Mobility Study

Figure 25. US 287 Multimodal Mobility Map – Middle Segment

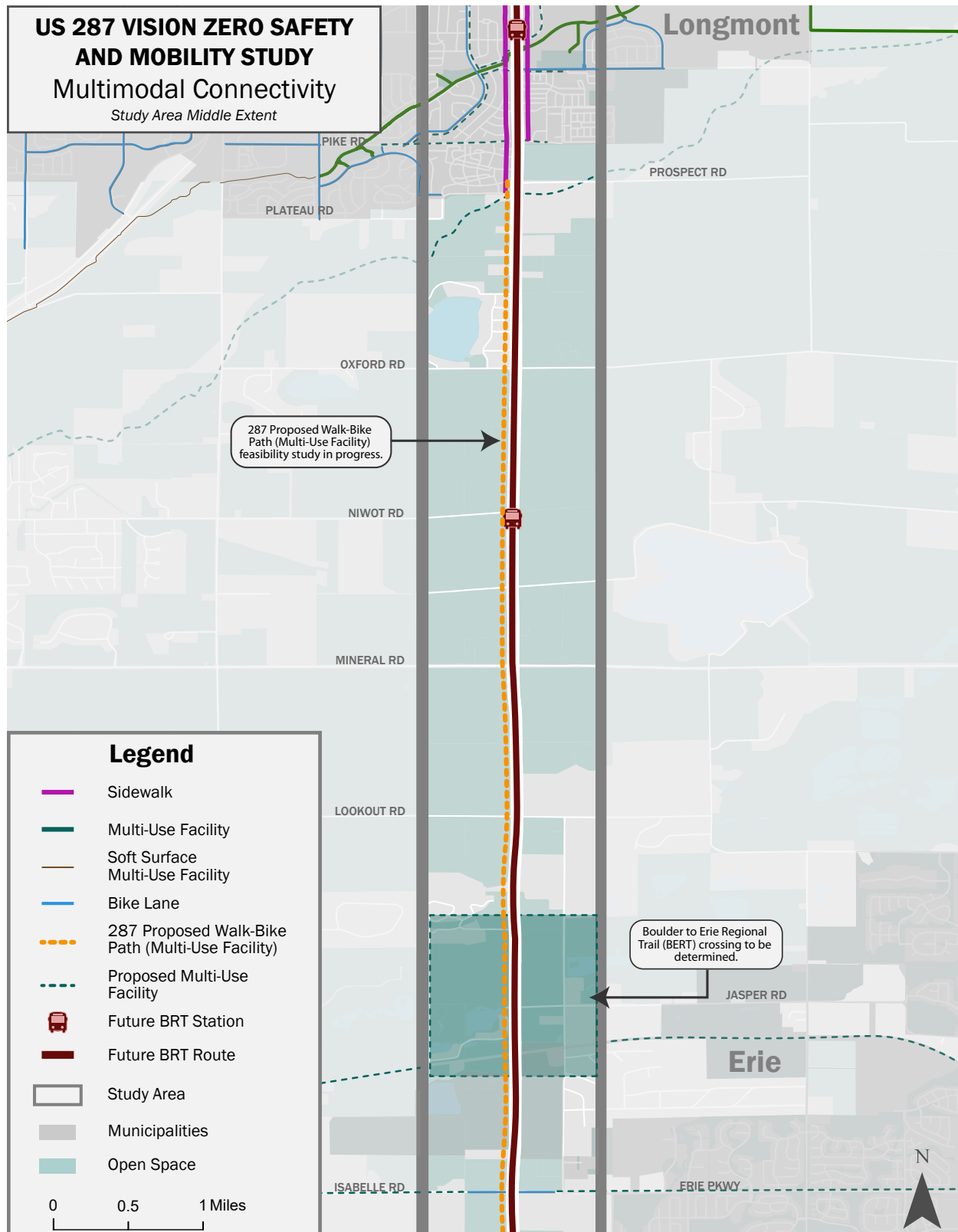


Figure 26. US 287 Multimodal Mobility Map – South Segment

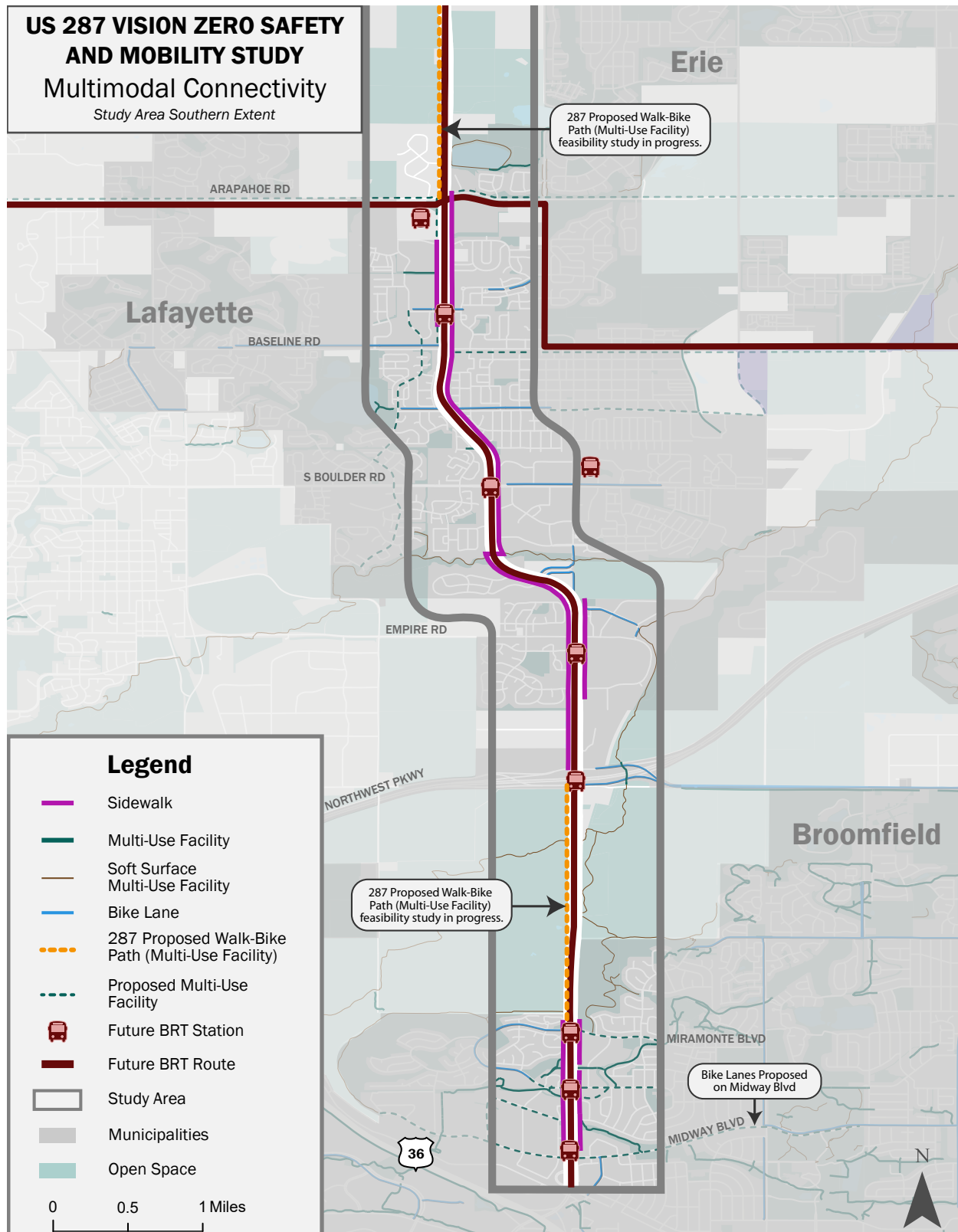
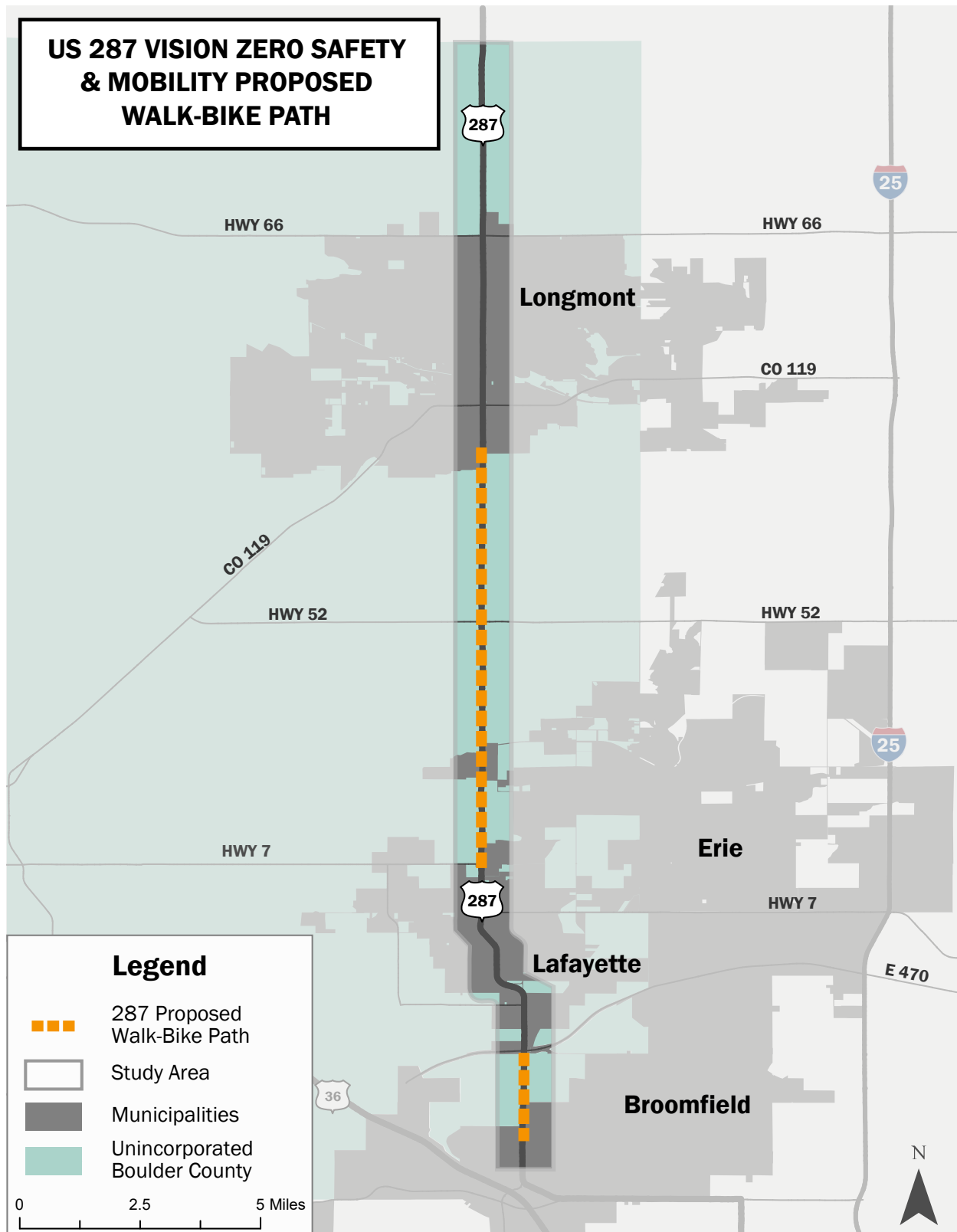




Figure 27. US 287 Walk-Bike Path Extents





Walk-Bike Path Feasibility

There were two areas identified as a north-south gap along the US 287 corridor for a Walk-Bike Path feasibility analysis outside of the municipalities: the segment from Pike Road to Arapahoe Road and the segment between Dillon Road and Miramonte Boulevard. Vehicle volumes, vehicle speeds, and the number of lanes were used to determine the recommended facility type. Due to the high vehicle volumes and speeds, an off-street, separated facility is recommended for both segments.

Goal of Feasibility Analysis: Determine preferred path type, alignment, and considerations for proposed north-south Walk-Bike Path.

CONSTRAINTS:	CONNECTIONS:
<ul style="list-style-type: none">• Right of Way (ROW) – determined if the proposed path fits within ROW or identified if additional ROW would need to be purchased.• Environmental – determined if the proposed path impacts any protected species or natural areas.• Historic Sites – determined if the proposed path intersects any historic sites to be avoided.• Topography – determined if the proposed path intersects any challenges such as steep banks, hills, or water crossings.• Utilities – determined if the proposed path conflicts with existing or planned utility or irrigation infrastructure.• Land Use Considerations – determined if the proposed path directly serves a wide variety of land uses and would integrate with existing land uses.	<ul style="list-style-type: none">• Key Destinations – identified key destinations such as locations of employment, schools, medical facilities, shops, and restaurants that would impact the side of the road of the proposed path to provide safe and comfortable access.• Multimodal Facilities – identified existing and future transit stations, bicycle facilities, and pedestrian facilities that would impact the side of the road of the proposed path to provide safe and comfortable access.
	ASSUMPTIONS:
	<ul style="list-style-type: none">• Hard Surface• Maintained Year Round• 12-foot Minimum Width• Bi-Directional• Separated from Roadway

Right of way varies throughout the corridor, so based on best practices, two cross sections were developed to accommodate adequate safe protection from drivers for bicycles and pedestrians. **Figure 28** displays the cross section for the Walk-Bike Path separated from US 287 by the clear zone (distance). A clear zone is an unobstructed area that allows a driver to stop safely or regain control of a vehicle that has left the road. *CDOT Roadway Design Guide: Chapter 14 – Bicycle and Pedestrian Facilities* and *AASHTO A Policy on Geometric Design of Highways and Streets 2018 7th Edition (Green Book)* were referenced to determine the best practices for this cross section. **Figure 29** displays the recommended cross section for the Walk-Bike Path separated from US 287 by a barrier. This cross section is necessary when there is not adequate right-of-way to accommodate a Walk-Bike Path separated by adequate distance. The *FHWA Small Town and Rural Multimodal Networks* was referenced to determine the best practices for this cross section.

Figures 30 and **Figure 31** display a summary of the right-of-way constraints for the two segments. **Appendix G** displays the roll plots with key constraints identified for each segment of the roadway, including utilities, topographic, and environmental constraints.



Figure 28. Off-street Walk-Bike Path separated by Clear Zone (Distance)

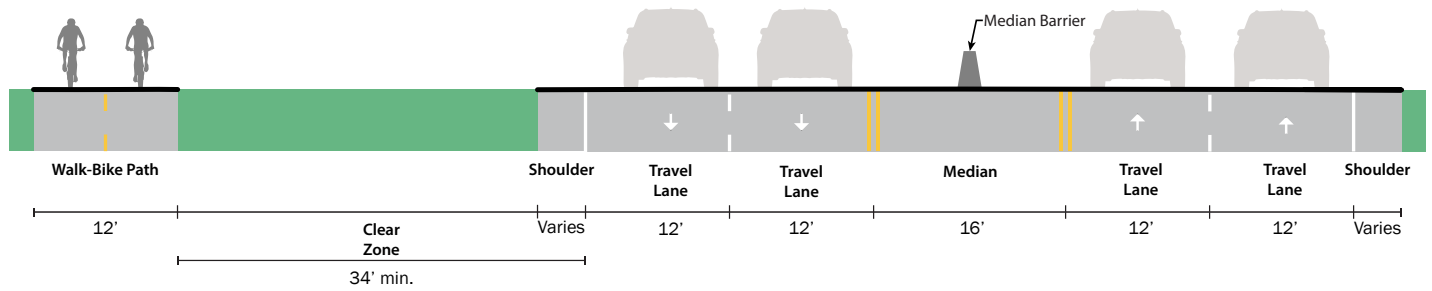


Figure 29. Off-street Walk-Bike Path separated by Barrier

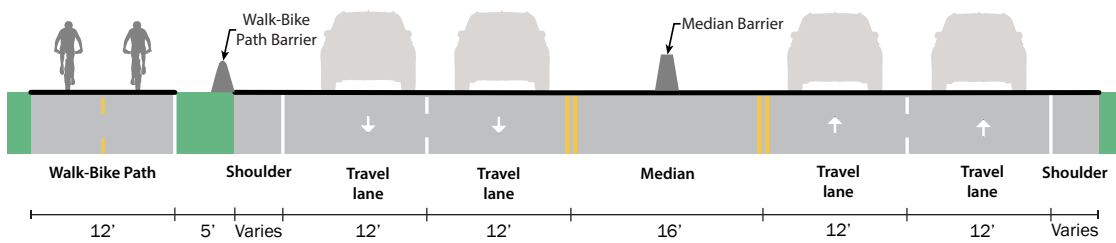


Figure 30. Walk-Bike Path Right-of-Way Feasibility Study – North Segment

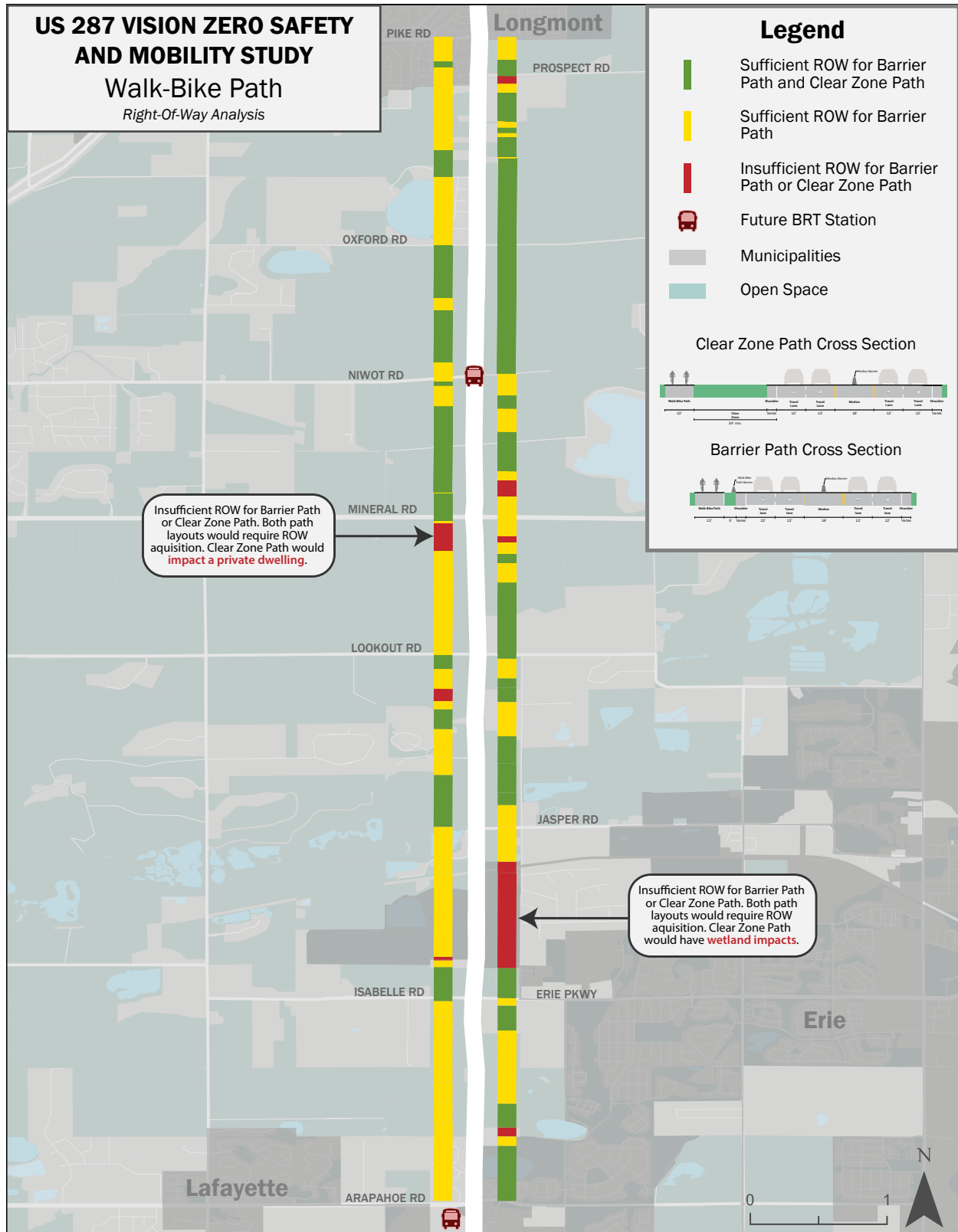
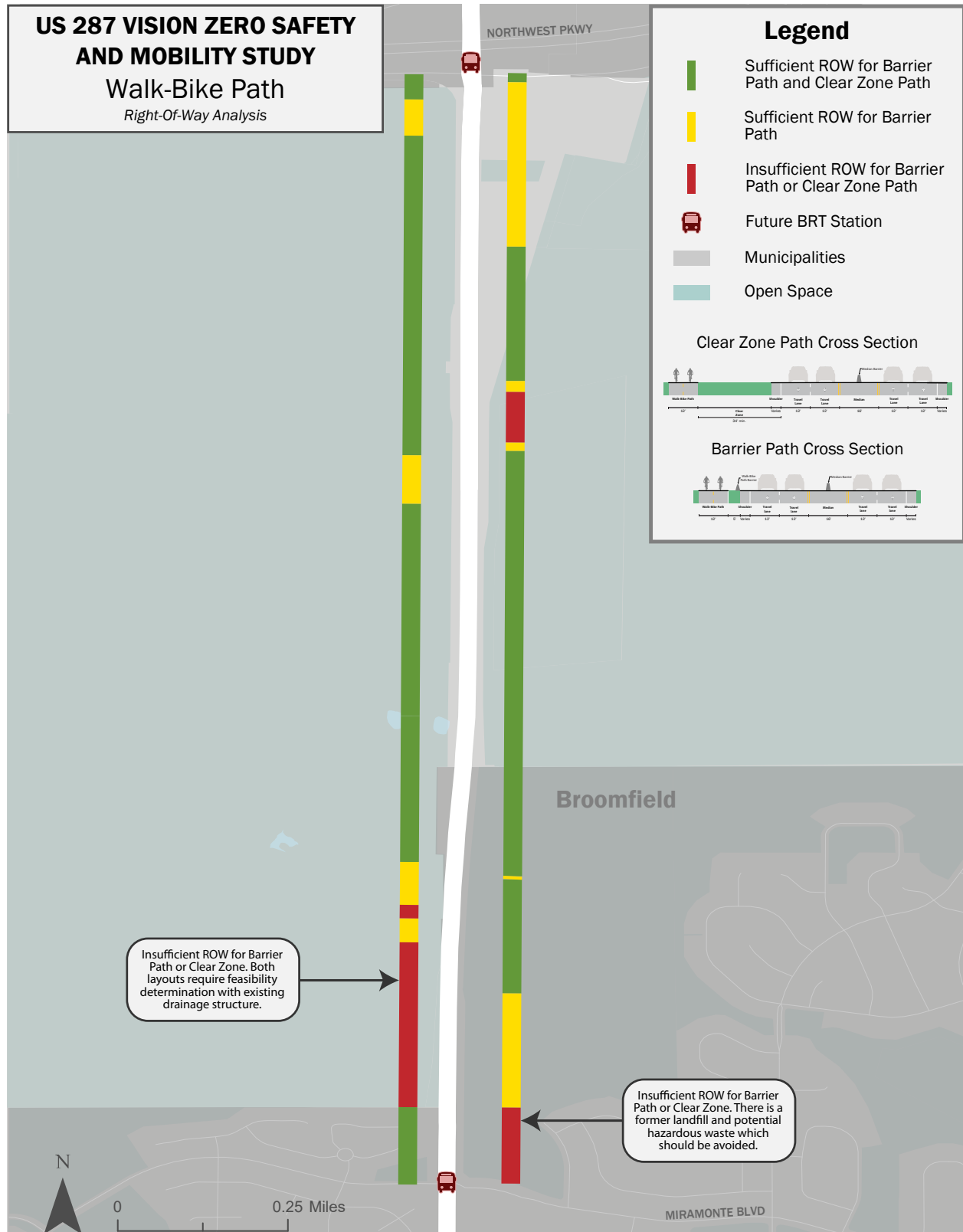


Figure 31. Walk-Bike Path Right-of-Way Feasibility Study – South Segment





Preferred Alignment

The project team reviewed environmental constraints, utility pole impacts, number of bridges that would need to be constructed, right of way acquisition required for the Clear Zone and Barrier Path, and other factors to determine a preferred alignment for the proposed Walk-Bike Path. **Table 5** and **Table 6** summarize the results for the north section from Pike Road to Arapahoe Road and south section from Dillon Road to Miramonte Boulevard, respectively. The tables were calculated using the 34-foot minimum Clear Zone and the Clear Zone distance could change based on increase or decrease in speeds, side slopes adjacent to the roadway, and other roadway features/characteristics.

For the segment from Pike Road to Arapahoe Road, potential WOTUS, sensitive species, and historic resources are the primary environmental considerations along this segment. Siting the Walk-Bike Path on the east side of the roadway, particularly within the Clear Zone, would result in a higher potential impact to potential WOTUS and would likely require a higher level of effort and resources for permitting, mitigation, and compliance. Although there will be more area that can only accommodate the barrier-only section rather than the clear zone section on the west side, there is less overall right-of-way impact (4% compared to 10% on the east side). A tradeoff is that there are more potentially historic and historic resources on the west side and a Bald Eagle nest that may require further coordination with Colorado Parks and Wildlife and USFWS. **Given these considerations, the west side of the roadway is the preferred alignment.**

For the segment from Dillon Road to Miramonte Boulevard, potential WOTUS and historic resources are the main environmental considerations within this segment. The west side Clear Zone may have a higher impact to potential WOTUS and historic resources and require more right-of-way acquisition. **Therefore, the east side of the roadway is the preferred alignment.** Note that there are additional considerations on both sides of the roadway just north of Miramonte Boulevard, summarized in the safety improvements concept design section.

Table 5. Walk-Bike Path Summary – North Section (Pike Road to Arapahoe Road)

	WEST		EAST	
	CLEAR ZONE	BARRIER	CLEAR ZONE	BARRIER
% Wetlands	7.5%	0.8%	19.9%	2.2%
% Open Water	0.2%	0.1%	0.9%	0.3%
# Potential or Historic Resources	40	14	24	14
# Utility Poles to Relocate	2	0	48	0
# Bridges to Construct	5		5	
% Sufficient ROW for Clear Zone or Barrier	36%		61%	
% Sufficient ROW for Barrier Only	60%		29%	
% Insufficient ROW	4%		10%	
# Insufficient ROW Sections	6		7	





Table 6. Walk-Bike Path Summary – South Section (Dillon Road to Miramonte Boulevard)

	WEST		EAST	
	CLEAR ZONE	BARRIER	CLEAR ZONE	BARRIER
% Wetlands	1.3%	0.3%	0.4%	0.5%
% Open Water	0.1%	0.1%	0.1%	0.1%
# Potential or Historic Resources	6	4	6	3
# Utility Poles to Relocate	0	0	0	0
# Bridges to Construct	1		1	
% Sufficient ROW for Clear Zone or Barrier	70%		62%	
% Sufficient ROW for Barrier Only	14%		27%	
% Insufficient ROW	16%		11%	
# Insufficient ROW Sections	5		0	

Intersection Treatments

Operational and safety concerns exist where the proposed Walk-Bike Path crosses driveways and intersections. Refer to section 5.2.2 of the AASHTO Guide for the Development of Bicycle Facilities (4th Edition, 2012) for an identification of potential design issues when crossing intersections. Some resources to reference include:

- *AASHTO Guide for the Development of Bicycle Facilities*
- *FHWA Small Town and Rural Multimodal Networks*
- *FHWA Separated Bike Lane Design Guide*
- *NACTO Don't Give Up at the Intersection*



Minor Street Crossing and Driveways (Unsignalized)

The bend out displayed in **Figure 32** slows bicycle speeds approaching the intersection. **Figure 33** displays the recommended side path separation distance at crossings.

Figure 32. Walk-Bike Path Crossing at Minor Street and Driveways

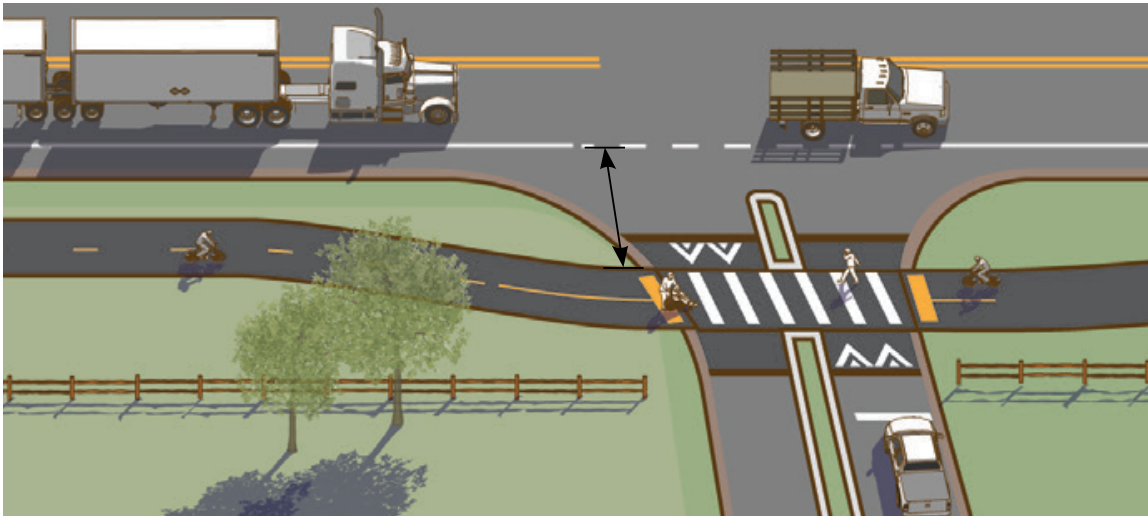


Figure 4-11. Separation distance should be selected in response to speed and traffic intensity. The pathway may need a shift in horizontal alignment in advance of the crossing to achieve desired separation distance. As speeds on the parallel roadway increase, so does the preference for wider separation distance.

Source: Small Town and Rural Multimodal Networks

Figure 33. Walk-Bike Path Separation Distance at Road Crossings

Table 4-2. Sidepath Separation Distance at Road Crossings^(vii)

Adjacent Road Speed Limit (Mi/h)	Recommended Sidepath Separation Distance at Crossings
< 25 mi/h	6.5 ft (2.0 m)
35–45 mi/h	6.5–16.5 ft (2.0–5.0 m)
≥ 55 mi/h	16.5–24 ft (5.0–7.0 m)

*Separation distance may vary in response to available right of way, visibility constraints and the provision of a right turn deceleration lane.

Source: Small Town and Rural Multimodal Networks



Major Street Crossings (Signalized)

The Walk-Bike Path should have a marked crosswalk across major street crossings where the crossing is delineated by white crosswalk pavement markings and should be accompanied by signage. Marked crosswalks would also have curb ramps if there is existing curb and gutter in an area. Additionally, intersections where there are existing channelized right-turn lanes, should also accommodate a raised crossing to enhance pedestrian visibility and slow turning drivers. Raised crossings are not currently maintained by CDOT and would require a change in CDOT maintenance practices or local municipalities to assume maintenance responsibilities.

Signal adjustments should be considered and can include: lengthening of the walk phase in order to allow pedestrians of all abilities enough time to cross, as determined by MUTCD standard of walk speed of 3.5 feet per second; leading pedestrian intervals that give pedestrians and bicyclists the opportunity to enter an intersection three to seven seconds before drivers are given a green indication; bicycle detection that allows signals to change based on the detection of the presence of a bicyclist; turning movement changes that can reduce conflicts by adding protected turning movements into a signal cycle; right turn on red prohibitions.

Walk-Bike Path Next Steps

Implementation of a Walk-Bike Path is a significant undertaking that will require further engineering, design, environmental analysis, and funding.

Ultimately, it is anticipated that the Walk-Bike Barrier Path concepts would not individually or cumulatively result in a significant impact and would likely be advanced into NEPA with a Categorical Exclusion level of study. An Environmental Assessment could be triggered for resources in which a significant impact could be incurred. However, the level of NEPA analysis would ultimately fall to the lead federal agency.





What's Next





WHAT'S NEXT

Implementation of Recommendations

Implementation of the recommendations from the US 287 Vision Zero and Mobility Study Plan will occur in the future, requiring additional funding and on-going partnerships. The timeline will be based on the types of recommendations that are identified in this plan and securing funding for implementation. Boulder County and our partners are committed to actively pursuing grant funding to advance all of the additional study recommendations. The US 287 safety improvements dovetail with the recommendations from the US 287 Bus Rapid Transit Feasibility Study and funding to achieve the combined safety and multimodal mobility improvements are critical for the US 287 corridor as well as the inter-connected Northwest Area Mobility Study (NAMS) system. The next steps working towards implementation of US 287 safety and mobility improvements will take all agency partners continuing to prioritize improvements and leverage creativity, determination, and commitment to this critical corridor.

Near Term Recommendations

Boulder County knows the need for these safety improvements are critical and urgent. Boulder County and our partners recognize that no moment is too soon to save lives. The following are near-term strategies that have been identified throughout this planning process. These near-term mitigations will not solve every safety issue, but we do not want to wait if we can make incremental improvements that might save a life. Some of these strategies are already in progress, and others will be added over time to improve safety for all people using US 287.

- In July 2023, Boulder County submitted a Safe Streets for All Implementation Grant for funding the construction of center median barriers in the two rural segments to the north and south of Longmont to reduce serious injury and fatal crossover crashes.
- In Fall 2023, CDOT completed a Speed Study Pilot to determine if speed limits should be lowered.
- Following the signing in June 2023 of Senate Bill 23-200 permitting automated speed camera enforcement, CDOT is now considering implementing speed photo radar along the US 287 corridor.
- Implementation of rumble strips along the center turn lane is recommended to be prioritized as an interim safety measure prior to center median barrier installation. Rumble strips currently exist along the edge of the shoulder in most locations along the corridor. CDOT is currently working on adding rumble strips where there are gaps.
- Traffic signal timing improvements and visibility enhancements, such as traffic signal backplates and advance warning signs, to reduce crashes resulting from red light running. The City of Longmont is already in the process of upgrading their traffic signal system to efficiently update traffic signal timing.

Long-Term Recommendations

Long-term recommendations, such as constructing a center median barrier, require identifying funding sources and require multi-agency coordination. Many of the multimodal improvements have been recommended in the local municipality Transportation Master Plans and may be moved forward by the municipalities. Strategies for implementation may include:

- Continued coordination with CDOT and identify opportunities to utilize funding identified for US 287 in CDOT's 10-Year Plan and other sources.
- Leverage the upcoming City of Lafayette Transportation Master Plan, City of Longmont Vision Zero Action Plan and the DRCOG Regional Vision Zero Implementation Plan to move projects forward.
- Identify projects to be incorporated into annual municipal budgets and grant funding sources, such as the DRCOG Transportation Improvement Program (TIP) and the USDOT Safe Streets and Roads for All (SS4A) Grant Program.





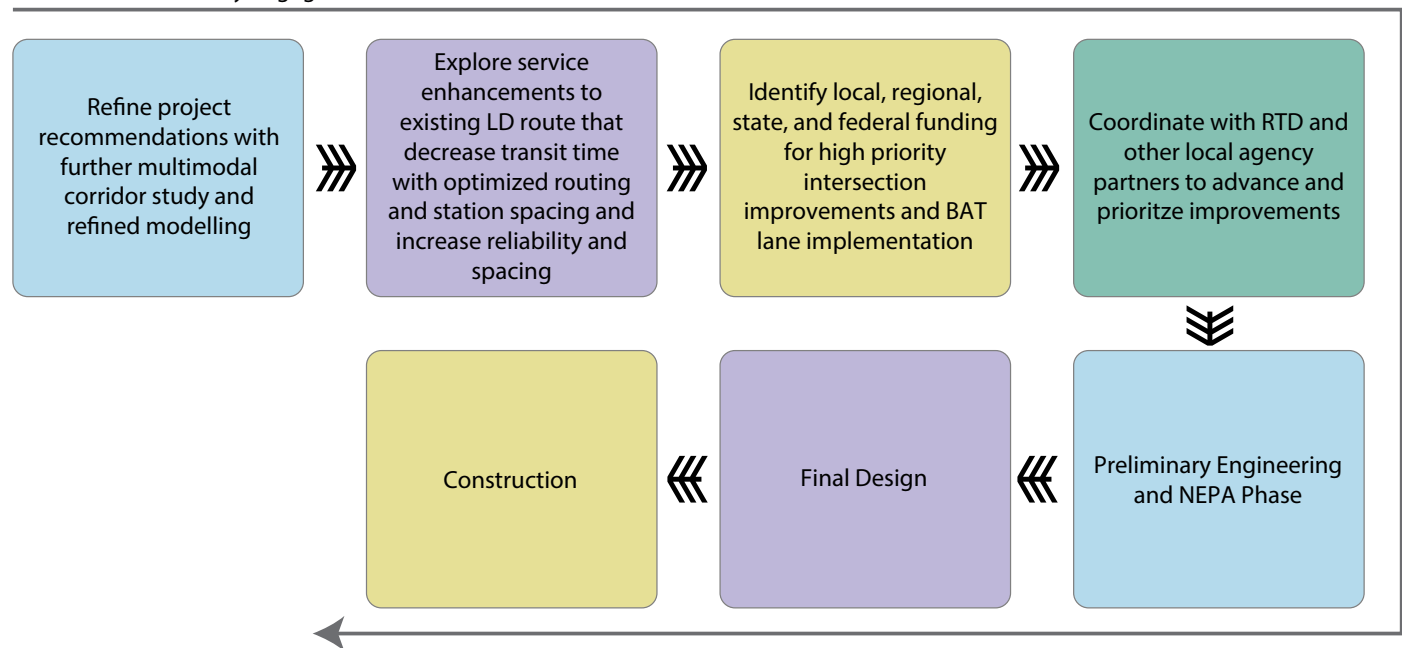
US 287 Center Median Barrier

Boulder County and CDOT applied for a Safe Streets for All (SS4A) Grant in Summer 2023 for design and construction of the US 287 Center Median Barrier. Notification is expected late 2023 or early 2024. If the US 287 Center Median Barrier project is selected for an SS4A award, the project will move into final design and be constructed within five years of receiving funding from the SS4A Grant. If the US 287 Center Median Barrier project is not selected for an SS4A award, Boulder County and CDOT will begin looking at other options to move the project forward such as identifying other federal funding sources, funding segments of the median by priority order as funding becomes available, and looking at temporary or less costly solutions that may be able to be funded in the short term.

US 287 Bus Rapid Transit

The US 287 Bus Rapid Transit Feasibility Study was completed in April 2022 to create a vision for US 287 with BRT and found that BRT can and will work on US 287 with the appropriate operational and capital investments. The next steps working towards implementing BRT is to develop an implementation plan and identify project funding strategies. The project may be eligible for federal funding and supplemented with local funding sources. Identifying, applying, and receiving federal funding is likely to be a multi-year process. The graphic below describes the next steps towards BRT implementation.

Continued Community Engagement



US 287 Coalition

The US 287 Coalition was formed to create a forum for inter-regional planning and multi-agency collaboration to address existing and growing travel demand and safety along the US 287 corridor. The Coalition will continue to meet quarterly after project completion to increase mobility and improve safety for all modes of travel by moving forward recommendations from the US 287 BRT Feasibility Study and the US 287 Vision Zero and Mobility Study.





Appendices





APPENDICES

- A.** Community Outreach Summaries
- B.** Safety Recommendations Summary
- C.** Safety Toolbox
- D.** Center Median Barrier Memorandum
- E.** Center Median Barrier Conceptual Design
- F.** Emergency Services Coordination Meeting Summary and Technical Memorandum
- G.** Walk-Bike Path Feasibility Roll Plots
- H.** Supplemental Conceptual Design Packets and Cost Estimates
- I.** Environmental Conditions Report (in progress)

