CARROLL COUNTY

SAFE STREETS & ROADS FOR ALL

Safety Action Plan

May 2025

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Project Partners

Thank you to all of the community members who contributed to this process by sharing thoughts and personal stories about how road safety has affected you. Your input is integral in the Safety Action Plan and for the foundation of a safe Carroll County.

PROJECT MANAGEMENT TEAM

Carroll County

Georgia Department of Transportation

Atlanta Regional Commission

Federal Highway Administration

CONSULTANT TEAM

Pond & Company

Heath & Lineback

MPH Associates, Inc.

STAKEHOLDER ADVISORS

Carroll County Chamber

Carroll County Maintenance

Carroll County Public Works

Carroll County Schools

Carroll County Sheriff Office

Major Craig Dodson

Carroll Electric Membership Cooperative

Carrollton Police

Federal Highway Administration

GDOT District 6

GDOT Office of Planning

GDOT State Safety Engineering

Georgia Power

Tanner Health/West Georgia Ambulance

Three Rivers Regional Commission

West Georgia Local Emergency Planning Committee

Carroll County Board of Commissioners

Chairman Michelle Morgan

City of Bowdon

City of Carrollton

City of Mount Zion

City of Temple

City of Villa Rica

Town of Roopville

Town of Whitesburg

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CHAPTER I.

INTRODUCTION

What is the SS4A program?

The Safe Streets and Roads for All (SS4A) program, launched by the U.S. Department of Transportation under the Bipartisan Infrastructure Law, aims to eliminate roadway fatalities and severe injuries across the United States. Through Planning and Demonstration Grants and Implementation Grants, SS4A supports communities in developing comprehensive Safety Action Plans and implementing projects to address critical transportation safety challenges.

Carroll County, Georgia, with a population of approximately 127,000 residents, is a proud recipient of an SS4A Planning and Demonstration Grant. The County is committed to improving transportation safety through a community-driven Safety Action Plan. This plan incorporates proactive strategies, quick-win initiatives, and the integration of safety countermeasures into ongoing and planned projects. By focusing on low-cost, high-impact solutions and prioritizing equitable outcomes through extensive outreach and data collection, Carroll County aims to make its roadways safer for all users.

In the following sections, this report will outline and explore needs and suggestions for Carroll County based on the SS4A framework and the community's needs.

SAFETY ACTION PLAN COMPONENTS


Leadership Commitment and Goal Setting


Planning Structure


Safety Analysis


Engagement and Collaboration


Equity Considerations


Policy and Process Changes


Strategy and Project Selections


Process and Transparency

SAFE SYSTEM APPROACH

Central to SS4A is the Safe System approach, which prioritizes safe speeds, self-enforcing roadway designs, and equitable safety measures to protect all road users, including pedestrians, cyclists, and motorists. This holistic framework fosters safer streets, enhances quality of life, and ensures systematic responses to transportation safety concerns.

The Safe System Approach has six key principles:

1 Death and Serious Injuries are Unacceptable
A Safe System Approach prioritizes the elimination of crashes that result in death and serious injuries.

2 Humans Make Mistakes
People will inevitably make mistakes and decisions that can lead or contribute to crashes, but the transportation system can be designed and operated to accommodate certain types and levels of human mistakes, and avoid death and serious injuries when a crash occurs.

3 Humans Are Vulnerable
Human bodies have physical limits for tolerating crash forces before death or serious injury occurs; therefore, it is critical to design and operate a transportation system that is human-centric and accommodates physical human vulnerabilities.

4 Responsibility is Shared
All stakeholders—including government at all levels, industry, non-profit/advocacy, researchers, and the general public—are vital to preventing fatalities and serious injuries on our roadways.

5 Safety is Proactive
Proactive tools should be used to identify and address safety issues in the transportation system, rather than waiting for crashes to occur and reacting afterwards.

6 Redundancy is Crucial
Reducing risks requires that all parts of the transportation system be strengthened, so that if one part fails, the other parts still protect people.

Source: FHWA

PRIORITIES

The major priorities of the SS4A program are designed to maximize the programs impact and address the most pressing safety concerns. Priority areas include **high-risk locations**, **vulnerable road users**, and **areas with the highest equity and accessibility needs**. These categories have been allocated to different areas in Carroll County based on data analysis, stakeholder engagement, and community engagement.

Figure 1.1 Safe System Approach
Source: FHWA

What is Vision Zero?

VISION ZERO

IS NOT A SLOGAN...
NOT A TAGLINE...
NOT EVEN A PROGRAM.

VISION ZERO IS FUNDAMENTALLY DIFFERENT.

IT IS A PARADIGM SHIFT.

Source: Vision Zero Network

This Safety Action Plan represents a key milestone in Carroll County's journey toward achieving Vision Zero—a goal to eliminate all roadway fatalities and severe injuries. By identifying priority projects and implementing countywide strategies, this plan provides a roadmap for creating a safer, more inclusive transportation system for all.

Vision Zero differs from the status quo in two major ways. First, Vision Zero recognizes that people make mistakes, and the transportation system should be designs to forgive those mistakes. Second, it is a interdisciplinary approach that engages a broad cross section of stakeholders in order to address all of the factors that contribute to road safety.

Carroll County's commitment to achieving Vision Zero represents a shift from traditional traffic safety approaches that primarily emphasize driver behavior and enforcement. While past initiatives have focused on traffic laws, penalties, and individual responsibility to prevent crashes, the Safe System approach takes a more holistic, human-centered perspective. This approach recognizes that human errors are inevitable and prioritizes designing a roadway system that minimizes the risk of fatal and serious injuries. Achieving Vision Zero requires a shared responsibility between roadway users and local governments to create safer streets. By adopting a system-wide focus, Carroll County can implement proactive safety measures that enhance protection for all road users.

TRADITIONAL SAFETY APPROACH VS SAFE SYSTEM APPROACH

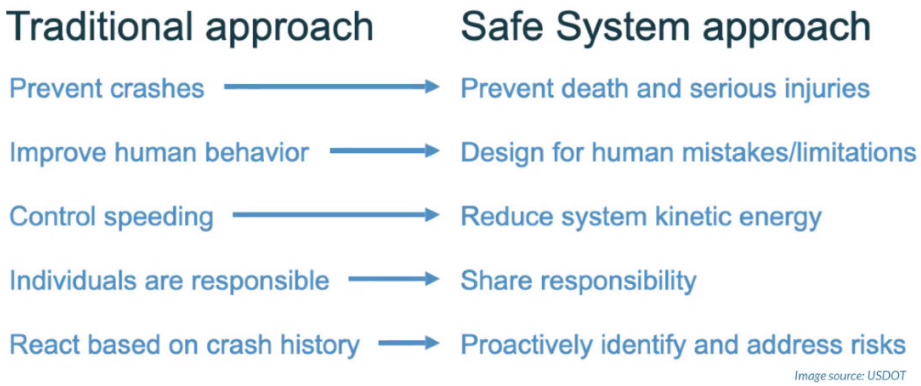
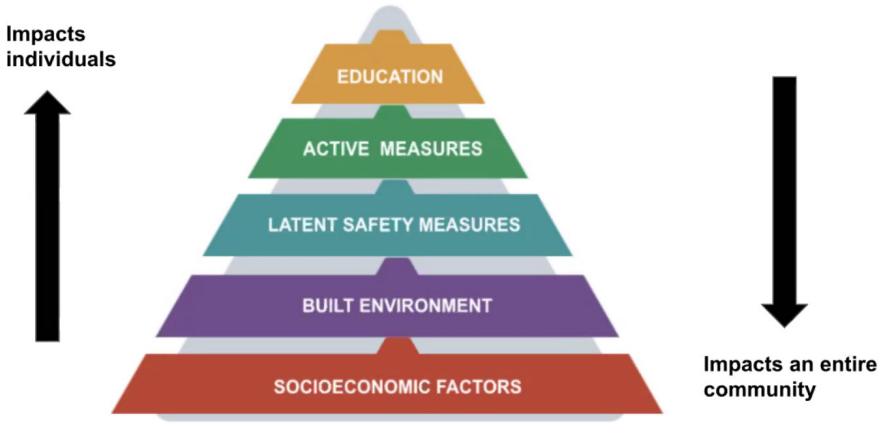


Image source: USDOT

VISION ZERO & THE SAFE SYSTEM PYRAMID



Source: Ederer, et al

The Safe System Pyramid organizes safety measures into a hierarchy based on their effectiveness and overall impact on individuals and the community. Each layer contributes to building a safer, more resilient transportation system:

- **Education** serves as the foundation, raising awareness and promoting safe road behaviors.
- **Active measures** involve enforcement and interventions that directly reduce unsafe behaviors.
- **Latent safety measures** help mitigate the severity of crashes when they occur.
- **The built environment** focuses on designing roadways and infrastructure that inherently promote safe travel.
- **Socioeconomic factors** ensure equitable access to safety measures, particularly for vulnerable and underserved communities.

While education and enforcement influence individual behavior, they have limited reach. In contrast, infrastructure improvements and addressing socioeconomic disparities create widespread, long-term safety benefits.

TRANSLATING THE PYRAMID TO VISION ZERO

To align with Vision Zero, the Safe System approach prioritizes systemic change over individual responsibility. The Vision Zero Network advocates for a top-down strategy, where government-led policies, legislation, and organizational practices drive safety improvements. Building coalitions and fostering partnerships further strengthens these efforts, while community education plays a supporting role. This shift moves away from blaming road users and instead focuses on redesigning the transportation system to eliminate fatal crashes in Carroll County.

Safety Action Plan Process

2024

JAN — FEB — MAR — APR — MAY — JUN — JUL — AUG — SEP

PROJECT INITIATION

STAKEHOLDER MEETING #1

Apr 23

- SS4A Overview
- Review Safety Analysis
- Stakeholder Goals and Priorities
- Needs Assessment
- Stakeholder Roles and Next Steps

PUBLIC MEETING #1

May 16

- Review of Safey Analysis

STAKEHOLDER MEETING #2

July 18

- Safety Management Process
- Review High Injury Network
- SMART Project Identification and Program Development

2025

OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY

PUBLIC MEETING #2

October 15

- Review project evaluation metrics
- Review high crash rate intersections and segments
- Review High Injury Network

STAKEHOLDER MEETING #3

October 24

- Engagement Summary
- Project Evaluation Metrics
- Project Prioritization Matrix
- Policy and Programs

DRAFT SAFETY ACTION PLAN

Mar 26

- Review of Safey Analysis

COUNTY BOARD OF COMMISSIONERS ADOPTION

Apr 1

- Safety Action Plan adoption by BOC

What's in the Action Plan

The Carroll County Safety Action Plan consists of seven key sections that incorporate the most relevant data, feedback, and recommendations to promote Vision Zero throughout Carroll County.

CHAPTER 2: RELEVANT POLICY

This chapter provides an overview of the existing policies and regulations that impact roadway and pedestrian safety in Carroll County. The policy framework included a review of local policies related to road safety.

CHAPTER 3: WHAT WE'VE HEARD

The recommendations set forth in this plan have been created based on the extensive feedback and engagement with the stakeholders and community of Carroll County.

CHAPTER 4: SAFETY ANALYSIS

A thorough analysis of Carroll County's existing transportation infrastructure, patterns, and data were analyzed.

CHAPTER 5: PROJECT DEVELOPMENT AND PRIORITIZATION

After identifying the safety issues and engaging with stakeholders, a list of projects was identified and prioritized based on a prioritization methodology.

CHAPTER 6: POLICY FRAMEWORK

This chapter establishes a guiding principles and regulations to prioritize safety in transportation design, planning, and operations in Carroll County.

CHAPTER 7: WORK PROGRAM

The work program outlines key initiatives that will improve infrastructure and promote safe travel to enhance roadway safety.

CHAPTER 8: EVALUATION AND MONITORING PROCEDURES

This section outlines the system that will maintain the standard of continuous assessment of roadway safety and improvements in Carroll County.

CHAPTER 9: EDUCATION AND PUBLIC AWARENESS

The Education and Public Awareness section outlines measures that bring awareness of traffic safety risks and promote safe behaviors through community engagement and educational initiatives.

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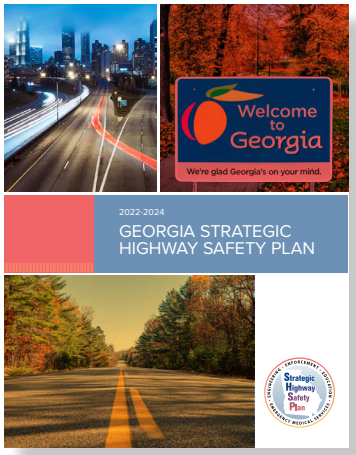
CHAPTER II.

RELEVANT POLICY

This Safety Action Plan was informed by Carroll County's past planning and policy efforts. Many of the county's policies have set a precedent for supporting and advancing the goals of the U.S. Department of Transportation's (USDOT) Safe Streets and Roads for All initiative. Roadway safety in Carroll County is also shaped by policies from the Georgia Department of Transportation (GDOT). This chapter outlines previous policies and initiatives the county has implemented for roadway user safety, which helped inform the recommendations in this plan.

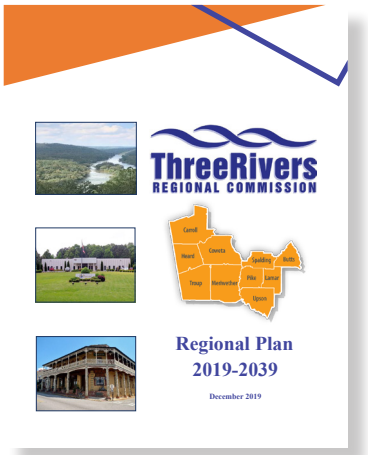
Regional Plans

GEORGIA STRATEGIC HIGHWAY PLAN



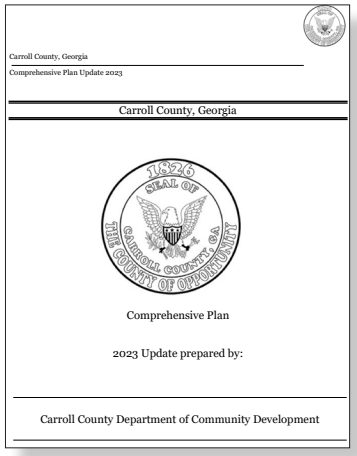
Georgia's Strategic Highway Safety Plan seeks to achieve zero deaths and serious injuries, focusing on the 4 E's: Engineering, Education, Enforcement, and Emergency Medical Services. In 2019, Georgia ranked 4th in total fatalities and 22nd in fatalities per 100 million vehicle miles traveled. The plan's Safe System includes five elements: safe road users, safe vehicles, safe speeds, safe roads, and post-crash response.

TRRC REGIONAL COMPREHENSIVE PLAN



Three Rivers Regional Commission (TRRC) has developed a Regional Comprehensive Plan that addresses various aspects of regional development, including safety considerations. The plan emphasizes the importance of safety in transportation planning and includes strategies to enhance safety across the region.

CARROLL COUNTY COMPREHENSIVE PLAN



The 2023 Carroll County Comprehensive Plan update guides growth and development through 2040, focusing on population trends, the economy, and transportation to promote sustainability and quality of life. It emphasizes intergovernmental coordination, regulatory policies, and implementation strategies to manage change. Aligned with state planning standards, the plan supports infrastructure, economic growth, and community well-being.

CARROLL COUNTY TRANSPORTATION MASTER PLAN

Carroll County's Comprehensive Transportation Plan (CTP) focuses on improving safety, mobility, and infrastructure to support future growth. It prioritizes roadway safety and upgrades at key intersections and corridors, including SR 166 Bypass, SR 61, and U.S. Highway 27. The plan also emphasizes enhancements along I-20 for efficient traffic flow. Developed with GDOT, it ensures financially feasible transportation improvements for residents and visitors.

Local Plans

CARROLLTON COMPREHENSIVE PLAN

Carrollton's 2023 Comprehensive Plan update aligns with DCA guidelines and creating a balanced community where residents can live, work, and play in a safe and attractive environment. The 2018 update emphasized transportation improvements, including the Bankhead Highway Corridor (US 166) enhancements for multi-modal travel and pedestrian safety.

MT ZION COMPREHENSIVE PLAN

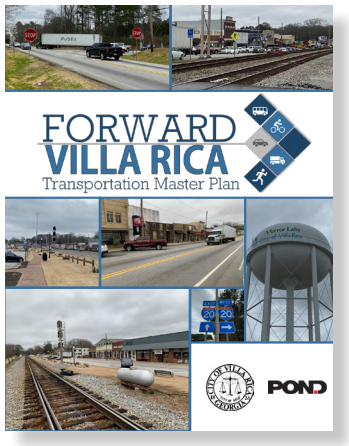
The City of Mount Zion, Georgia, has developed a Comprehensive Plan to guide its future growth and development. The most recent update, the 2023 Comprehensive Plan, provides guidance and policy standards for future growth and development, identifying current needs and opportunities within the community. It includes goals, policies, and specific implementation measures for various segments and areas of the city.

VILLA RICA COMPREHENSIVE PLAN

Villa Rica's Comprehensive Plan guides long-term growth and development, balancing economic opportunities with preserving the city's small-town character. The plan highlights strategies for redevelopment, greenway expansion, infrastructure improvements, and transit connections. It is structured around three Vision Themes: Development Patterns, Resource Conservation, and Social and Economic Development.

VILLA RICA TRANSPORTATION MASTER PLAN

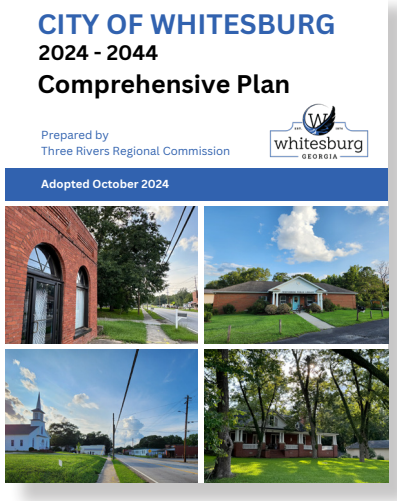
Villa Rica's Transportation Master Plan addresses infrastructure and future needs, aligning with the 2018-2038 Comprehensive Plan. The plan includes a Future Land Use Map and emphasizes the importance of transportation planning in accommodating anticipated growth and enhancing community connectivity.



ROOPVILLE

The Roopville, GA Comprehensive Plan (2008-2028) focuses on guiding the town's growth with an emphasis on transportation and infrastructure. Key elements include enhancing pedestrian and bicycle connectivity through expanded sidewalks, preserving scenic views along major corridors like U.S. 27, and managing traffic flow with natural vegetation buffers and limited curb cuts. The plan also highlights the importance of protecting historic roads like the McIntosh Trail and encourages collaborative efforts with local and state agencies for roadway improvements. Overall, the plan aims to foster safe, sustainable growth and improve transportation options for residents.

WHITESBURG



The Whitesburg, Georgia Comprehensive Plan (2008-2028) outlines several transportation-focused initiatives to improve infrastructure and connectivity. Key elements include requiring sidewalks along commercial frontages to enhance pedestrian access, establishing greenway connections to the Chattahoochee Greenway for recreational opportunities, and developing standards for collector streets to improve traffic flow and connectivity. These efforts are designed to support the town's growth while ensuring safe and efficient transportation options for residents.

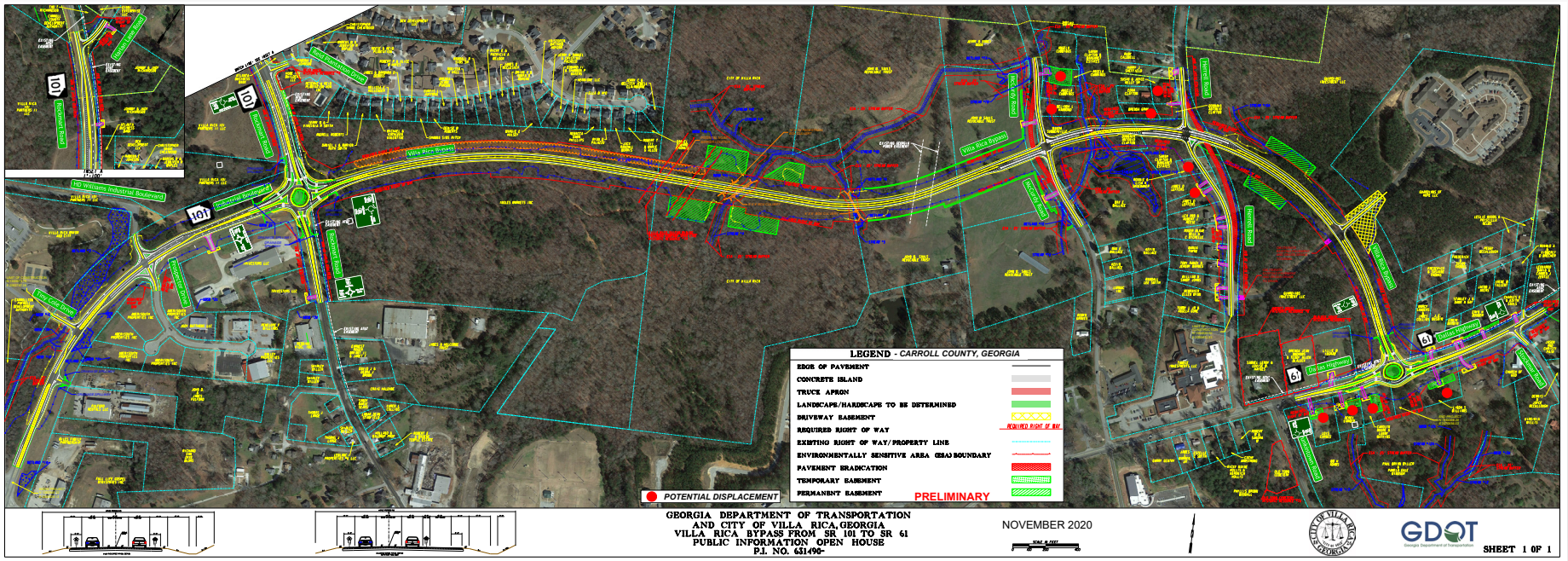
BOWDON

The Bowdon, Georgia Comprehensive Plan (2014-2034) focuses on improving the town's transportation infrastructure. Key elements include requiring sidewalks along commercial areas to improve pedestrian connectivity, creating greenway links to enhance recreational access, and developing standards for collector streets to improve traffic flow and connectivity. These efforts are designed to support Bowdon's growth while ensuring safe and efficient transportation options for its residents.

VILLA RICA NORTH LOOP BYPASS PROJECT - PI631490

The proposed project begins 2,500 feet south of the intersection of Industrial Boulevard and Rockmart Road, extending along Industrial Boulevard (SR 101). Improvements at the Industrial Boulevard and Rockmart Road intersection include adding left-turn lanes to all approaches and dual left-turn lanes to the eastbound approach. Additionally, a second northbound lane will be added on Rockmart Road.

The project also includes improvements to Dallas Highway, with the addition of left- and right-turn lanes at its intersection with the proposed Villa Rica North Loop Bypass. These enhancements aim to improve traffic flow and safety in the area.



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CHAPTER III.

WHAT WE'VE HEARD

Community involvement is a central component of the development of the Carroll County SS4A (Safe Streets and Roads for All) Safety Action Plan. The plan emphasizes a collaborative approach that includes engagement with diverse stakeholders, residents, and local organizations to ensure that the strategies developed reflect the needs and priorities of the community.

STAKEHOLDER COMMITTEE MEETINGS

The stakeholder committee meetings bring together representatives from local government, law enforcement, public health, and other sectors to provide expert input and collaborate on identifying safety issues and solutions. These meetings ensure the plan aligns with the county's goals and priorities.

OPEN HOUSES & POP-UP EVENTS

Open houses were held at accessible locations to engage residents directly, allowing them to voice their concerns about roadway safety. These events are designed to reach a broad audience, including individuals who may not typically attend formal meetings.

ONLINE ENGAGEMENT ACTIVITIES

Online engagement platforms, such as surveys and interactive maps, allow residents to share feedback and contribute ideas from home. These digital tools ensure that a wide range of community members can participate in the planning process, regardless of their ability to attend in-person events.

Public/Stakeholder Outreach Summary

Stakeholder engagement was utilized during each milestone phase of development of the Safety Action Plan. Stakeholder engagement was initiated in April 2024 and continued at regular intervals through the development of the Safety Action Plan in October 2024.

Additionally, two open houses were concentrated during the (1) safety analysis and needs assessment phase and the (2) equity in policy, strategy, and project selection phase of the plan development. Input from the public was used to guide the stakeholders and project management team in making critical decisions for plan development and implementation recommendations.

Key input from both the stakeholders and the public are summarized in each of these four categories.

LEADERSHIP COMMITMENT AND GOAL SETTING

Effective communication between public safety officials and the Board of Commissioners is essential for coordinated safety efforts. The county should establish uniform engineering standards, implement designated truck routes, and incorporate traffic calming measures to address increasing traffic concerns. Additionally, promoting safety education in schools, prioritizing golf cart safety, and adopting Vision Zero goals will ensure a comprehensive, countywide approach to long-term transportation safety.

SAFETY ANALYSIS AND NEEDS ASSESSMENT

Based on public and stakeholder outreach, priorities include uniform school zone signage, improved reflective paint, and safer railroad crossings to enhance transportation safety countywide. Addressing high-crash locations, identifying crash causes, and developing prioritization metrics will guide solutions while incorporating input from stakeholders.

EQUITY IN POLICY, STRATEGY, AND PROJECT SELECTION

Equity in policy, strategy, and project selection ensures fair distribution of safety improvements and transportation resources, especially for historically underserved communities. Refining project selection and applying context-based design standards tailor solutions to the unique needs of each area, addressing disparities in infrastructure quality and safety. Additionally, programs focused on speed management, school zone safety, and enhanced pedestrian and bicycle facilities prioritize vulnerable road users, ensuring safer, more accessible mobility for all.

PLAN FOR FUTURE PROGRESS AND TRANSPARENCY

Public and stakeholder outreach highlighted the importance of leveraging public engagement data to identify hotspot clusters and develop countermeasure recommendations that address both past and future safety concerns. Participants emphasized the need for strategic project bundling, alignment with ARC funding parameters, and ensuring internal staff have access to key data to support implementation. To maintain transparency and progress, a draft Safety Action Plan is expected to be completed by January, with committee review and feedback scheduled for February.

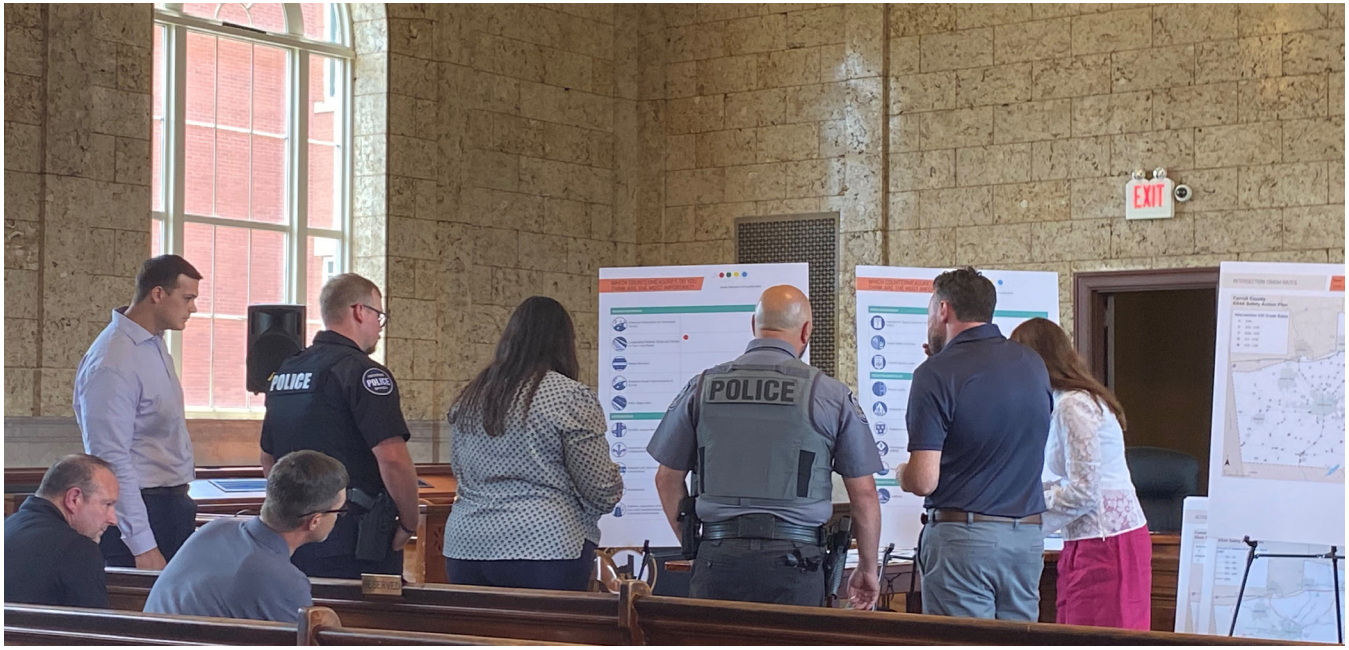
COMMUNITY ENGAGEMENT

The project team used digital and physical methods to raise awareness about the Safety Action Plan. Online efforts included press releases, social media, newsletters, and a website hosted on Social Pinpoint with public input opportunities. Email campaigns were sent to outreach lists before open houses. Physical materials were also distributed through key stakeholders and at community events. Two open houses occurred during the following key milestones:

1. **Safety analysis and needs assessment phase**

2. **Equity in policy, strategy, and project selection phase of the plan development process**

Public input guided the stakeholder and project management teams in making critical decisions for plan development and implementation recommendations.



COMMUNITY ENGAGEMENT MILESTONES

Safety Analysis and Needs Assessment

- Community members reviewed safety analysis and provided input on key priorities. They shared input via open houses, an online survey, and a virtual interactive map.

Equity in Policy, Strategy, and Project Selection:

- Community members reviewed project evaluation metrics, the high injury network (HIN), and HIN intersections and segments.

STAKEHOLDER COMMITTEE MEETING 1 - APRIL 23

At the first stakeholder committee meeting, the project team introduced the project, provided an overview of the SS4A program, and conducted a workshop on priority and goal setting. Key stakeholder input included:

- Bicycle & pedestrian safety concerns highlighted
- Public education emphasized as a key strategy
- Discussion on high-speed areas and rumble strip program
- GDOT outlined sharp curve treatments, including signage and rumble strips, with funding available for off-system roads
- Safe Systems Approach and law enforcement engagement identified as critical

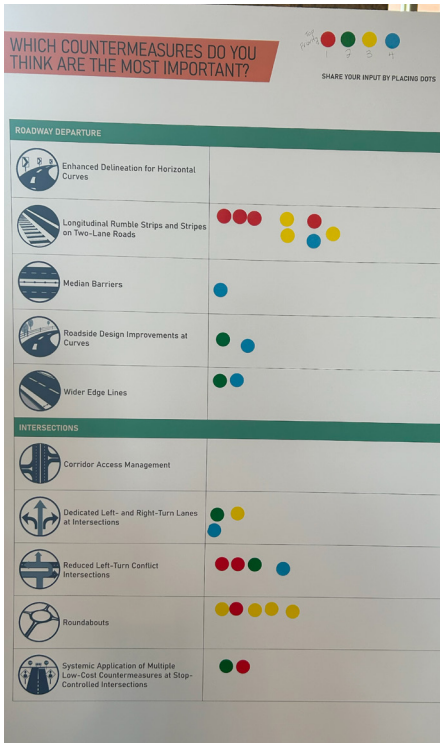
STAKEHOLDER COMMITTEE MEETING 2 - JULY 18

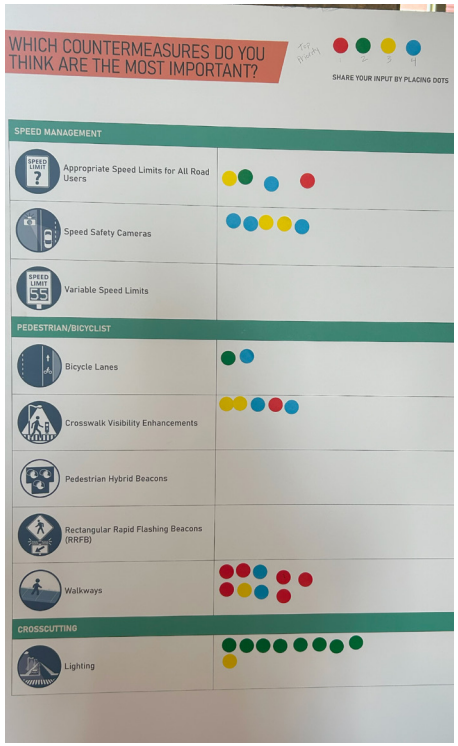
At the second stakeholder meeting, the project team provided an overview of the Safety Management Process, summarized the first round of public engagement, and reviewed the preliminary safety analysis with stakeholders. Based on this analysis, fifteen priority intersections and roadway segments were identified for further review and presented for discussion. Stakeholders also suggested additional locations that may warrant further evaluation and participated in an interactive countermeasure exercise, where they identified countermeasures they believe are appropriate for safety improvements in Carroll County. The most popular countermeasures were:

- Rumble Strips, Walkways, Lighting
- Roundabouts, Speed Management, Crosswalk Enhancements, Reduce Left-Turn Conflict Intersections

STAKEHOLDER COMMITTEE MEETING 3 - OCTOBER 24TH

At the third stakeholder meeting, the project team summarized online engagement and the second open house and presented best practices in policies, programs, and campaigns. The team also shared project evaluation metrics applied to the draft projects, along with the project prioritization matrix. Stakeholder feedback gathered during the meeting helped refine the project list to better align with priority needs and local context changes.





ONLINE MAP INPUT

The Carroll County Safe Streets for All planning process included in depth public engagement. Social Pinpoint was used to provide an online public input map, on which participants identified specific challenges and opportunities throughout the County. A total of 46 map comments were received between April 2, 2024, and August 15, 2024. Comments call out the location of specific issues or needed improvements throughout the County. Additionally, participants were able to up-vote or down-vote comments that were left on the public map.

The map activity included five comment categories. Within each category, there were several issue types. About a quarter of the comments received were related to high-risk intersections throughout the County. Few comments were related to rail crossings, freight, and unsafe pedestrian facilities, although comments categorized as other comment types may have additional information about these topics.

ONLINE SURVEY

An online survey was open for several months to hear from the public about their perceptions of traffic safety issues and their support for different types of solutions. The survey asks questions about how safe people feel in traffic where they live and individualized questions about their use of the roads in the county. It was designed to be completed in ten minutes or less.

HIGHLIGHTS

- A large proportion of comments, 20%, were related to roadway design, calling out specific issues and dangerous locations.
- Comments related to pavement condition and unsafe locations without a signal both made up about 16% of the total comments.

Figure 3.1 Most Commonly Mentioned Words in Online Map Input

Social Pinpoint Results

ONLINE MAP RESULTS

The results of the interactive map exercise are illustrated in these maps for Carroll County and the various municipalities. These include all the comment types people have reported including:

- Freight
- High Risk Intersections
- Pavement Condition
- Rail Crossings
- Roadway Design
- Roadway Markings
- Roadway Signage
- Unsafe Pedestrian Facilities
- Unsafe with Signal
- Unsafe without Signal

Figures 3.3 captures the community feedback gathered during the public engagement process.

Table 3.1 Priority Project Locations

SR 166/Bankhead Highway at Somerset Place
SR 166 at Antioch Church Rd/Garrett Circle
SR 16 at Clem Lowell Rd/Old Newman Rd

Priority Project Locations Based on community / public engagement results & feedback

Figure 3.2 Crash Heatmap Public Comments

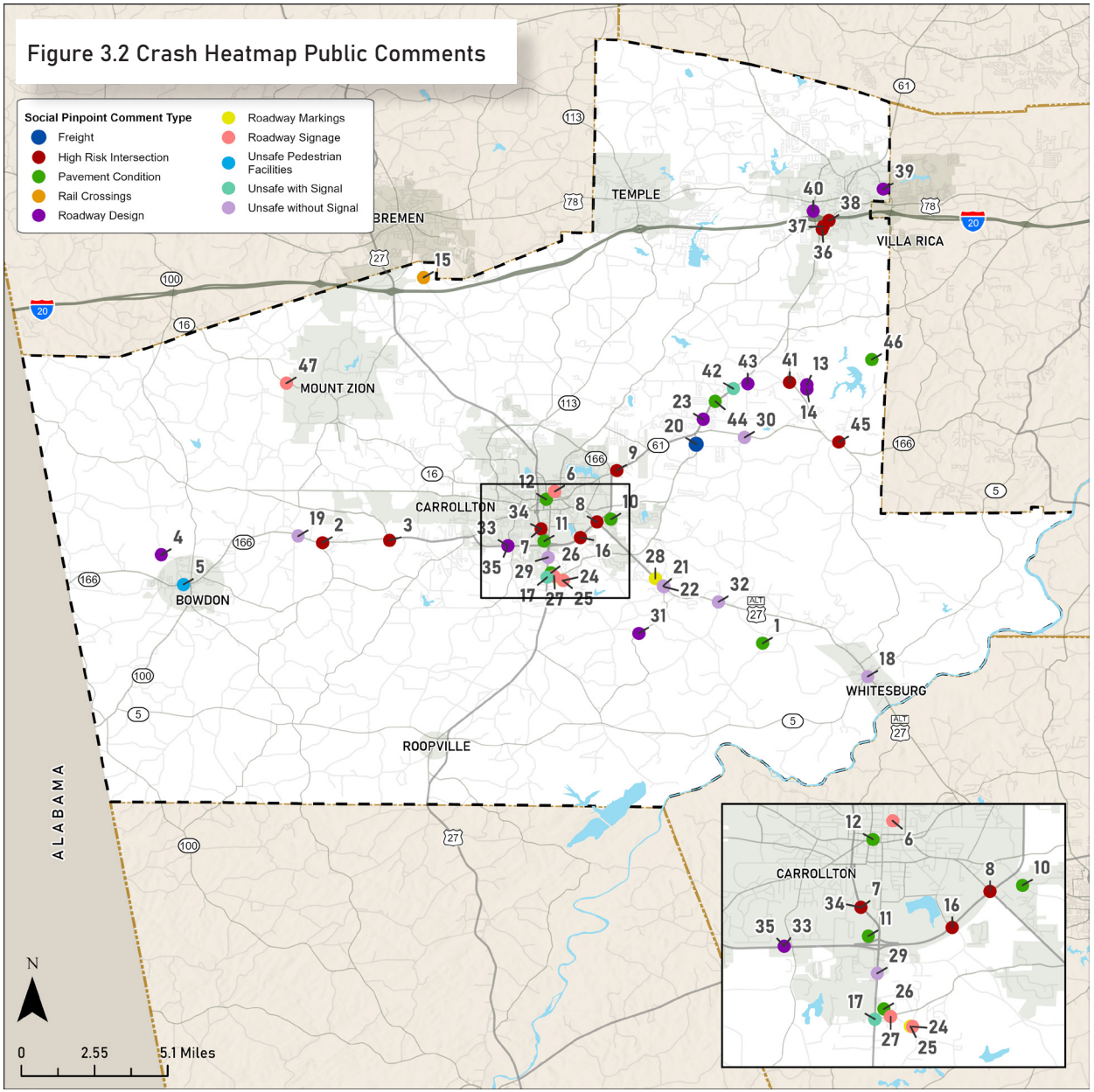


Figure 3.3 Online Map Input Comments by Category

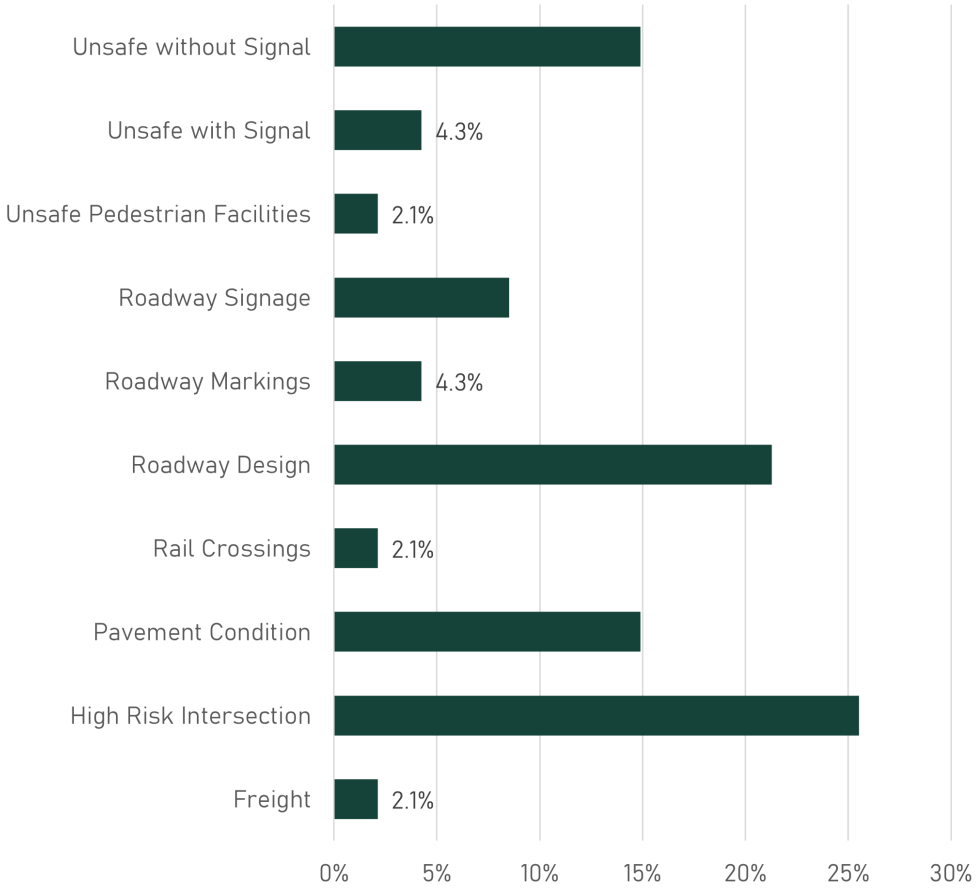


Table 3.2 Top Comment Categories

COMMENT CATEGORY	COUNT
ROADWAY	**23**
Roadway Design	10
Pavement Condition	7
Roadway Signage	6
INTERSECTIONS & SIGNALS	**21**
High Frequency of Accidents/Dangerous Conditions	13
Traffic Improvements	8
RAIL & FREIGHT	**2**
Freight	1
Rail Crossing	1
BICYCLE & PEDESTRIAN	**1**
Sidewalk Improvements	1

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CHAPTER IV.

SAFETY ANALYSIS

The safety analysis serves as a critical foundation for the SS4A Safety Action Plan, offering a data-driven understanding of traffic safety challenges within the county. This analysis is based on a historical crash study utilizing the most recent data available, spanning the years 2018 through 2022. The data was sourced from the Georgia Department of Transportation's (GDOT) Numetric database, which aggregates crash reports from law enforcement agencies across the state. This robust dataset provides detailed insights into crash attributes, including time, location, weather conditions, and severity, enabling a comprehensive evaluation of traffic safety in Carroll County.

To identify high-risk areas and prioritize safety interventions, crash intensity was assessed by pinpointing locations with the highest frequency of crashes, categorized by mode of transportation—such as heavy vehicle, pedestrian, or bicycle—and by crash severity. A detailed analysis of crash patterns was conducted to uncover prevalent trends in the manner of collision, such as rear-end, sideswipe, angle, head-on, and single-vehicle crashes.

Additionally, contributing factors that influence crash occurrences were examined, including speeding, lighting and pavement conditions, and incidents involving driving under the influence. This thorough evaluation of crash data and contributing factors forms the basis for targeted safety improvements and policy recommendations aimed at reducing fatalities and severe injuries on Carroll County's transportation network.

HIGHLIGHTS

- Between 2018 and 2022, Carroll County recorded 84 fatalities and 219 serious injuries due to traffic crashes.
- "Roadway Departure" was identified as the most frequent manner of collision across all crash types, a pattern often associated with rural areas where the risk of severe injuries is heightened.
- Poor lighting conditions significantly contribute to severe crash outcomes during nighttime, with approximately 43% of all fatalities occurring in areas classified as "Dark-Not Lighted."
- The highest concentrations of crashes are found along road segments with the greatest traffic volume and congestion, including I-20 interchanges, state routes, and collector roads near Carrollton and Villa Rica.

Carroll Traffic Crashes—By the Numbers

20,591
Total Crashes
2018-2022

5,216
Vehicle-Only Crashes

1,579
Heavy Vehicle Crashes

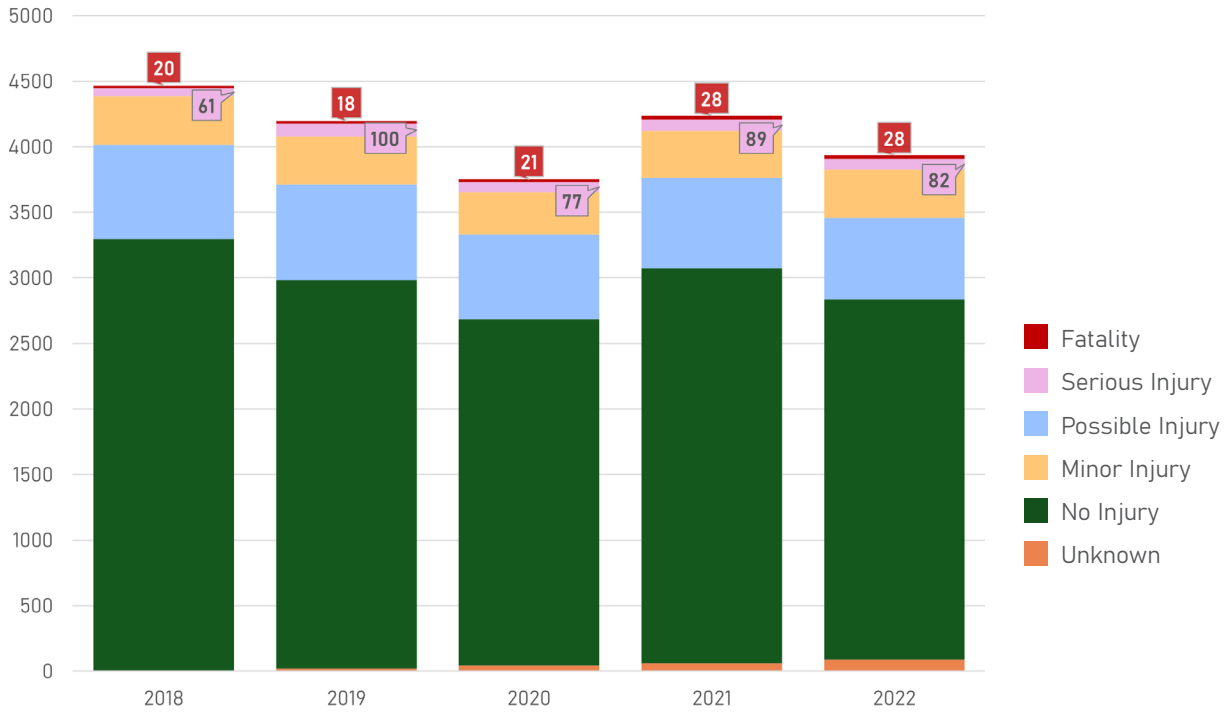
128
Pedestrian Crashes

48
Bicyclist Crashes

115
Fatalities
Carroll Co: 0.32%
GA: 0.4%

409
Serious Injuries
Carroll Co: 1.41%
GA: 1.6%

Figure 4.1 Annual Crashes by Outcome



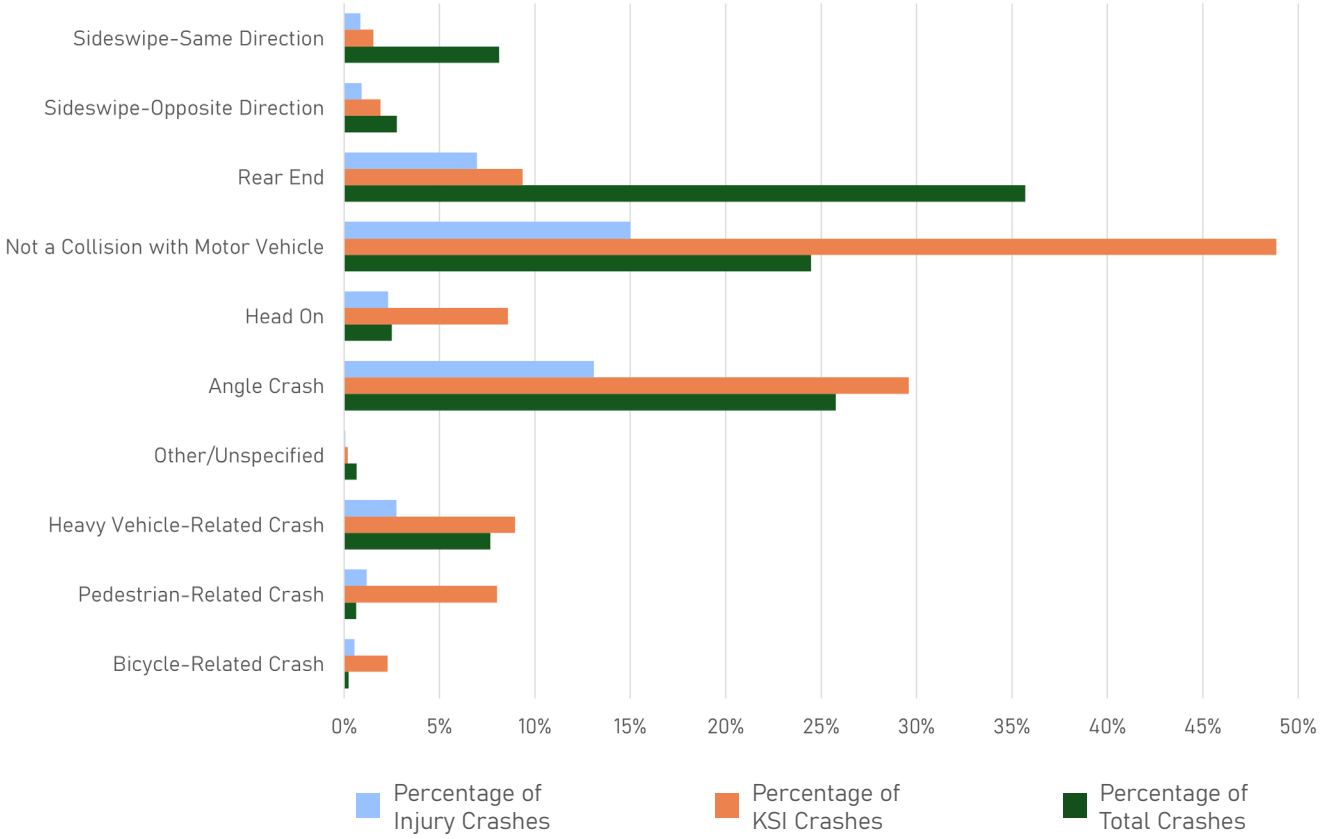
Crash Severity by Type

The crash data shows that rear-end crashes are the most frequent, accounting for 36% of all crashes (7,351 total), including 5 fatalities and 44 serious injuries. Collisions not involving another motor vehicle follow at 24% (5,038 crashes), with 63 fatalities and 193 serious injuries. Angle-related crashes, including left and right angle crashes make up 26% (5,307 crashes), with 29 fatalities and 126 serious injuries.

Head-on collisions, though less common (2.5% of crashes), are often severe, causing 13 fatalities and 32 serious injuries. Sideswipe crashes (same and opposite direction) represent 11% of crashes, typically with fewer fatalities and injuries. Pedestrian (128 total) and bicycle-related crashes (48 total) are less frequent but pose a high risk, with pedestrian crashes alone causing 11 fatalities and 31 serious injuries. Heavy vehicle-related crashes (1,579 total) account for 8% of crashes, resulting in 18 fatalities and 29 serious injuries.

Though fatal crashes make up approximately 0.5% (115 crashes) of the total crashes, serious injury crashes represent 2% (409 crashes), highlighting the need for targeted safety improvements in high-risk areas.

Figure 4.2 Crash Type by Severity



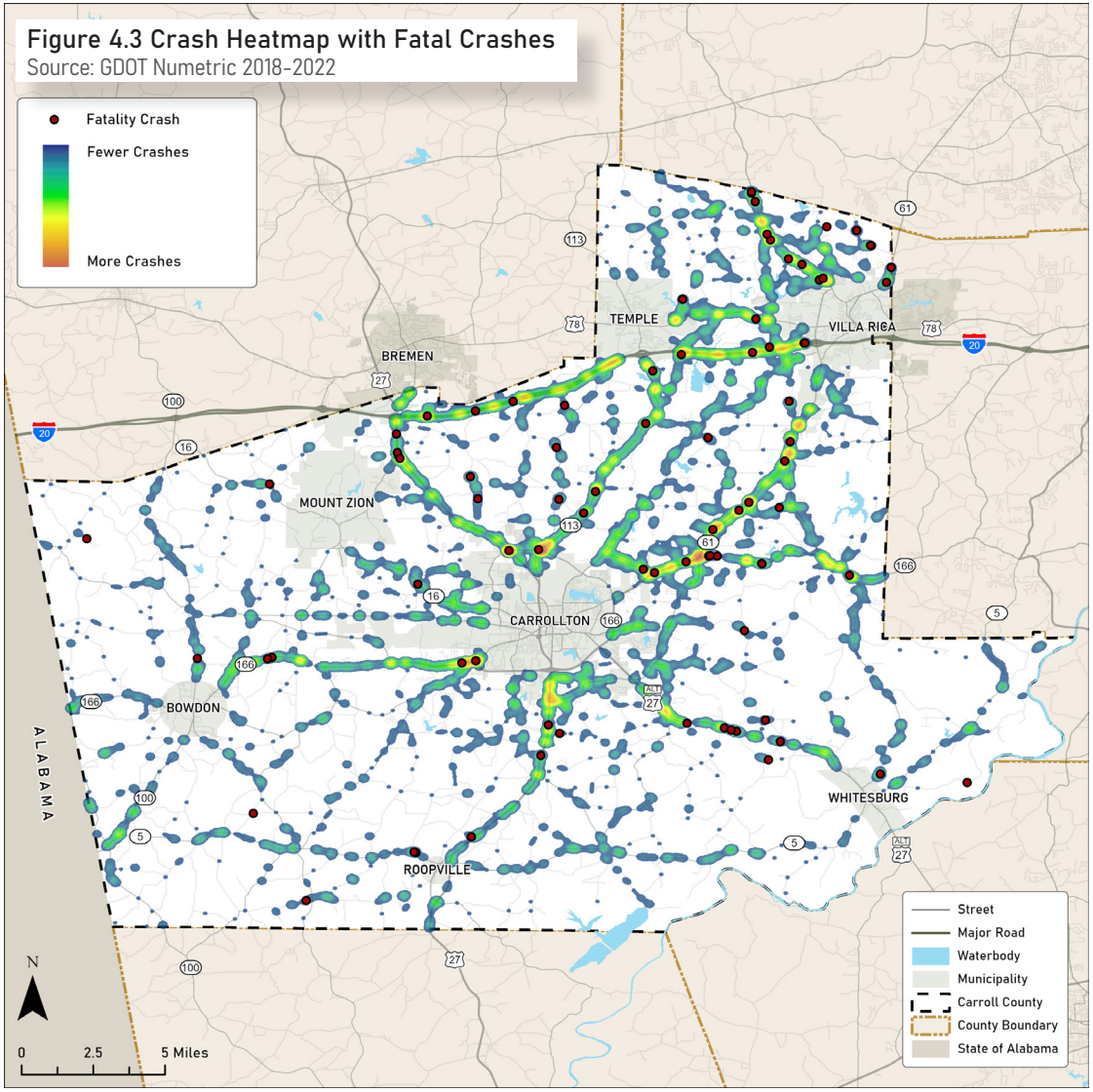


Figure 4.3 presents a crash heatmap depicting the total number of crashes across unincorporated Carroll County, along with the locations of fatal crashes from 2019 to 2023, using data from GDOT's AASHTOWare. Table 4.1 highlights the intersections with the highest crash frequencies and the corresponding number of KSI (fatal and serious injury) crashes recorded during the study period.

Table 4.1 Crash Density Focus Areas
Source: GDOT Numetric, 2018-2022

INTERSECTION	CRASHES	KSI
SR 113 at Northside Dr	185	3
US 27 at Linda Ln	142	3
SR 166 at SR 61	119	1
SR 166 at Maple Dr	102	1
US 27 at Alabama Ave	70	2
SR 61 at Sandhill Hickory Lvl Rd	68	1
SR 166 at Tyus Carrollton Rd	61	1
SR 61 at Flat Rock Rd/Kinney Lake Rd	50	2
US 27 at SR 5	49	4
Flat Rock Rd at Moss Ferry Rd	47	2

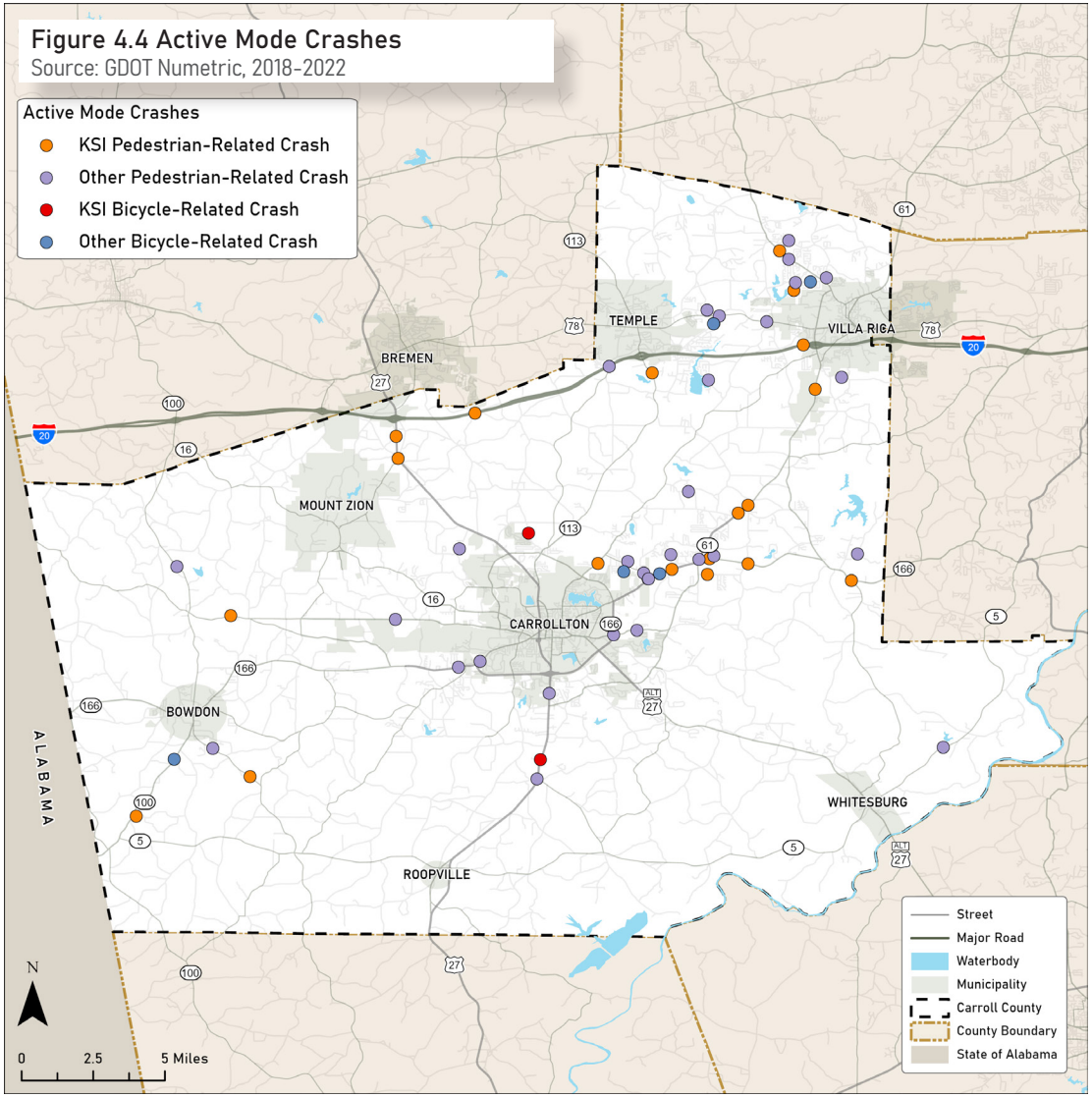


Figure 4.4 Active Mode Crashes
Source: GDOT Numetric, 2018-2022

Active mode crashes in Carroll County, including pedestrian and bicycle incidents, are concentrated near Carrollton, Villa Rica, and Temple. Pedestrian crashes are more frequent along major corridors and high-traffic areas, such as SR 61, SR 166, and SR 101, where fast-moving vehicles, multiple lanes, and limited crossings increase the risk for those on foot. Cyclists, though involved in fewer crashes, face significant dangers near commercial centers and key roadways, particularly in Villa Rica and other developed areas. The absence of designated bike lanes, high vehicle speeds, and driver inattention contribute to their vulnerability.

Some pedestrian and bicycle crashes also occur on rural roads, where the lack of sidewalks, crosswalks, and bike lanes heightens risks for non-motorized users. Narrow roadways, poor lighting, and high-speed traffic create hazardous conditions for those walking or cycling. Unlike vehicle occupants, pedestrians and cyclists have no physical protection, making them far more susceptible to severe injuries or fatalities. These challenges highlight the urgent need for infrastructure improvements and enhanced safety measures to protect vulnerable road users.

School-Related Trends

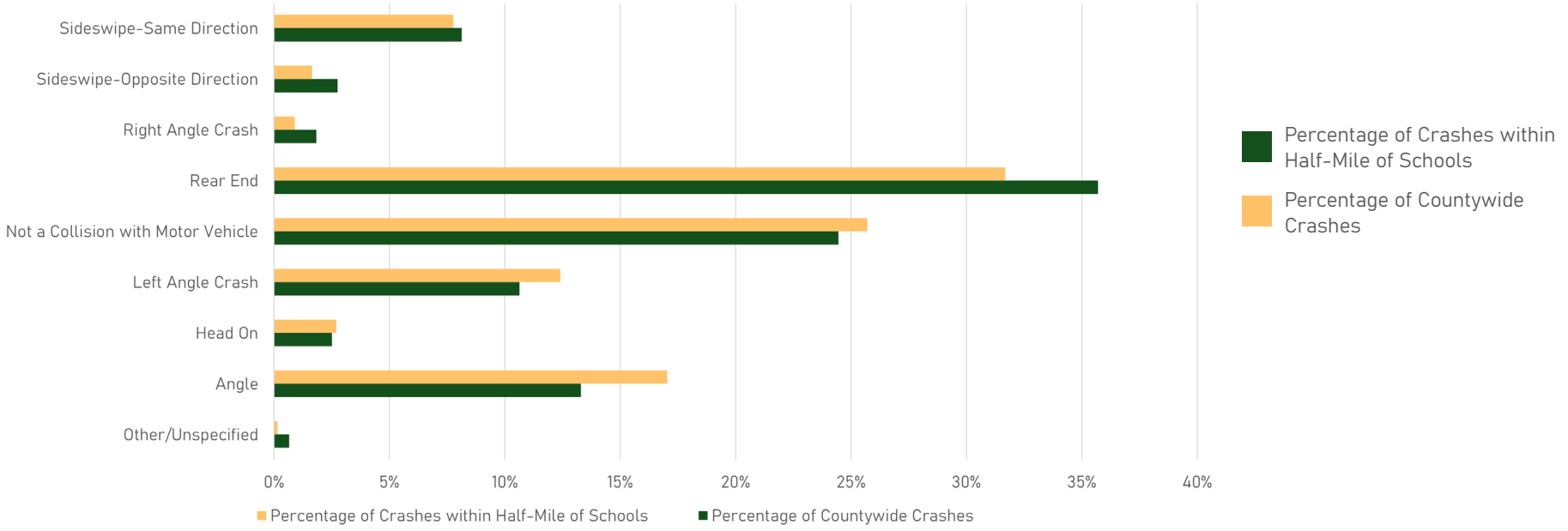
Schools are a key concern for traffic safety, as children are especially vulnerable to crashes and injuries, especially when walking or biking to school. This is most critical during drop-off and pick-up hours in high-traffic areas.

This safety analysis examines crashes within a half-mile of schools, a common walking and biking distance for students. As shown in Figure 4.5, rear-end crashes are slightly more common, while collisions not involving another motor vehicle occur at a significantly higher rate in these areas. Table 4.2 highlights schools with the highest number of crashes within a half-mile radius, helping identify opportunities for safety improvements that could greatly benefit students across Carroll County.

Table 4.2 Schools in Crash Hotspots
Source: GDOT Numetric 2018-2022

	SCHOOL NAME	# OF CRASHES WITHIN 1/2 MI	# OF KSI CRASHES WITHIN 1/2 MI
1	Central Elementary School	139	1
2	Sand Hill Elementary School	100	2
3	Villa Rica Middle	91	0
4	Ithica Elementary	69	0
5	Central Middle School	53	1
6	Villa Rica High School	48	2
7	Sharp Creek Elementary School	46	3
8	Bowdon Middle School	34	0
9	Central High School	34	0
10	KidsPeace	24	0

Figure 4.5 School Area Crash Trends



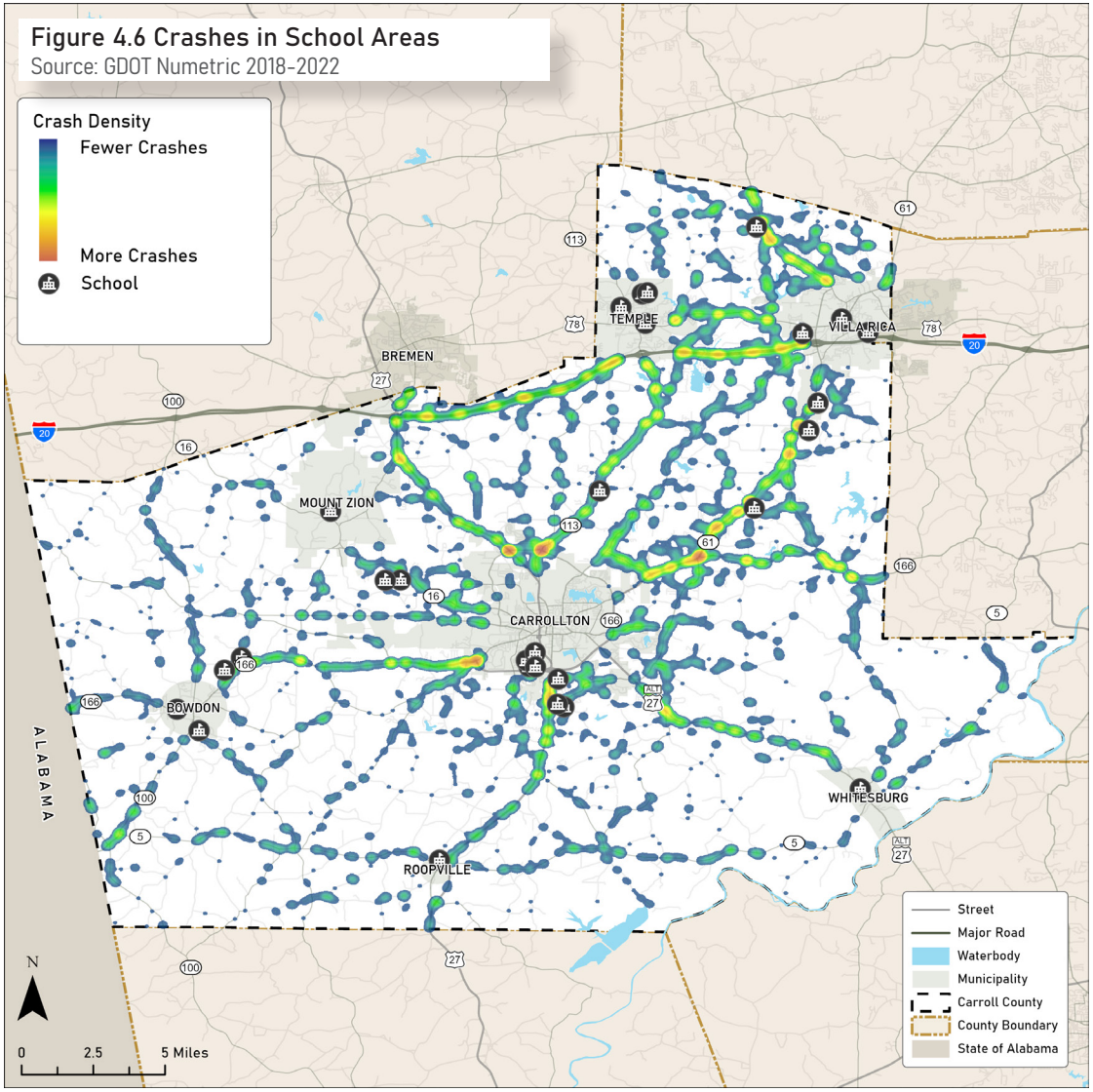


Figure 4.6 shows the location of schools across Carroll County in relation to crash density, highlighting those with a high concentration of nearby crashes. Schools in areas with higher crash occurrences should be prioritized for safety interventions.

Schools play a crucial role in transportation safety for various reasons. Elementary schools often have a higher likelihood of students walking due to their proximity to neighborhoods, but younger children are especially vulnerable to hazardous traffic conditions. High school students, on the other hand, may walk to nearby destinations after school, while those with driver's licenses may choose to drive. However, this younger driver group is also at a higher risk of crashes, making school-area safety a key concern for all age groups.

Young Driver Trends

Young drivers, ages 15-20, make up a notable portion of Carroll County's driving population. Due to their limited driving experience, driver education programs play a key role in fostering safe driving habits. This analysis examines crash trends involving young drivers to guide outreach and safety initiatives aimed towards young drivers.

From 2018 to 2022, there were 3,524 crashes involving young drivers in Carroll County. Figure 4.7 illustrates the yearly distribution of these crashes by crash severity.

Figure 4.7 Young Driver Crashes by Year, 2018-2022

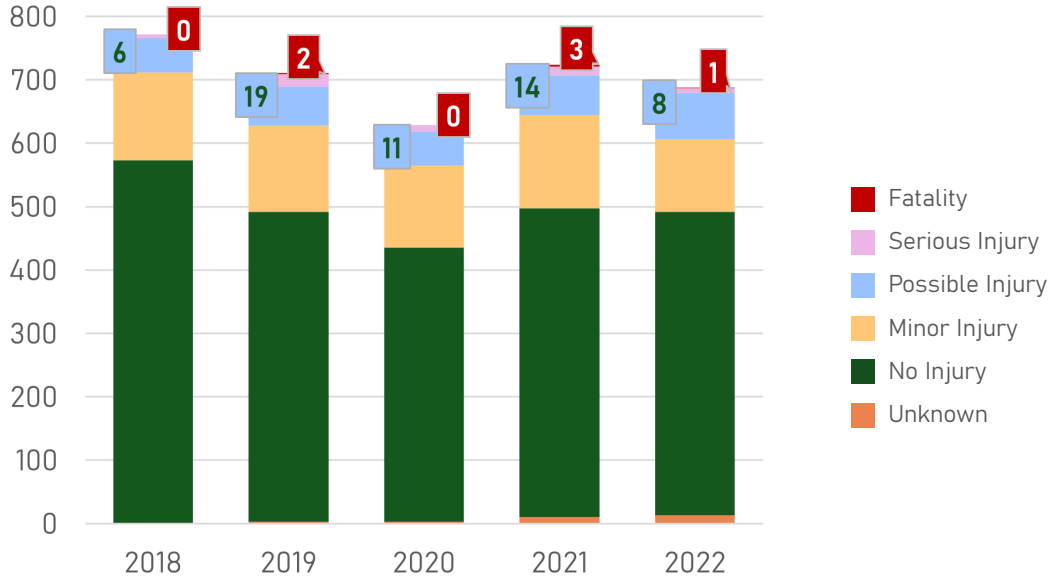
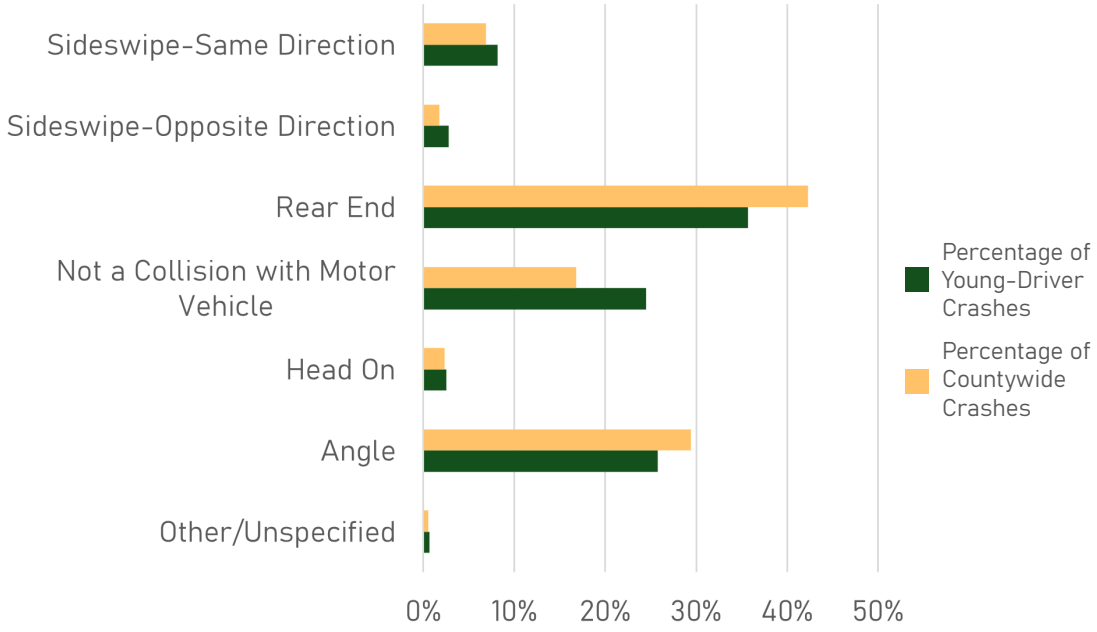


Figure 4.8 Manner of Collision, 2018-2022



The types of crashes involving young drivers are shown in Figure 4.8 comparing their occurrence as a percentage of total young driver crashes and countywide crashes.

Young driver crash patterns closely follow countywide trends. Rear-end crashes are the most frequent, often resulting in less severe injuries. Non-motor vehicle crashes, which often result in more severe crashes, are also frequent. Conversely, head-on crashes, which typically lead to more severe outcomes, are less common among young drivers. Understanding these crash trends is essential for developing targeted safety measures to reduce young driver crash risks in Carroll County.

Contributing Factors

Certain contributing factors have been found to increase the risk and severity of traffic crashes. It is important to understand patterns in the historic crash conditions to understand any such factors that can be addressed with safety or roadway improvements. The following section highlights detailed analysis that was performed for common contributing factors.

SPEEDING

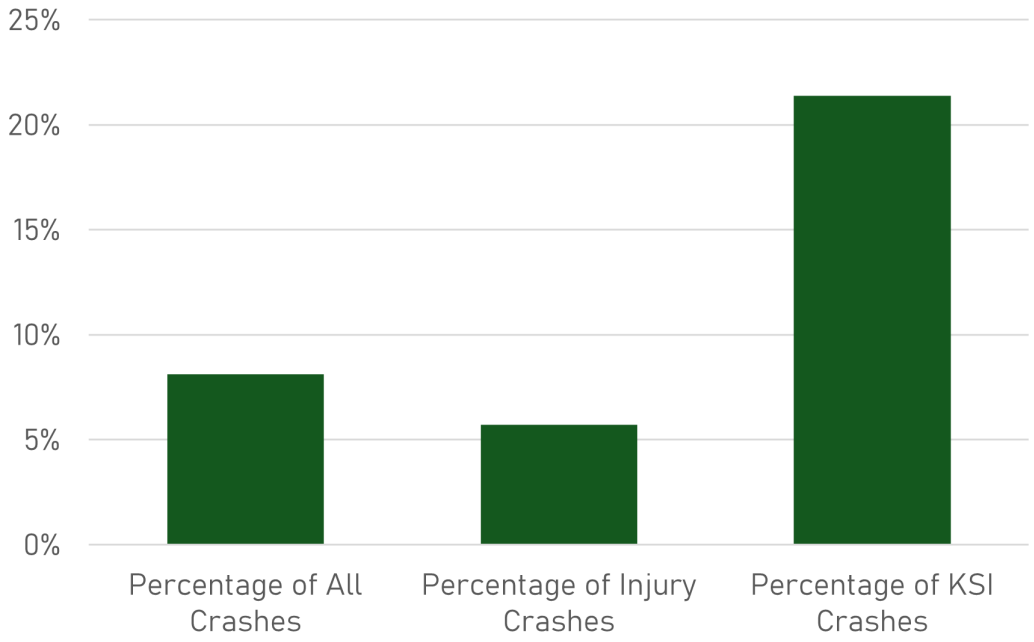
Speeding is a major factor in vehicle crashes, having a significant effect on the severity of crashes. This is especially true for crashes involving active modes, such as bicyclists and pedestrians. As such, speed control can be an effective tool at reducing fatalities and serious injury crashes. As shown in Figure 4.9 pedestrian survival is heavily impacted by vehicular speed during accidents.

Figure 4.10 depicts the percentage of crash outcomes for speeding-related crashes. While about 3% of total crashes are speeding-related, around 17% of KSI crashes are speeding related. Speed is a significant contributing factor to crashes in Carroll County, as higher speeds reduce reaction times and increase the severity of collisions.

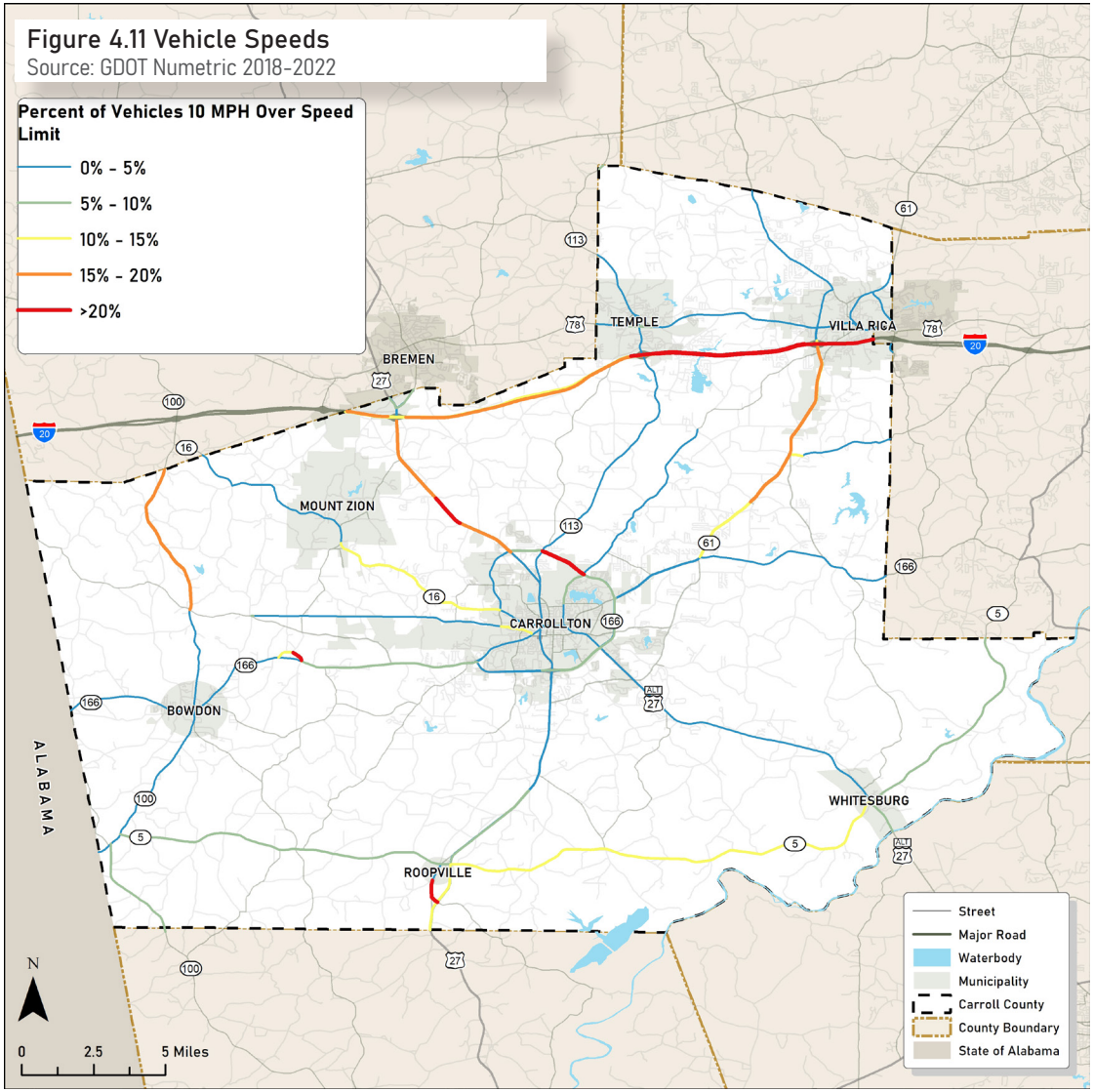
Figure 4.9 Likelihood of Death for People Walking if Hit at These Speeds

Source: AAA Foundation, Tefft, B.C. (2011)

Figure 4.10 Speeding-Related Crashes



*data in the speed chart has been calculated based on countywide data



Speeding remains a significant concern on several key roadway segments in Carroll County, with certain highways experiencing particularly high rates of vehicles exceeding the posted speed limit by 10 mph or more. I-20, US 27, and Northside Drive stand out as areas where over 20% of vehicles travel at excessive speeds. These roadways serve as critical corridors for both local commuters and long-distance travelers, contributing to the widespread speeding issue. The need to cover longer distances quickly, combined with high traffic volumes and roadway design that encourages higher speeds, often leads drivers to disregard posted limits. This persistent speeding behavior increases the likelihood of severe crashes, making these corridors top priorities for targeted safety interventions.

In addition to these highways, SR 61 and SR 100 also experience elevated speeding rates, with over 15% of vehicles exceeding the speed limit. As major commuter routes, these state roads carry significant daily traffic, and their design may create a perception of lower enforcement risk, encouraging drivers to travel at unsafe speeds. Addressing these concerns requires a combination of increased enforcement, public awareness initiatives, and engineering solutions. Strategies such as targeted speed enforcement, speed display signs, rumble strips, and traffic calming measures can help reduce speeding and improve overall road safety. By implementing these measures, Carroll County can work toward reducing crash risks and creating a safer environment for all road users.

LIGHTING CONDITION

While most crashes occur during daylight when traffic volumes are higher, dark lighting conditions present greater hazards, as drivers may have less time to react to hazards or changes in the roadway that become visible only within the range of headlights. Lighting plays a significant role in crash outcomes.

Figure 4.12 shows crash severity by lighting conditions. Crashes in dark, unlit areas account for approximately 34% of total crashes and nearly 18% of fatal or serious injury crashes.

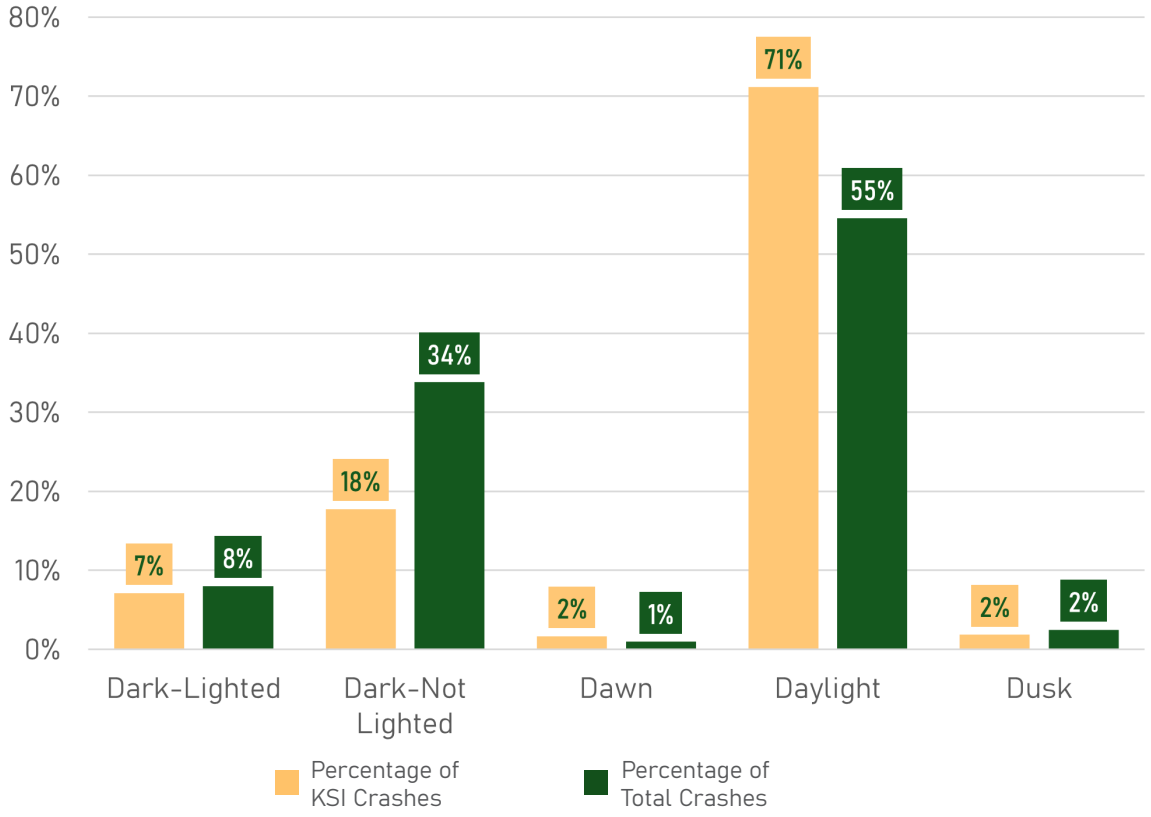
DISTRACTED DRIVING/DUI

From 2018 to 2022, Carroll County recorded 1,437 crashes involving distracted driving and 904 crashes involving driving under the influence (DUI), representing approximately 7% and 4% of all crashes in the county, respectively.

Distracted driving and DUI contributed to 16% of injury crashes and 8% of fatal crashes. Notably, DUIs accounted for 9% of injury crashes and 6% of fatal crashes.

These statistics highlight the significant impact of distracted driving and DUI on roadway safety in Carroll County. While these behaviors constitute a relatively small percentage of total crashes, they are disproportionately represented in crashes resulting in fatalities and serious injuries. This underscores the critical need for targeted safety measures to address these high-risk driving behaviors and improve the safety of the county's roadways.

Figure 4.12 Crashes by Lighting Condition



DRIVING UNDER THE INFLUENCE (DUI) IS A FACTOR IN:

4.4% of All Crashes

8.7% of Injury Crashes

6.1% of Fatality Crashes

DISTRACTED DRIVING IS A FACTOR IN:

7.0% of All Crashes

7.4% of Injury Crashes

1.7% of Fatality Crashes

High Injury Network

The High Injury Network (HIN) identifies roadway segments and corridors with the highest concentrations of severe crashes, where targeted investments can have the most significant impact in reducing fatal and serious injuries. By focusing on roadways with a high proportion of serious injuries and fatalities, the HIN provides a data-driven framework for prioritizing safety improvements and advancing the county's overall safety objectives. The HIN also considers priority equity areas for focused investment that benefits historically disadvantaged populations.

The development of the HIN involved a comprehensive analysis using crash data from GDOT's Numetric database for the years 2019 through 2023

Equity data from USDOT's ETC Explorer Tool and demographic data from the 2022 American Community Survey (ACS) was used to prioritize identified projects. This integrated analysis considering both safety and equity supports the SS4A program's goals and provides a more equitable approach to prioritizing safety investments, ensuring that improvements address both traffic safety concerns and the specific needs of vulnerable communities.

Figure 4.13 High Injury Network

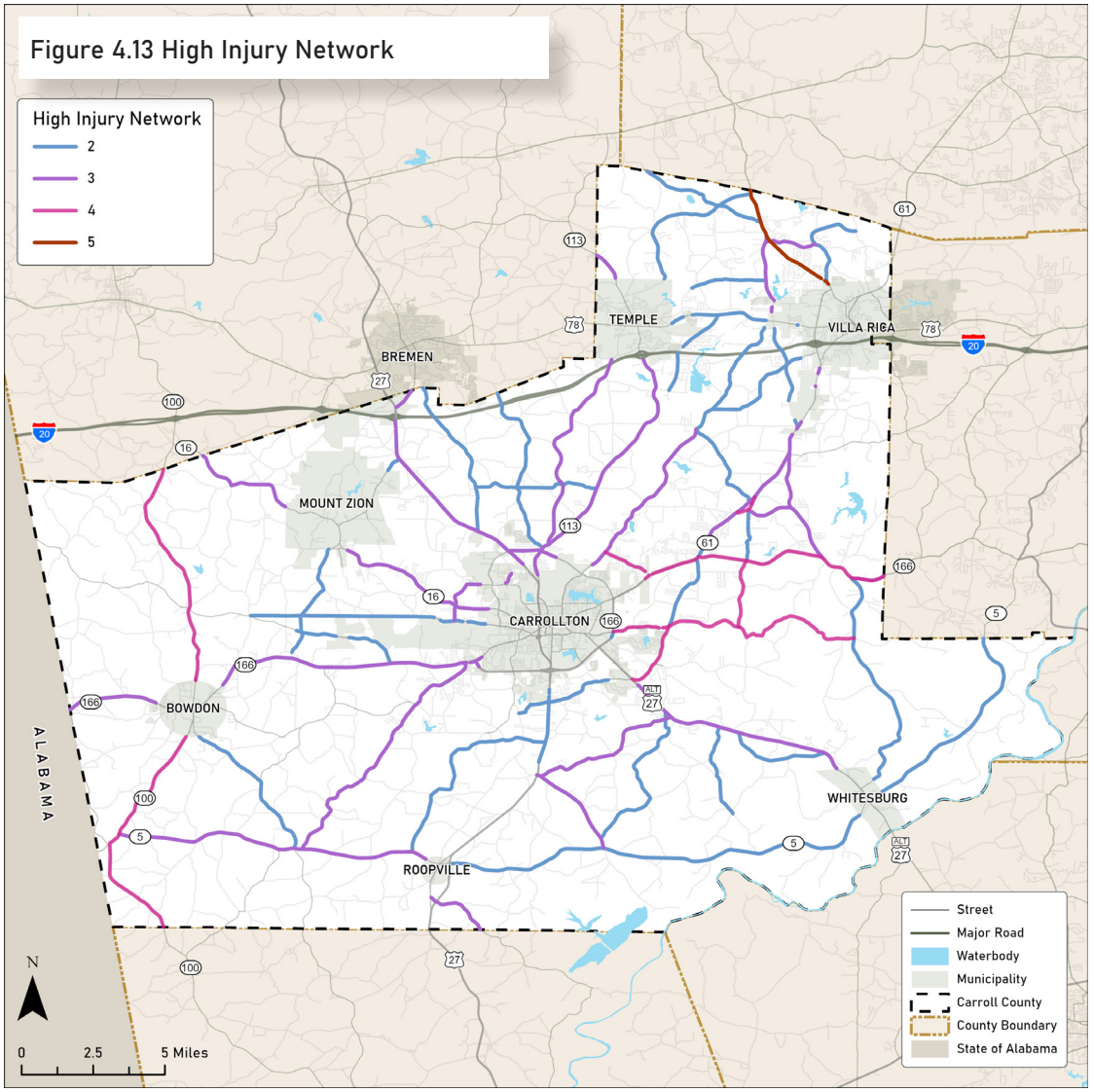
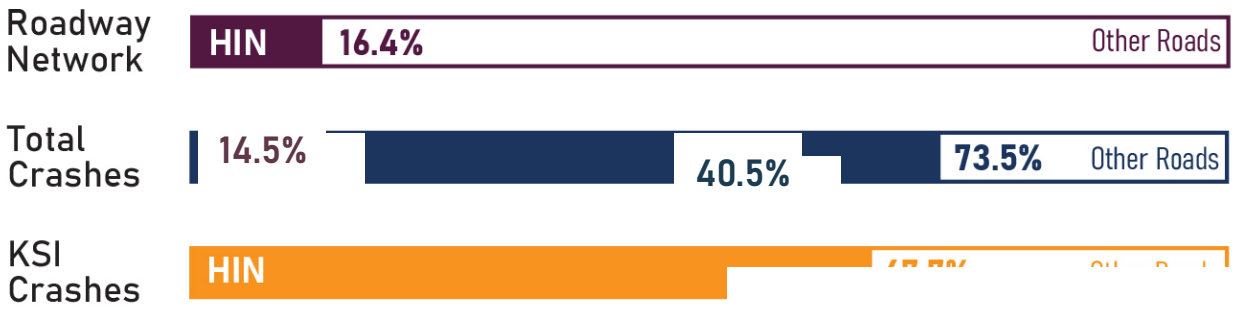


Table 4.3 High Injury Network Corridor Scoring

CORRIDOR NAME	EXTENT FROM	EXTENT TO	TOTAL SCORE	BIKE OR PED CRASH	CRASH HISTORY	CRASH RATE	KSI CRASH RATE
Rockmart Rd	Paulding County Line	Reid Plantation Dr	5	2	1	1	1
Horsley Mill Rd	SR 166	Jones Mill Rd	4	1	1	1	1
Oak Mountain Rd	Horsley Mill Rd	US 27 alt/SR 16	4	1	1	1	1
Old Airport Rd	Shady Grove Rd	SR 166	4	1	1	1	1
Old Hwy 61	Williams Rd	SR 61	4	1	1	1	1
SR 100	Haralson County Line	Heard County Line	4	1	1	1	1
SR 166	Old Airport Rd	Douglas County Line	4	1	1	1	1
Wayside Rd	SR 166	Horsley Mill Rd	4	1	1	1	1
Beulah Church Rd	Old Bremen Rd	Lovvorn Rd	3	0	1	1	1
Center Point Rd	I-20	SR 113	3	0	1	1	1
Glenloch Rd	S Old Hwy 27	Heard County Line	3	0	1	1	1
Linda Ln	US 27	SR 113	3	0	1	1	1
Lowell Rd	US 27	SR 5	3	0	1	1	1
Moss Ferry Rd	SR 61	Sandhill Hulett Rd	3	0	1	1	1
N Van Wert Rd	Rockmart Rd	North of US 78	3	0	1	1	1
Northside Dr	SR 113	Little Tallapoosa River bridge	3	0	1	1	1
Sandhill Hulett Rd	Four Notch Rd	SR 166	3	0	1	1	1
Shady Grove Rd	W Hickory Level Rd/Sandhill Hickory Lvl Rd	North of Northside Dr	3	0	1	1	1
SR 113	I-20	South of Eastwinds Connector	3	0	1	1	1
SR 16	Haralson County Line	East of Skinner Rd	3	0	1	1	1
SR 166	Alabama State Line	Maple View Dr	3	0	1	1	1
SR 166	SR 166/Commons Blvd	East of SR 166/Commons Blvd	3	0	1	1	1
SR 166	Briarwood Dr	Bonner Rd	3	0	1	1	1
SR 5	SR 100	West of Old Carrollton Rd	3	0	1	1	1
SR 61	North of Carden Ln	Lake Connie Rd/Dock Hyde Rd	3	1	1	0	1
Tyus Carrollton Rd	SR 166	SR 5	3	0	1	1	1

CORRIDOR NAME	EXTENT FROM	EXTENT TO	TOTAL SCORE	BIKE OR PED CRASH	CRASH HISTORY	CRASH RATE	KSI CRASH RATE
US 27	I-20	Linda Ln	3	0	1	1	1
US 27	Columbia Dr/Linda Ln	North of Sharp Dr	3	0	1	1	1
US 27 alt/SR 16	Victoria Vining	North of Main St	3	0	1	1	1
US 27 BUS	Haralson County Line	Davis Blvd	3	0	1	1	1
US 27 BUS	Davis Blvd	US 27	3	0	1	1	1
Wesley Chapel Rd	N Van Wert Rd	Harlan Lane Rd	3	0	1	1	1
Whooping Creek Church Rd	Lowell Rd	SR 16	3	0	1	1	1
Bar J Rd	US 78	Spruill Bridge Rd	2	0	1	0	1
Bowdon Junction Rd	US 27	North of Katie Ln	2	0	0	1	1
Bowdown Tyus Rd	North of New Hope Rd	SR 5	2	1	0	1	0
Burwell Mount Zion Rd	Old Jacksonville Rd	Garrett Cir	2	0	1	1	0
Burwell Rd	Burwell Rd	SR 166	2	0	1	1	0
Clem Lowell Rd	SR 27 Alt	Lowell Rd	2	0	1	0	1
Cown Rd	Taylors Gin Rd	N Van Wert Rd	2	0	0	1	1
Four Notch Rd	Sandhill Hulett Rd	SR 166	2	0	1	1	0
Happy Hill Rd	SR 16	Ephesus Church Rd	2	0	0	1	1
Harlan Lane Rd	Herrell Rd	Rockmart Rd	2	0	1	1	0
Hickory Level Rd	Hembree Ln	West of Old Scenic Dr	2	0	1	1	0
Hog Liver Rd	Miller Academy Rd	SR 113	2	0	1	1	0
Jones Mill Rd	SR 166	East of SR 16	2	0	1	1	0
Little New York Rd	US 27 at Heath Rd	US 27 at Antioch Church Rd	2	0	1	1	0
Lovvorn Rd	N Jonesville Rd	East of Chappell Rd	2	0	1	1	0
Miller Academy Rd	Haralson County Line	US 27	2	0	1	1	0
NE Hickory Level Rd	W Hickory Level Rd/Sandhill Hickory Lvl Rd	Hembree Ln	2	0	1	1	0
Oak Grove Rd	Bonner Goldmine Rd	US 27	2	0	1	1	0
Old Draketown Trl	Douglas County Line	Rockmart Rd	2	0	1	1	0

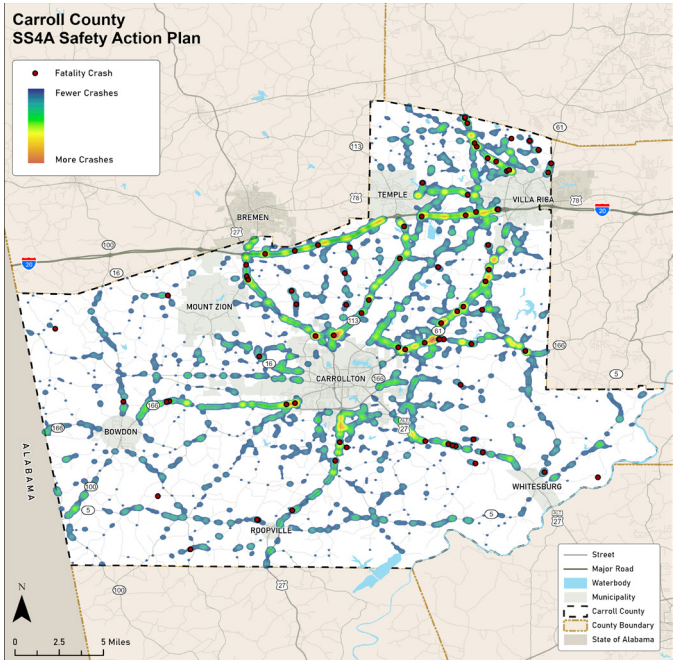
CORRIDOR NAME	EXTENT FROM	EXTENT TO	TOTAL SCORE	BIKE OR PED CRASH	CRASH HISTORY	CRASH RATE	KSI CRASH RATE
Pleasant Grove Church Rd	Church Ln	Hickory Level Rd	2	0	1	1	0
Pleasant Hill Rd	SR 166	Horsley Mill Rd	2	0	1	1	0
Pleasant Ridge Rd	Haralson County Line	SR 113	2	0	1	1	0
Rainey Rd	South of Rachel Blvd	Rockmart Rd	2	0	0	1	1
S Van Wert Rd	Church Rd	Ithica Gin Rd	2	0	1	1	0
Sandhill Hickory Lvl Rd	Hickory Level Rd	Old Hwy 61	2	0	1	1	0
SR 166	Horsley Mill Rd	Old Newnan Rd	2	0	1	0	1
SR 5	Louise Ln	John Henry Cir	2	0	1	0	1
SR 5	John Henry Cir	Douglas County Line	2	0	1	0	1
SR 61	Lake Connie Rd/Dock Hyde Rd	SR 166	2	0	1	1	0
Stripling Chapel Rd	Oak Grove Church Rd	Hampton Way	2	0	1	1	0
Thomas Wilson Rd	Bonner Goldmine Rd	SR 5	2	0	1	0	1
US 27	Stripling Chapel Rd	South of Memory Springs Dr	2	0	1	1	0
US 78	West of Ringer Xrd	W Villa Rd	2	0	1	0	1



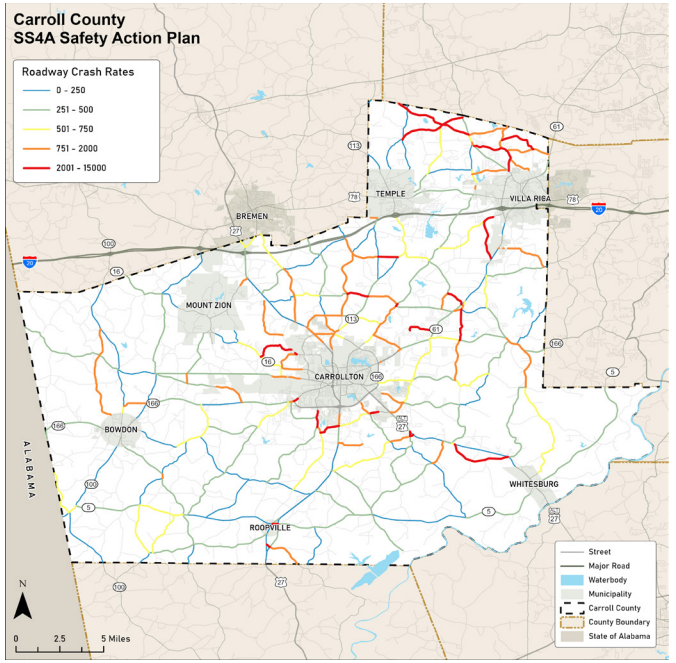
How are priority scores calculated?

The High Injury Network was determined using five safety criteria. Each roadway corridor was assigned a score based on how many of these high injury criteria were met. Each corridor in the HIN meets at least one criteria. A road with a score of 5 meets all of the criteria. The safety criteria are shown here.

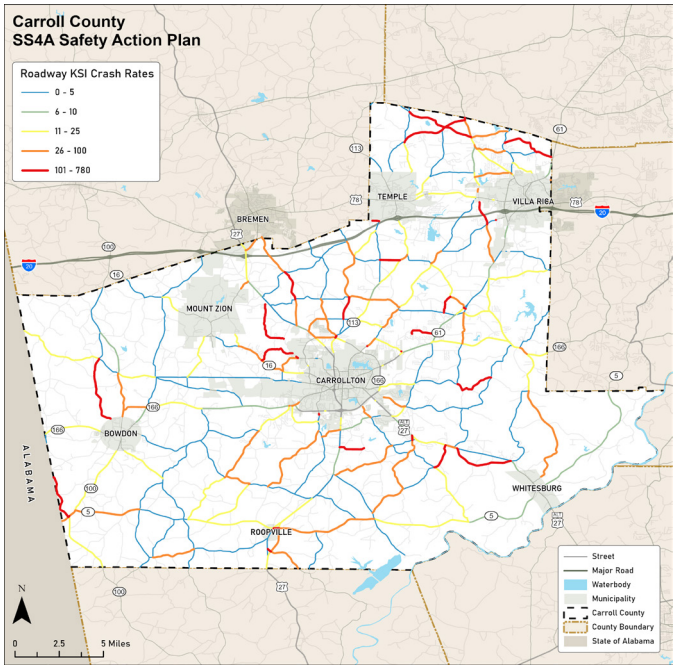
CRASH HISTORY



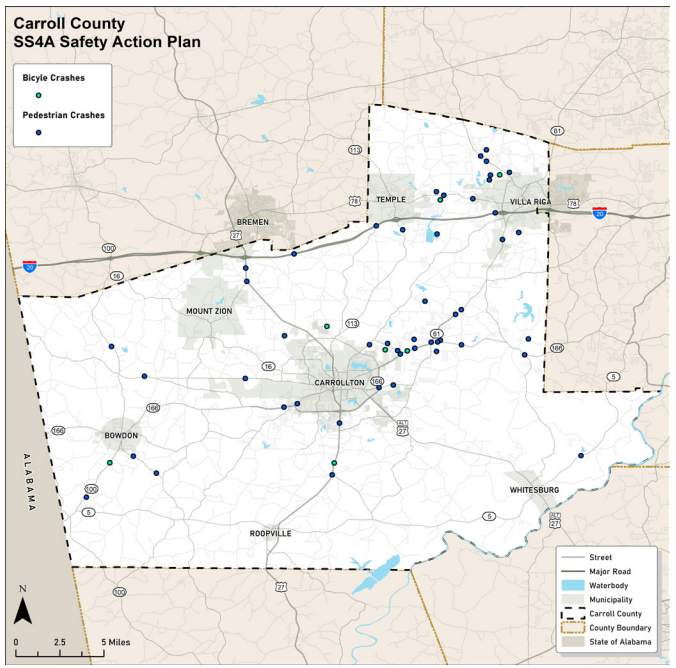
CRASH RATE



FATALITY AND SERIOUS INJURY CRASH RATE



PEDESTRIAN AND BICYCLE CRASHES



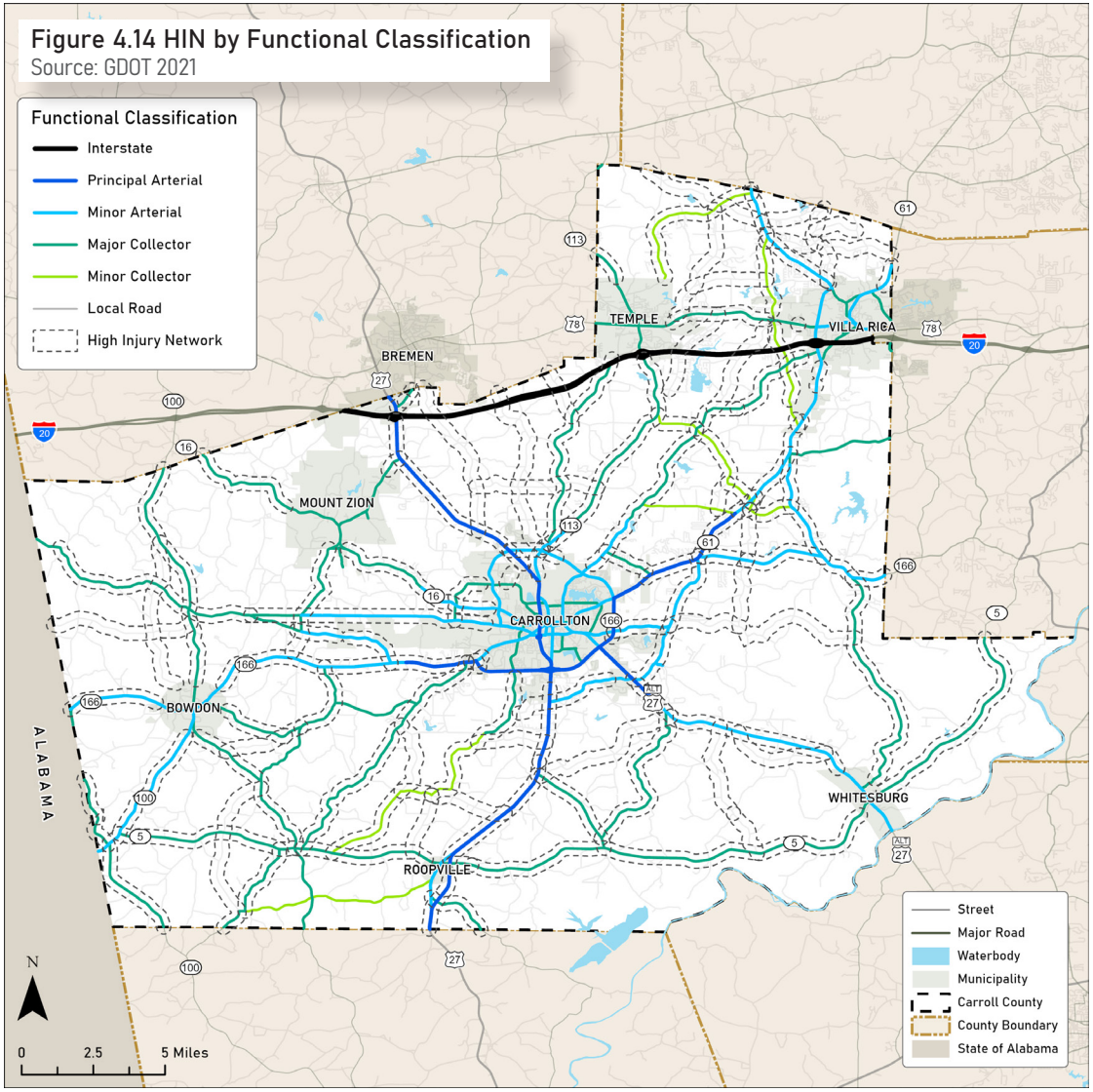


Figure 4.14 HIN by Functional Classification
Source: GDOT 2021

The functional classification of a roadway defines its role within the broader transportation network and its capacity to accommodate traffic volumes. Carroll County's roadway functional classes, based on GDOT'S classifiction, were cross-referenced with the High Injury Network.

Crashes are more prevalent on major roadways, which typically carry higher traffic volumes. Based on this assessment, the HIN includes all principal arterials—US 27 and segments of SR 61 and SR 161—as well as segments of most minor arterials and collector roadways.

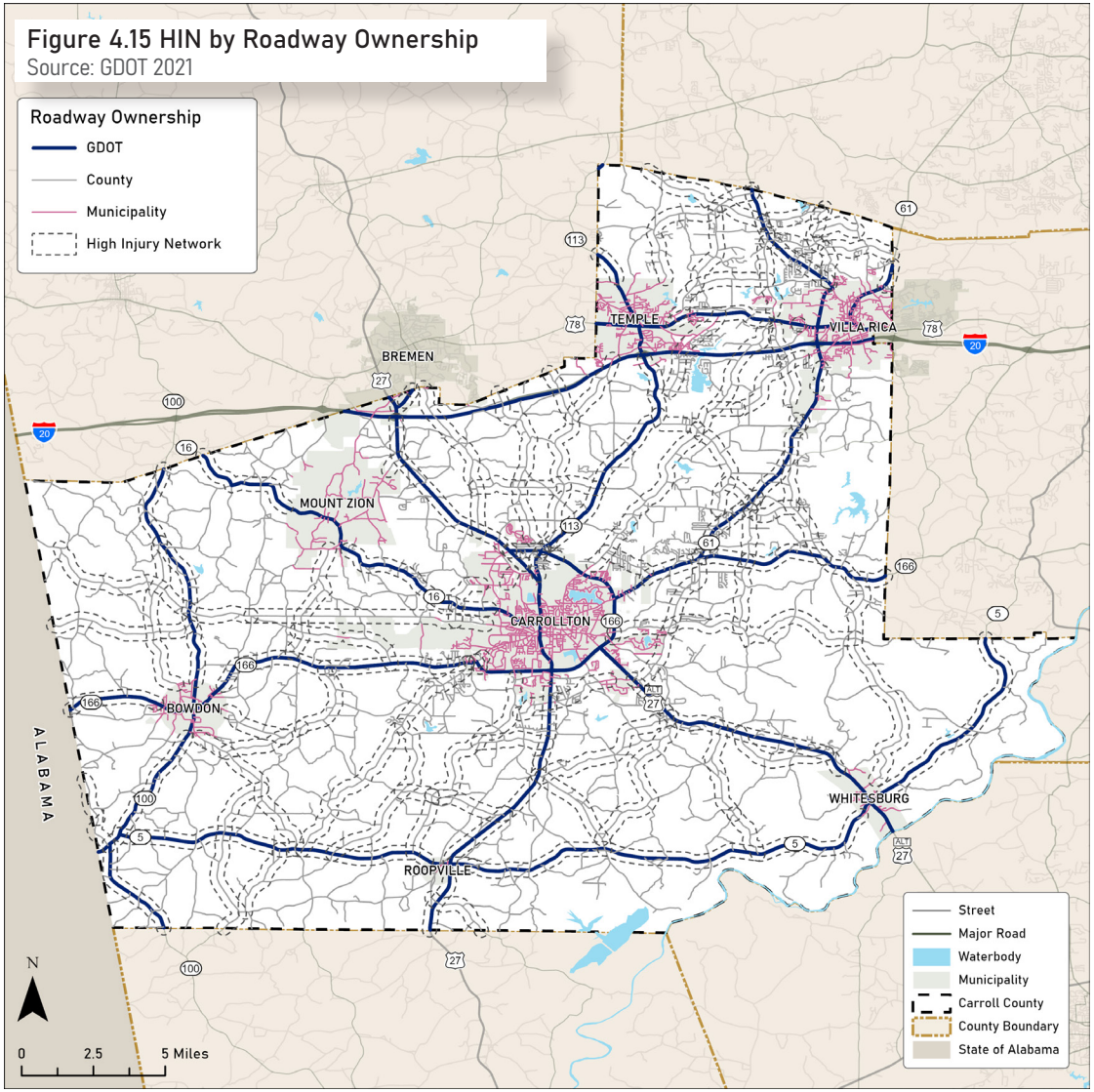


Figure 4.15 illustrates roadway ownership in Carroll County, highlighting the agencies responsible for maintaining and improving the transportation network. According to GDOT's roadway database, roads in Carroll County are managed by GDOT, Carroll County, or municipal agencies. The Carroll County Public Works Department is responsible for providing maintenance on county roadways and rights-of-way.

Major corridors such as US 27, US 78, SR 5, SR 16, SR 61, SR 100, SR 113, SR 166, and I-20 are maintained by GDOT, as they serve as key state routes with higher traffic volumes. Meanwhile, county and municipal agencies oversee local roads and some collector routes.

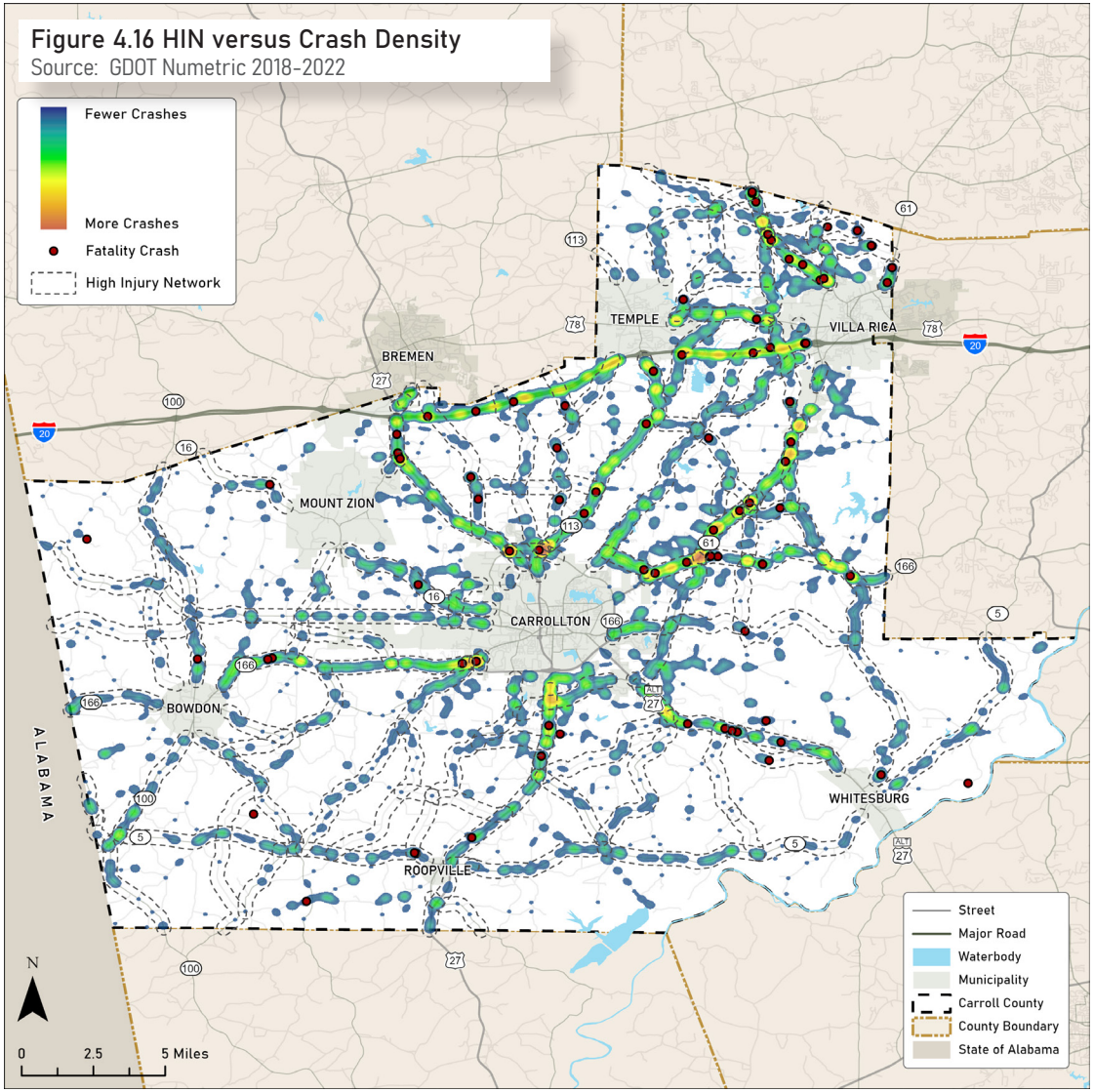


Figure 4.16 HIN versus Crash Density
Source: GDOT Numetric 2018-2022

The High Injury Network (HIN) highlights corridors that exhibit multiple safety risk factors, identifying them as priority areas for intervention. While the crash density map illustrates locations with high overall crash volumes, the HIN provides a more nuanced assessment by incorporating five key safety criteria, including bike and pedestrian crashes, crash history, crash rate, and KSI (killed or seriously injured) crash rate. The corridors with the highest scores on the HIN demonstrate a significant safety need, as they meet multiple risk factors and have a disproportionate number of KSI crashes.

Corridors such as SR 166 and Rockmart Road, both scoring a maximum of 5, meet all five safety criteria, indicating a consistent pattern of crashes, including those involving vulnerable road users. These roadways not only experience frequent incidents but also pose a heightened risk for severe injuries and fatalities. Similarly, SR 100, Center Point Road, and Horsley Mill Road, each scoring 4, exhibit a combination of crash history, high crash rates, and elevated KSI crash rates. While some of these corridors may not have the highest total number of crashes, their inclusion in the HIN underscores the severity of incidents occurring there. This distinction between crash density and safety criteria reinforces the need for targeted safety measures, such as traffic calming, enhanced enforcement, and infrastructure improvements, to reduce the frequency and severity of crashes on these high-risk corridors.

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CHAPTER V.

PROJECT DEVELOPMENT AND PRIORITIZATION

Project Development Process

Improving transportation safety requires a strategic, data-driven approach to identifying high-risk locations and implementing targeted countermeasures. The Safety Action Plan for Carroll County is designed to reduce fatal and serious injury (KSI) crashes by systematically assessing crash trends, evaluating contributing factors, and prioritizing safety improvements.

The project development process ensures that resources are allocated efficiently, focusing on locations with the greatest potential for crash reduction. This process involves four key steps: Project Identification, Field Investigation, Countermeasure Selection, and Project Prioritization. By integrating crash data analysis, on-site assessments, proven safety strategies, and stakeholder input, the approach balances technical expertise with community needs.

The methodology not only considers historical crash data but also incorporates factors such as traffic volumes, roadway characteristics, and risks associated with active transportation modes, including pedestrians, bicyclists, and golf cart users. By prioritizing projects based on safety impact and feasibility, Carroll County can implement improvements that maximize overall roadway safety and enhance the quality of life for all road users.

The following pages outline the step-by-step process used to develop a targeted list of safety projects for Carroll County.

STEP 1: PROJECT IDENTIFICATION/ SCREENING PROCESS

The first step in the project development process was Project Identification, which involved a systematic and data-driven approach to pinpointing locations with the highest risk of fatal and serious injury (KSI) crashes. This step was essential in ensuring that safety improvements were targeted at areas with the greatest potential for crash reduction.

Historical Crash Trends

Locations with higher than expected crash rates over time were given additional consideration.

Roadway Characteristics

Features such as lane width, speed limits, and the presence of medians or shoulders were assessed for their role in crash severity.

Active Transportation Risks

Areas with pedestrian and/or bicycle activity were flagged for further evaluation, particularly where crashes involving these users had occurred.

Community Feedback

Public and stakeholder input was integrated to identify safety concerns that may not have been fully captured through crash data alone.

By combining quantitative crash data with qualitative insights from the community, the Project Identification process ensured a comprehensive and balanced approach to prioritizing high-risk locations. This step laid the foundation for field investigations and the development of targeted safety improvements across Carroll County.

STEP 2: FIELD INVESTIGATION

As part of the project development process, the project team conducted detailed site visits at prioritized locations identified through the initial screening process. These site visits were crucial for evaluating real-world conditions and understanding specific risks to drivers, pedestrians, and cyclists at high-risk locations, especially those with a history of fatal or serious injury (KSI) crashes.

Key Areas of Assessment

During these site visits, the project team focused on identifying roadway features and conditions that could contribute to safety hazards. Several key areas were thoroughly assessed to gain a comprehensive understanding of the challenges at each location:

Roadway Geometry

Intersections with inadequate turning lanes, roads with sharp curves, steep grades, or limited shoulders were closely examined. These elements can significantly increase crash risk by restricting driver maneuverability or visibility.

Pedestrian and Bicyclist Infrastructure

Special attention was given to crosswalks, ensuring they had refuge areas, proper signalization, and adequate separation from high-speed traffic. This assessment aimed to improve safety for vulnerable road users.

Pavement and Markings

The condition of the pavement, visibility of lane markings, and their effectiveness in various weather and lighting conditions were evaluated. Properly maintained road markings are essential for guiding drivers safely and minimizing confusion.

Signage and Lighting

The adequacy, clarity, and placement of signage and roadway lighting were reviewed to ensure they effectively guide drivers and increase awareness, especially in areas where visibility is limited or where safety hazards exist.

Traffic Flow and User Behavior

Observations of vehicle speeds, traffic congestion, and the interaction between different road users helped the team understand how driver behavior contributes to safety risks. This included identifying locations where aggressive driving, speeding, or driver confusion might lead to accidents.

These real-world observations allowed the team to identify specific hazards and develop targeted solutions to address them.

STEP 3: COUNTERMEASURE SELECTION

Following the field investigation, appropriate safety countermeasures were identified based on best practices and proven crash reduction strategies. These measures ranged from low-cost improvements, such as enhanced signage and pavement markings, to more substantial infrastructure changes, such as signal upgrades, pedestrian crossings, and roadway reconfigurations. The selection process considered historical crash trends, active mode risk factors, and feasibility of implementation.

The project team identified a range of engineering countermeasures based on the following.

Crash Reduction Potential

Measures targeting Carroll County's High Injury Network (HIN) to minimize severe and fatal crashes by addressing high-risk conflicts, vehicle speeds, and driver awareness.

Systemic Application

Countermeasures suitable for widespread implementation, with an emphasis on pedestrian and bicyclist safety, as well as speed management.

Cost and Feasibility

Solutions aligned with available funding and resources for practical implementation.

Community Input

Measures that reflect local priorities and address identified safety concerns.

A matrix of Federal Highway Administration (FHWA)-approved countermeasures was developed to support both short- and long-term safety goals. These measures address key priorities, including:

- Intersection Safety
- Roadway Departures
- Speed Management
- Bicycle and Pedestrian Safety

By implementing a combination of these strategies, Carroll County can make targeted, data-driven investments to enhance roadway safety and align with both federal guidelines and community needs. Detailed fact sheets for the recommended countermeasures are provided in **Appendix A.**

More information and interactive tool available via: https://highways.dot.gov/safety/proven-safety-countermeasures

STEP 4: PROJECT PRIORITIZATION

The project prioritization is based on a structured evaluation framework that assigns weighted scores across key metrics. These metrics encompass safety, equity, multimodal accessibility, and stakeholder input, ensuring a comprehensive assessment of each project's impact and feasibility as detailed in Table 5.12.

Safety Considerations

Projects are evaluated based on historical crash data, posted speed limits, and design deficiencies. Higher scores are assigned to locations with documented serious injury or fatal crashes, high-speed limits, or significant design issues.

Equity Factors

The assessment includes demographic considerations such as the presence of disadvantaged populations, minority communities, and areas with low vehicle ownership. Projects serving these communities receive higher prioritization.

Multimodal Connectivity

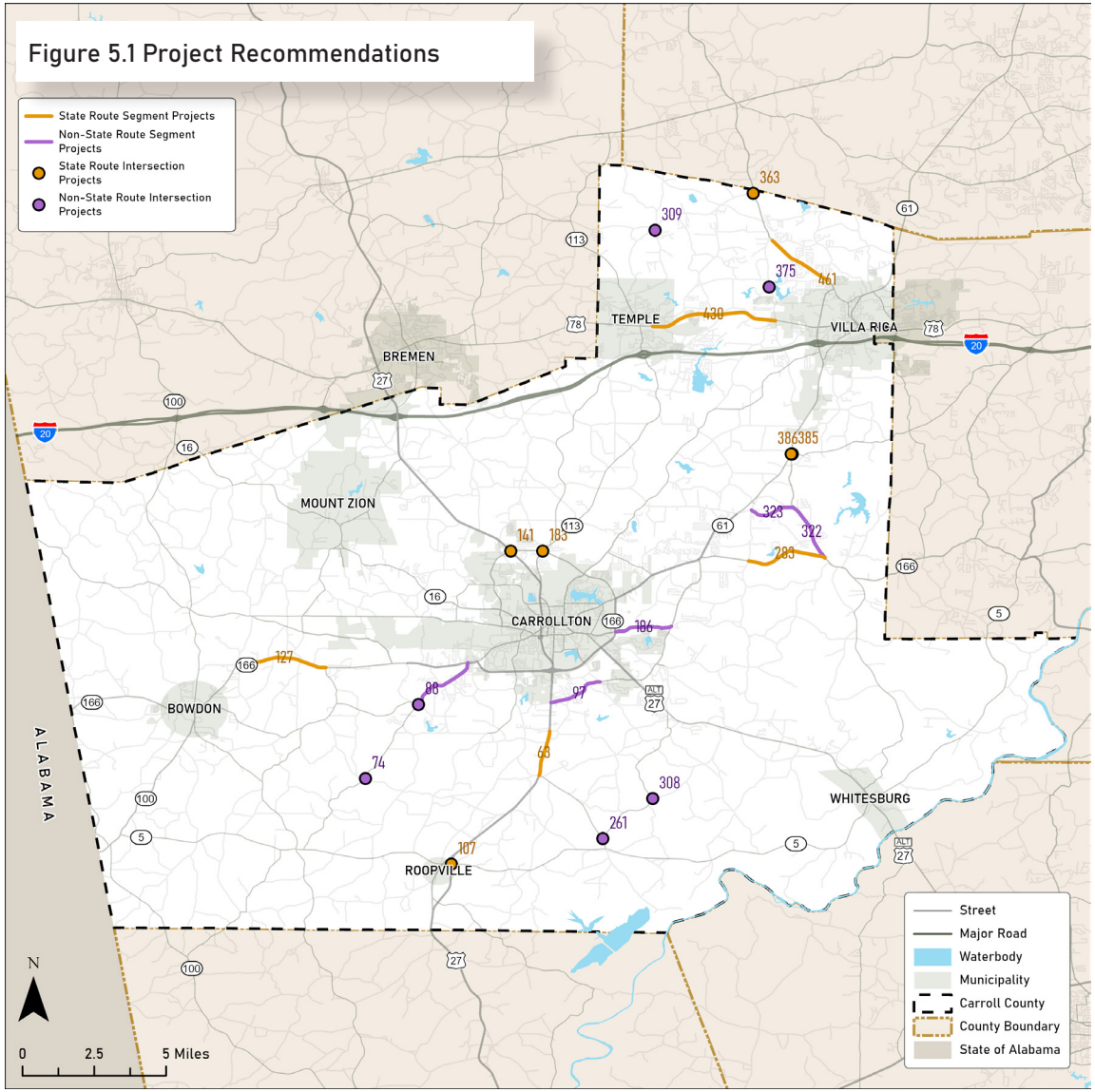
The methodology considers pedestrian, bicycle, and golf cart infrastructure needs. Projects that address existing gaps, provide new connectivity, or are located in areas with documented multimodal crashes receive higher scores.

Stakeholder Engagement & Feasibility

Community support, potential deliverability challenges, and collaboration across jurisdictions are key factors in determining project feasibility. Higher engagement and fewer implementation barriers contribute to a more favorable prioritization.

Each project receives a cumulative score based on the sum of individual metric ratings. This data-driven approach ensures that funding and resources are allocated to projects with the greatest potential to improve safety, equity, and mobility while considering feasibility and public support. The project prioritizations scoring results are detailed in Table 5.18 for intersections and Table 5.19 for segments.

Project Recommendations



The project lists were developed for unincorporated Carroll County These project lists are separated into state routes and non-state routes. Priority was given to locations with a history of fatal and serious injury (KSI) crashes, following a data-driven approach that considers crash frequency, crash rates, and exposure factors.

In addition to these jurisdictional lists, a countywide analysis was conducted to identify high-risk locations that require safety interventions regardless of jurisdictional boundaries. This broader perspective allows for a systemic approach to transportation safety, ensuring that critical corridors and intersections with the highest crash risks are recognized and addressed at the county level.

A key component of this approach is its alignment with the High Injury Network (HIN)—a framework that identifies roadways where severe crashes are most concentrated. By integrating the HIN into the prioritization process, the project lists directly target Carroll County's most dangerous road segments and intersections. This ensures that resources are allocated efficiently, focusing on locations where safety improvements will have the greatest impact on reducing serious injuries and fatalities.

By incorporating both localized and countywide perspectives, the project lists create a comprehensive framework for prioritizing and implementing safety interventions. This approach strengthens Carroll County's ability to systematically reduce crash risks, enhance equitable transportation safety, and support long-term Vision Zero goals.

Project Evaluation Metrics

Table 5.1 Evaluation Metrics

EVALUATION METRIC	INDICATOR	DESCRIPTION	SCORE RANGE	
			LOW	HIGH
SS4A	High Injury Network	Is the project location on the High-Injury Network (i.e., a Carroll-County top 15 HIN roadway/intersection)? (Y/N)	0	5
SS4A	Disadvantaged Area	Is the project within or proximate to an area that may be considered Disadvantaged? Factors may include areas of low income/poverty, limited English, age (youth or seniors), male/female ratios, racial minorities, ethnic minorities, foreign-born, disabilities, etc. Score from 0 (no applicable factors) to 5 (several factors in same area).	0	5
Safety	Serious Injury Crash	Has a potentially-correctible serious injury occurred within the project area?	0	3
Safety	Fatal Crash	Has a potentially-correctible fatality occurred within the project area?	0	5
Safety	Posted Speed Limit	What is the posted speed limit for the project location? <30 mph - 0; 30 to 45 mph - 3; >45 mph - 5.	0	5
Safety	Design Deficiencies	Are there known design deficiencies relative to current design standards? Minimal to none - 0; Some - 3; Significant - 5.	0	5
Equity	Minority Population	Is the project located within or proximate to an area with higher-than-average (relative to Carroll County census data) minority populations? (Y/N)	0	3
Equity	Vehicle Ownership	Is there a known significant percentage of the population that does not own a vehicle (excluding golf carts)? (Y/N)	0	3
Multimodal	Pedestrian, Bicycle, or Golf Cart Involved Crash	Are there documented crashes with pedestrians, bicyclists, or golf carts in the project area? None - 0; One or Two crashes - 3; Several - 5	0	3
Multimodal	Existing Path Facility	Is the project in an area that lacks existing bike/ped/golf cart facilities and has latent demand for such accommodations? (Y/N)	0	3
Multimodal	Facility Gap Connection	Does the project provide bike/ped/golf cart connectivity to one or more destination centers OR fill a gap between existing bike/ped/golf cart infrastructure segments? (Y/N)	0	3
Engagement	Stakeholder / Public Identification	Is the project supported through engagement with the stakeholders and public? No - 0; Some - 3; Strongly - 5.	0	5
Engagement	Deliverability	Are there known deliverability concerns (e.g., environmental, private property impacts, utility conflicts, etc.) that surfaced during public engagement or preliminary evaluation? Major Issues - 0, Minimal - 1, None - 3.	0	3
Engagement	Collaboration	Is there an opportunity for multiple-jurisdiction support for the project? (Y/N)	0	3

NON - STATE ROUTE PROJECTS

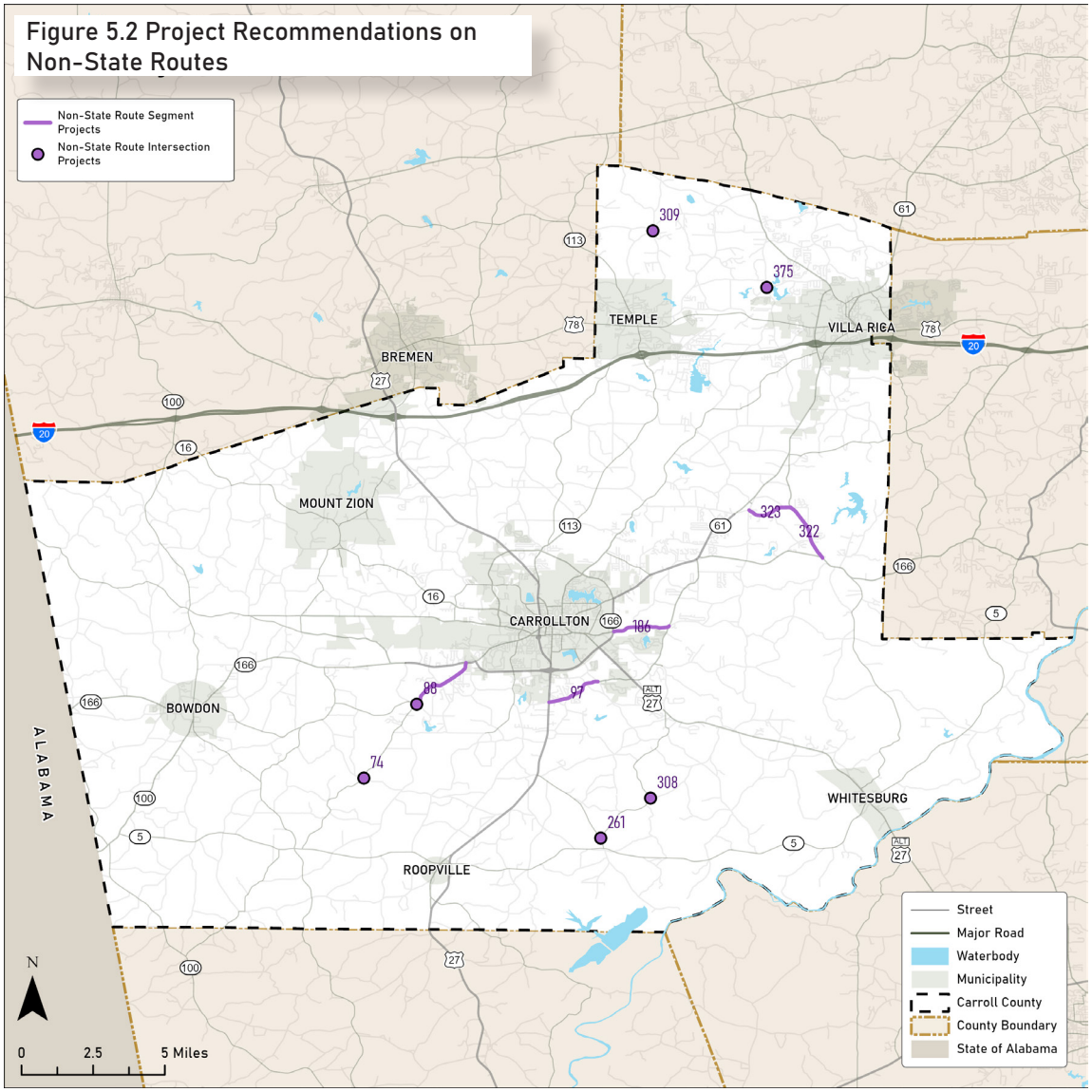


Figure 5.2 Project Recommendations on Non-State Routes

Table 5.2 Non-State Route Intersection Projects

ID	INTERSECTION LOCATION	COUNTY WIDE (NSR[1]) RANKING	TOTAL PROJECT SCORE
375	Van Wert Rd at Lake Paradise Rd	1	41
74	Tyus Carrollton Rd at Baxter Rd	6	31
261	Lowell Rd at Clem Lowell Rd	3	28
309	Morgan Rd at Rainey Rd	2	24
88	Tyus Carrollton Rd at Salem Church Rd	4	17
308	Davis Road at Clem Lowell Road	5	0

1 - Non-State Route
* Ranking greater than 15

Table 5.3 Non-State Route Segment Projects

ID	SEGMENT LOCATION	COUNTY WIDE (NSR[1]) RANKING	TOTAL PROJECT SCORE
186	Horsley Mill Rd between SR 166 / Carrollton Bypass and Pleasant Hill Rd	3	41
116	Tyus Carrollton Rd between Salem Church Rd and SR 166 / Maple St	4	41
322	Sandhill Hulett Rd between Fairfield Rd and SR 166 / Bankhead Hwy	1	39
97	Stripling Chapel Rd between SR 1 / Martha Berry Hwy and Blandenburg Rd	5	37
323	Sandhill Hulett Rd between Four Notch Rd and Moss Ferry Rd	2	36

1 - Non-State Route
* Ranking greater than 15

STATE ROUTE PROJECTS

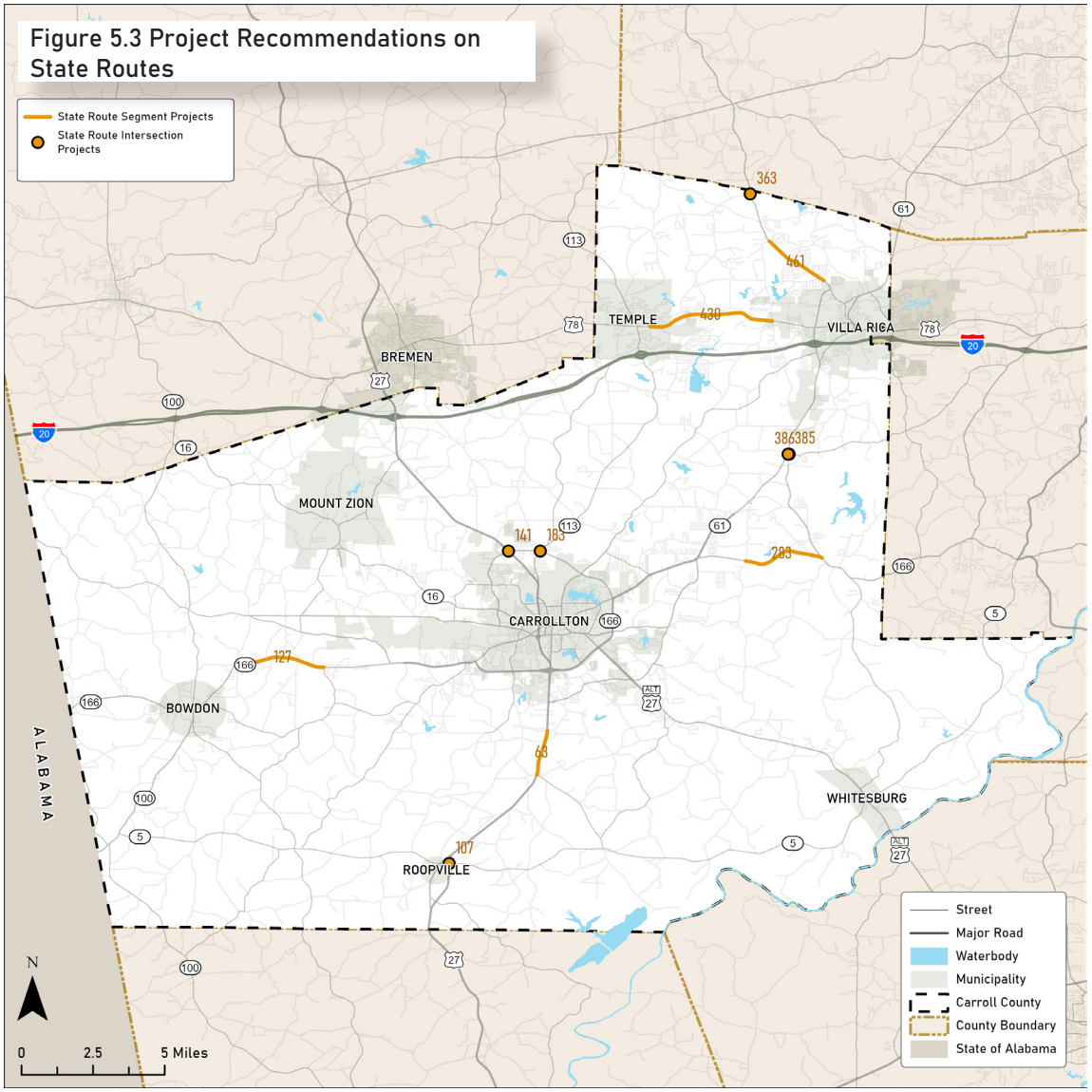


Figure 5.3 Project Recommendations on State Routes

Table 5.4 State Route Intersection Projects

ID	INTERSECTION LOCATION	COUNTY WIDE RANKING	TOTAL PROJECT SCORE
183	Linda Lane at SR 113	4	63
363	SR 101 at Rainey Road	2	54
386*	Flat Rock Rd at Moss Ferry Rd	7	51
141	Linda Lane at SR 27	3	51
385*	SR 61 at Flat Rock Road	8	51
107	S Highway 27 at SR 5 / Old Highway 27 at SR 5	1	41

*** Recommended improvement projects should be implemented together.**

Table 5.5 State Route Segment Projects

ID	SEGMENT LOCATION	COUNTY WIDE RANKING	TOTAL PROJECT SCORE
430	SR 8 between SR 274 and N Van Wert Rd	1	51
63	SR 1 (Martha Berry Hwy) between Cedar Heights Rd and Lowell Rd	4	50
461	SR 101 (Rockmart Rd) between Wesley Chapel Rd and Harlan Lane Rd	3	49
127	SR 166 between Jonesville Rd and Farmers High Rd	5	47
283	SR 166 (Bankhead Hwy) between SR 61 and Sandhill Hulett Rd	2	45

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CHAPTER VI.

POLICY FRAMEWORK

Infrastructure projects alone are unlikely to be sufficient in achieving the County's Vision Zero goal. While they are a vital component, the County must also tackle the broader systemic issues that contribute to traffic-related fatalities and injuries.

To fully realize this vision, policies and programs will be essential in cultivating a culture of safety, prioritizing human-centered design, and driving the paradigm shift needed for lasting change. The recommended policies and programs address specific needs and deficiencies identified through stakeholder and public engagement, ensuring they align with community priorities and provide a comprehensive approach to achieving Vision Zero.

These measures will complement infrastructure improvements by focusing on education, enforcement, and behavioral change—key factors for long-term success in realizing Vision Zero.

Policy Recommendations

1. TRANSPORTATION COMMITTEE

To foster collaboration and enhance coordination on safety initiatives, Carroll County should utilize the previously established a multi-agency and multi-jurisdictional working group to serve as a platform for stakeholders, including local governments, law enforcement agencies, transportation departments, and community organizations, to identify and address transportation safety challenges effectively.

2. PROJECT SELECTION PROCESS

The Transportation Committee should review its project prioritization processes to ensure that locations with high crash frequencies receive the highest level of attention and resources. By focusing investments on high-risk areas, the county can maximize the impact of safety improvements and reduce severe crashes.

3. COUNTERMEASURE GUIDELINES

To improve the consistency and effectiveness of safety interventions, develop formal guidance on where, when, and how to implement safety countermeasures detailed within the Safety Action Plan. Additionally, the review of alternative intersection treatments, following GDOT's Intersection Control Evaluation (ICE) Policy, should be utilized to identify safer intersection designs.

4. LAND DEVELOPMENT GUIDELINES

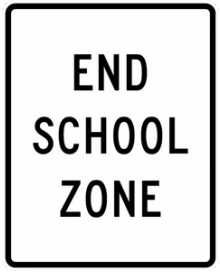
As development continues across Carroll County, it is critical to integrate safety considerations into the development review process. Updating review criteria will ensure that new developments proactively address transportation safety needs and contribute to a safer road network.

5. CONTEXT-BASED DESIGN STANDARDS

Develop design requirements tailored to specific environments, such as school zones, urban centers, and rural roadways. These standards will guide infrastructure improvements that prioritize safety for all road users. At a minimum, all school zones should include the following signage and pavement markings detailed in Figure 6.1.

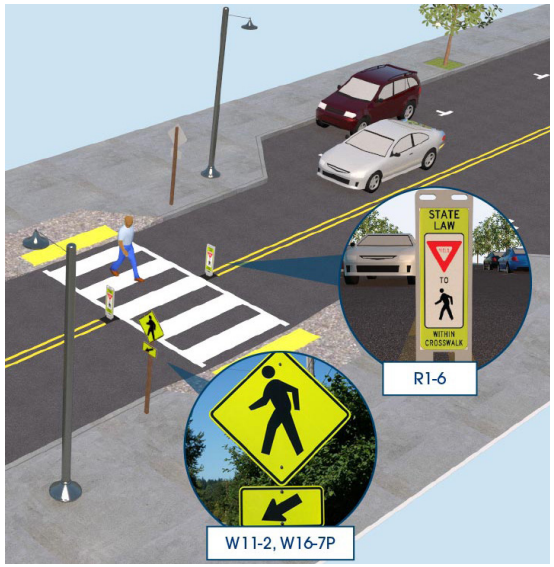
Figure 6.1 Examples of School Zone Signage and Pavement Markings

SCHOOL SIGN
S1-1
Indicates the beginning of a school zone



END SCHOOL ZONE
S5-2
Indicates the end of a school zone

REDUCED SCHOOL SPEED LIMIT AHEAD SIGN
S4-5, S4-5A
Informs drivers of a reduced speed limit



CROSSWALK MARKINGS: Direct pedestrians to cross the street at safe locations

IN-STREET PEDESTRIAN CROSSING R1-6: Direct drivers to yield for pedestrians within the crosswalk

PEDESTRIAN WARNING SIGN W11-2: Alert of pedestrians crossing the roadway

DIAGONAL DOWNWARD PEDESTRIAN ARROW W16-7P: Placed where active mode users may cross the roadway

"SCHOOL" ON PAVEMENT
Applied in strategic areas

Program Recommendations

1. ACCESS MANAGEMENT PROGRAM

Carroll County should conduct a thorough review of existing median breaks along corridors within the high injury network. The program should explore potential median closures using Reduced Conflict U-Turn (RCUT) or Right-In/Right-Out (RIRO) intersections to enhance traffic flow and reduce crash risk.

2. SPEED MANAGEMENT PROGRAM

To address speeding-related crashes, the County should establish target speeds for priority roadways and implement appropriate speed management countermeasures. This may include traffic calming measures, speed enforcement enhancements, and roadway design modifications.

3. RURAL ROAD SAFETY PROGRAM

With ongoing development in rural areas, Carroll County must proactively monitor road safety concerns in high-growth zones. This program will identify and address potential hazards before they contribute to an increase in crashes.

4. RAPID RESPONSE/QUICK BUILD PROGRAM

A rapid response program will enable the County to deploy low-cost safety countermeasures at high-priority locations quickly. This approach ensures that urgent safety concerns are addressed efficiently without waiting for long-term capital improvement projects.

5. SAFE ROUTES TO SCHOOL PROGRAM/SCHOOL ZONE SAFETY UPDATES

Carroll County should develop a comprehensive strategy that incorporates the following elements:

- Assessing Current Conditions: Conducting an inventory of existing school zone infrastructure.
- Safety Audits: Evaluating the roadway network within a ½-mile radius of each school to identify safety concerns.
- Infrastructure Enhancements: Upgrades based on Context-Based Design Standards to improve safety.
- Priority should be given to schools with the highest number of crashes within a ½-mile radius.

6. GDOT DESIGN STANDARD UPGRADES

To align with modern roadway safety standards, Carroll County should collaborate with GDOT to identify and upgrade locations that do not meet current design requirements. This initiative will improve roadway conditions, enhancing safety for all users.

Recommended Departure Prevention Program

The Carroll County Safe Streets for All (SS4A) Safety Action Plan prioritizes roadway safety improvements, particularly on corridors within unincorporated Carroll County. A key strategy is the enhancement of roadway shoulders to mitigate roadway departure crashes, provide vehicle recovery space, and accommodate non-motorized users through:

1. **Corridor Selection Process**
2. **Recommended Three-Tiered Program**
3. **Speed Reduction Program**
4. **Reflective Pavement Markings for Lane Discipline**
5. **State Route Shoulder Widening**

CARROLL COUNTY STAKEHOLDER PRIORITY CORRIDOR

As part of the Safe Streets and Roads for All (SS4A) Safety Action Plan, Carroll County has identified rural roadway departure prevention as a top safety priority. Roadway departures — where vehicles leave the travel lane — are a leading cause of severe and fatal crashes, particularly on rural corridors that lack forgiving roadside environments.

In Carroll County, the focus is on high-risk rural routes that experience frequent roadway departures due to factors such as narrow shoulders, sharp curves, limited visibility, and minimal roadway delineation. The following corridors have been identified as priority areas for targeted safety improvements:

Table 6.1 Non-State Route Priortiy Corridors

SEGMENT LOCATION
Jones Mill Road
Lowell Road
Centerpoint Road
Bowdon-Tyus Road
Harlan Lane Road
Rainey Road

To address these challenges, the County will implement a series of proven countermeasures, including:

- Installation of centerline and shoulder rumble strips to alert drivers who drift from the travel lane.
- Application of SafetyEdgeSM during resurfacing projects to reduce the risk of run-off-road and rollover crashes.
- Enhanced curve delineation through improved signage and reflective elements to increase driver awareness.
- Shoulder widening and targeted repaving to create safer recovery areas and reduce crash severity.

These strategies are part of a data-driven, stakeholder-supported approach to reducing roadway departure crashes and improving safety along Carroll County's rural transportation network.

CORRIDOR SELECTION PROCESS

Corridors should be evaluated based on the following:

Crash Data Analysis

Identifying roadways with a high frequency of roadway departure crashes, particularly those resulting in fatalities or serious injuries (KSI).

Traffic Volume & Functional Classification

Differentiating between local roads and state routes to determine appropriate widening recommendations.

Geometric Constraints

Assessing the feasibility of shoulder widening based on right-of-way limitations, existing roadway conditions, and surrounding terrain.

Coordination Requirements

Determining whether improvements can be completed within Carroll County's jurisdiction or require GDOT involvement for state routes.

RECOMMENDED THREE-TIERED PROGRAM

LOCAL ROADWAY PROGRAM

Minor Shoulder Widening (via Existing Pavement Program)

- Corridors where minor widening (approximately 1 foot) can be incorporated into routine resurfacing projects without major grading or additional right-of-way acquisition.
- Focus on lower-volume rural roadways with moderate crash risk.
- Implementation as part of the county's annual pavement preservation program.

Intermediate Shoulder Widening (via Separate Roadway Shoulder Widening Program)

- Corridors requiring minor grading and drainage adjustments to accommodate wider shoulders (approximately 2-3 feet).
- Prioritized for collector roadways with moderate traffic volumes and documented roadway departure issues.
- Implemented through a dedicated county-led widening initiative separate from routine resurfacing.

Major Shoulder Widening for High-Risk Corridors

- Corridors with higher traffic volumes and a history of KSI crashes related to roadway departures.
- Widening recommendations based on functional classification:
  - Major Collectors: Targeted for 4-foot paved shoulders where feasible.
  - Minor Collectors: Minimum of 2-foot paved shoulders, expanding where necessary.
- Requires engineering evaluation to assess necessary design modifications, drainage considerations, and funding strategies.
- If shoulder widening is not feasible, installation of guardrail should be considered.

SPEED REDUCTION PROGRAM

In locations where shoulder widening is not feasible due to physical constraints (e.g., steep embankments, utility conflicts, or right-of-way limitations), a speed reduction program should be implemented in coordination with GDOT to improve safety. This includes:

Revised Speed Limits

Lowering speed limits on constrained corridors with high roadway departure risks.

Targeted Enforcement & Public Awareness Campaigns

Ensuring lower speed limits are enforceable by local law enforcement.

Traffic Calming Measures

Installing additional signage, pavement markings, and speed feedback signs to encourage compliance.

REFLECTIVE PAVEMENT MARKINGS FOR LANE DISCIPLINE

To further enhance roadway safety, reflective pavement markings (RPMs) should be installed along the centerline in a manner that:

Discourages Centerline Avoidance

Ensures RPM placement does not encourage drivers to shift closer to the pavement edge, thereby increasing departure crash risk.

Enhances Nighttime Visibility

Uses high-visibility materials to improve lane guidance, particularly on roads with limited lighting.

Improves Lane Positioning

Encourages drivers to maintain proper lane discipline, reducing the likelihood of erratic movements near the pavement edge.

STATE ROUTE JURISDICTION (GDOT COORDINATION REQUIRED)

For state routes within Carroll County, coordination with GDOT will be necessary to implement shoulder widening improvements. Recommended actions include:

Joint Evaluation of High-Risk Corridors

Identifying state routes with frequent roadway departure crashes and prioritizing them for widening under GDOT's safety improvement programs.

Cost-Sharing Opportunities

Exploring potential funding mechanisms, such as GDOT's Local Maintenance & Improvement Grant (LMIG) program or federal safety funding, to assist with shoulder widening projects.

Interim Safety Enhancements

Where widening is infeasible in the near term, rumble strips, signage improvements, and targeted enforcement measures should be pursued to reduce crash risk.

Policy and Program Implementation Stakeholders

The Transportation Committee plays a pivotal role in the coordination and implementation of both policy and program initiatives. The committee ensures that efforts across various agencies, jurisdictions, and stakeholders are aligned with overarching transportation safety goals. Its involvement helps maintain consistency, promotes stakeholder engagement, and ensures that safety strategies are effectively integrated into planning and operations. The policy and program stakeholders are summarized in Table 6.4.

Table 6.2 Policy Stakeholders

POLICY ID	POLICY	STAKEHOLDERS
1	Transportation Committee	Representation from various agencies and jurisdictions
2	Project Selection Process	City/County Engineering Staff Partner(s): Local Law Enforcement
3	Context Based Design Standards	City/County Planning and Engineering Departments Partner(s): City/County School district, Neighborhood Associations, The public
4	Countermeasure Guidelines	Lead: City/County Planning and Engineering Departments Partner(s): GDOT, Neighborhood Associations, Local Law Enforcement
5	Land Development Guidelines	Lead: City/County Planning and Engineering Departments, Partner(s): City/County Legal Departments, the development community, Neighborhood Associations

Table 6.3 Program Stakeholders

PROGRAM ID	PROGRAM	STAKEHOLDERS
A	Access Management	Lead: City/County Engineering Staff Partner(s): Local Law Enforcement, GDOT, Neighborhood Associations, the Public
B	Speed Management	Lead: City/County Engineering Staff Partner(s): Local Law Enforcement, GDOT, Neighborhood Associations, the Public
C	Rural Road Safety	Lead: City/County Engineering Staff Partner(s): City/ County Planning Staff
D	Rapid Response	Lead: City/County Engineering Staff Partner(s): GDOT, Local Law Enforcement, Neighborhood Associations, the Public
E	School Zone Safety	Lead: City/County Engineering Staff Partner(s): City/ County school districts, City/County Planning Staff
F	GDOT Design Updates	Lead: City/County Engineering Staff Partner(s): GDOT

SECTION VII.

IMPLEMENTATION STRATEGY & WORK PROGRAM

IMPLEMENTATION STRATEGY FOR PRIORITY SAFETY RECOMMENDATIONS

To ensure the effective implementation of the priority safety recommendations outlined in Chapter 5, this section presents a coordinated work program that aligns with the needs and responsibilities of each jurisdiction in unincorporated Carroll County.

Each jurisdiction should conduct its own localized improvement program while maintaining ongoing coordination with the others to promote consistency, maximize funding opportunities, and enhance safety across the entire county.

WORK PROGRAM STRUCTURE

The recommended work program organizes safety recommendations into short-term and mid-term projects, categorized based on complexity, cost, and priority.

- **Short-Term Projects focus on low-cost, high-impact improvements** that can be quickly implemented or bundled with similar improvement countermeasures. Examples include enhanced signage, pavement markings, intersection visibility improvements, and targeted enforcement programs.
- **Mid-Term Projects require more detailed planning, funding acquisition, and engineering design.**

Examples: corridor-level improvements, new pedestrian/bicycle infrastructure, signalization upgrades, and traffic calming projects. Jurisdictions should collaborate through the Transportation Committee to ensure project consistency across borders and explore joint funding opportunities.

Project Recommendation Summary Tables

Table 7.1 Intersection Project Recommendations (Non-State Route)

ID	COUNTY WIDE (NSR1) RANKING	LOCATION	PROJECT DESCRIPTION	COST ESTIMATE	TOTAL PROJECT SCORE
375	1	Van Wert Rd at Lake Paradise Rd	Short-Term: Installation of Advanced Warning Signs including edge-lit "End of Road" signs; Advance Stop Line Rumble Strips (ASLRS) along Van Vert Road; Intersection Warning Sign along Van Wert Road to address poor sight distance Long-Term: Re-align Old Van Wert Road with Lake Paradist Road; install turn lanes at intersection.	Short-term Countermeasure: $6,100; Mid/Long-term Countermeasure: Realignment: $452,000	41
74	6	Tyus Carrollton Rd at Baxter Rd	Short-Term: Install edge and center line rumble strips; "Road Narrows" Sign; Improve turn lane pavement markings; Add painted islands and edge-lit Chevrons at intersection curve. Long-Term: Vertical Geometric Improvements along Baxter Road; Cut back slope on northeast quadrant to improve sight distance; Shoulder Widening along Tyus Carrollton Rd north and south of bridge.	Short-term Countermeasure: $9,100; Mid/Long-term Countermeasure: $1,556,000	31
261	3	Lowell Rd at Clem Lowell Rd	Short-Term: Installation of Advanced Warning Signs including edge-lit "End of Road" signs & "Stop Ahead"; Advance Stop Line Rumble Strips. Long-Term: Lowering vertical curve along Lowell Rd for northbound approach vehicles to improve sight distance at intersection; shoulder widening along Lowell Rd along northbound and southbound approaches.	Short-term Countermeasure: $3,200; Mid/Long-term Countermeasure: $520,000	28
309	2	Morgan Rd at Rainey Rd	Short-Term: Installation of Advanced Warning Signs including edge-lit "End of Road" signs; Advance Stop Line Rumble Strips; Trimming of Vegitation to improve sight distance; updgrading all signage and pavement markings at intersection Long-Term: Installation of northbound left-turn lane to remove turning vehicles from travel lane.	Short-term Countermeasure: $3,400	24
88	4	Tyus Carrollton Rd at Salem Church Rd	Installation of Advanced Warning Signs including edge-lit "End of Road" signs & "Stop Ahead"; Advance Stop Line Rumble Strips; Adding Stop Bar along Salem Church Road; Upgrading signage and striping at intersection; Flashing sign along Salem Church Road to indicate that a vehicle is present on Tyus Carrollton Rd.	Short-term Countermeasure: $3,200	17
308	5	Davis Road at Clem Lowell Road	This intersection has been improved to remove Davis Road leg of the triangle. Short/Mid-term Countermeasure: This would involve monitoring the intersection for three years for safety and traffic operations.	Short-term Countermeasure: $16,800	0

Table 7.2 Segment Project Recommendations (Non-State Route)

ID	COUNTY WIDE (NSR1) RANKING	LOCATION	PROJECT DESCRIPTION	COST ESTIMATE	TOTAL PROJECT SCORE
186	3	Horsley Mill Rd between SR 166 / Carrollton Bypass and Pleasant Hill Rd	Short-term Countermeasure: This would involve speeding public information include dynamic message signs along Horsley Mill Rd; add "curve warning" signs; add "intersection ahead" signs, consider providing guardrails along sections with shoulder drop-offs.	Short-term Countermeasure: $90,000	41
116	4	Tyus Carrollton Rd between Salem Church Rd and SR 166 / Maple St	Short-term Countermeasure: This would involve speeding public information include dynamic message signs along Tyus Carrollton Rd; add "curve warning" signs; add "intersection ahead" signs, clear vegetation along the roadway. Consider providing guardrails along sections with shoulder drop-offs.	Short-term Countermeasure: $517,000	41
322	1	Sandhill Hulett Rd between Fairfield Rd and SR 166 / Bankhead Hwy	Short-term Countermeasure: This measure would involve speeding public information include dynamic message signs along Sandhill Hulett Rd; add "curve warning" signs, widen shoulders or consider providing guardrails along sections with shoulder drop-offs and adding passing lanes at intersections where feasible.	Short-term Countermeasure: $375,000	39
97	5	Stripling Chapel Rd between SR 1 / Martha Berry Hwy and Blandenburg Rd	Short-Term: Install Dynamic Message signs to support public information campaigns regarding speeding; install "Curve Warning" signs and "intersection ahead" signs near intersections with vertical curves; Upgraded Reflective Pavement Markings; Install additional signage indicating One-Way operations along Primary School Road Long-Term: Widen Stripling Chapel Road in the vicinity of the two school entrances to install a center two-way left-turn lane.	Short-term Countermeasure: $151,000; Mid/Long-term Countermeasure: $750,000	37
323	2	Sandhill Hulett Rd between Four Notch Rd ando Moss Ferry Rd	Short Term: Install Dynamic Message signs to support public information campaigns regarding speeding; Install "Curve Warning" signs; Install center and edge line rumble strips along with shoulder widening or guardrails; radar speed feedback signs; install passing lanes at intersections where feasible; Upgraded Reflective Pavement Markings. Long-Term: Roundabout at Sandhil Hulett Rd at Fairfield Rd	Short-term Countermeasure: $386,000 Long-term Countermeasure: $2,000,000	36

Table 7.3 Intersection Project Recommendations (State Route)

ID	COUNTY WIDE RANKING	LOCATION	PROJECT DESCRIPTION	TOTAL PROJECT SCORE
183	4	Linda Lane at SR 113	Upgrade left-turn signal head to Protected Phasing only; Install overhead advanced warning sign "Signal Ahead W3-3" signage. Install Dynamic Message signs to support public information campaigns regarding speeding along Linda Ln.	63
363	2	SR 101 at Rainey Road	Installation of Advanced Warning Signs including edge-lit "End of Road" signs & "Stop Ahead"; Advance Stop Line Rumble Strips; Flashing sign along Rainey Road to indicate that a vehicle is present on SR 101.	54
386*	7	Flat Rock Rd at Moss Ferry Rd	**Short-term Countermeasure:** This measures would involve adding a "Stop Ahead" sign, stop bar on Moss Ferry Rd, and edge-lit "No Thruy Truck Traffic" signage. **Mid/Long-term Countermeasure:** This would involve improving the gas station driveways along Flat Rock Road and along Moss Ferry Road to delineate in/out access points and repave the intersection as well the section of Flat Rock Road between SR 61 and Moss Ferry Road.	51
141	3	Linda Lane at SR 27	Upgrade left-turn signal heads to Protected Phasing only; Trimming of vegetation on north and south quadrants.	51
385*	8	SR 61 at Flat Rock Road	Upgrade signage and pavement markings; Install overhead advanced warning sign "Signal Ahead"; Improve turning radii to better accommodate truck traffic.	51
107	1	S Highway 27 at SR 5 / Old Highway 27 at SR 5	**Short-Term:** Refresh pavement marking and intersection signage; Install northbound & southbound left-turn signal heads with Protected Phasing only. **Long-Term:** Upgrade single lane roundabout with raised center island with truck apron to serve school buses; Extend left-turn storage length along SR 5 at Highway 27**.**	41

*** Recommended improvement projects should be implemented together.**

Table 7.4 Segment Project Recommendations (State Route)

ID	COUNTY WIDE RANKING	LOCATION	PROJECT DESCRIPTION	TOTAL PROJECT SCORE
430	1	SR 8 between SR 274 and N Van Wert Rd	Short-Term: Install Dynamic Message signs to support public information campaigns regarding speeding; install "Curve Warning" signs and "intersection ahead" signs near intersections with vertical curves; Install center and edge line rumble strips along with shoulder widening or guardrails; radar speed feedback signs; Upgraded Reflective Pavement Markings. Long-Term: Upgrade rail crossing gates at Ringer Crossroad	51
63	4	SR 1 (Martha Berry Hwy) between Cedar Heights Rd and Lowell Rd	Short-Term: Install Dynamic Message signs to support public information campaigns regarding speeding; install "Curve Warning" signs and "intersection ahead" signs near intersections with vertical curves; Install center and edge line rumble strips along with shoulder widening or guardrails; radar speed feedback signs; Upgraded Reflective Pavement Markings.	50
461	3	SR 101 (Rockmart Rd) between Wesley Chapel Rd and Harlan Lane Rd	Short-Term: Install Dynamic Message signs to support public information campaigns regarding speeding; install "Curve Warning" signs and "intersection ahead" signs near intersections with vertical curves; Install center and edge line rumble strips along with shoulder widening or guardrails; radar speed feedback signs; Upgraded Reflective Pavement Markings.	49
127	5	SR 166 between Jonesville Rd and Farmers High Rd	Short-Term: Install Dynamic Message signs to support public information campaigns regarding speeding; install "Curve Warning" signs and "intersection ahead" signs near intersections with vertical curves; Install center and edge line rumble strips along with shoulder widening or guardrails; radar speed feedback signs; Upgraded Reflective Pavement Markings.	47
283	2	SR 166 (Bankhead Hwy) between SR 61 and Sandhill Hulett Rd	Short-Term: Install Dynamic Message signs to support public information campaigns regarding speeding; install "Curve Warning" signs and "intersection ahead" signs near intersections with vertical curves; Install center and edge line rumble strips along with shoulder widening or guardrails; radar speed feedback signs; Upgraded Reflective Pavement Markings.	45

Intersection Projects Fact Sheets (Non-State Route)

Van Wert Rd at Lake Paradise Rd — Project Int ID #375

DESCRIPTION

The historical crash data along North Van Wert Rd indicates a pattern of failure-to-yield and tailgating-related collisions, contributing to both serious and minor injuries. Left-angle crashes, particularly at the intersection with Lake Paradise Rd, suggest limited sight distance and frequent failure-to-yield incidents, leading to severe outcomes. Additionally, multiple rear-end crashes point to tailgating and sudden stops as contributing factors, with one instance escalating to a vehicle overturning.

DETAILS

Short Term Cost	$6,100
Long Term Cost	$452,000
Jurisdiction	Carroll County
County Wide Ranking	Non-State Routes: 1

LOCATION

OBJECTIVE

Short-Term: Installation of Advanced Warning Signs including edge-lit “End of Road” signs; Advance Stop Line Rumble Strips (ASLRS) along Van Vert Road; Intersection Warning Sign along Van Wert Road to address poor sight distance.

Long-Term: Re-align Old Van Wert Road with Lake Paradise Road; install turn lanes at intersection.

Tyus Carrollton Road at Baxter Road — Project Int ID #74

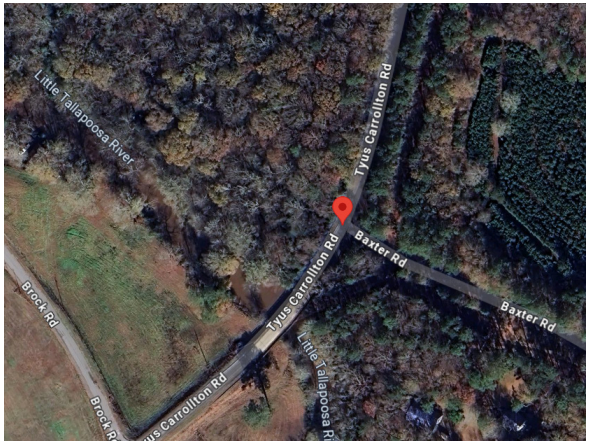
DESCRIPTION

A suspected serious injury crash classified as "Not a Collision with Motor Vehicle" suggests a roadway departure incident, which can pose significant safety risks, particularly on roadways with narrow or nonexistent shoulders. Roadway departure crashes often result in severe outcomes due to lack of recovery space, steep embankments, or fixed objects near the roadway. Implementing adequate shoulder width and clear zones can improve vehicle recovery areas, reducing the likelihood of severe crashes by allowing drivers more space to regain control. Additionally, the presence of a sideswipe crash, though minor, highlights the importance of lane discipline and potential benefits of roadway design improvements, such as wider lanes or rumble strips, to enhance driver awareness and reduce unintended lane departures.

DETAILS

Short Term Cost	$10,000
Long Term Cost	$1,560,000
Jurisdiction	Carroll County
County Wide Ranking	6
Priority Ranking	2

LOCATION



OBJECTIVE

Short-Term: Install edge and center line rumble strips; "Road Narrows" Sign; Improve turn lane pavement markings; Add painted islands and edge-lit Chevrons at intersection curve.

Long-Term: Vertical Geometric Improvements along Baxter Road; Cut back slope on northeast quadrant to improve sight distance; Shoulder Widening along Tyus Carrollton Rd north and south of bridge.

Lowell Road at Clem Lowell Road — Project Int ID #261

DESCRIPTION

The crash data highlights the importance of proactive safety measures to reduce potential injury risks. Even in low-crash environments, roadway departures and intersection-related conflicts can lead to severe outcomes if proper safety features are not in place. Maintaining clear zones, ensuring adequate sight distances, and enhancing roadway design can help prevent crashes and minimize their severity. A focus on preventive strategies, such as improved signage, lane markings, and enforcement of safe driving behaviors, can contribute to a safer transportation network for all users.

DETAILS

Short Term Cost	$3,200
Long Term Cost	$520,000
Jurisdiction	Carroll County
County Wide Ranking	3
Priority Ranking	3

LOCATION

OBJECTIVE

Short-Term: Installation of Advanced Warning Signs including edge-lit “End of Road” signs & “Stop Ahead”; Advance Stop Line Rumble Strips.

Long-Term: Lowering vertical curve along Lowell Rd for northbound approach vehicles to improve sight distance at intersection; shoulder widening along Lowell Rd along northbound and southbound approaches.

Morgan Road at Rainey Road — Project Int ID #309

DESCRIPTION

The intersection of Morgan Road at Rainey Road has seen only roadway departure crashes in the past five years, raising safety concerns. Narrow shoulders limit recovery space, speeding increases crash severity, and poor sight distance reduces reaction time. Improving shoulders, managing speeds, and enhancing visibility could help prevent future crashes.

DETAILS

Short Term Cost	$3,400
Long Term Cost	$200,000
Jurisdiction	Carroll County
County Wide Ranking	2
Priority Ranking	4

LOCATION

OBJECTIVE

Short-Term: Installation of Advanced Warning Signs including edge-lit “End of Road” signs; Advance Stop Line Rumble Strips; Trimming of Vegitation to improve sight distance; updgrading all signage and pavement markings at intersection, Speed enforcement along corridor of Rainey Road

Long-Term: Installation of northbound left-turn lane to remove turning vehicles from travel lane.

Tyus Carrollton Road at Salem Church Road — Project Int ID #88

DESCRIPTION

The crash data indicates that 25% of incidents resulted in a suspected minor injury, 25% in a possible injury, and 50% in no injury. Left-angle crashes accounted for 25% of all crashes, while non-motor vehicle collisions made up 75%. The presence of injury-related crashes suggests potential safety concerns, particularly for vulnerable road users or fixed-object collisions. Improving visibility, roadway design, or enforcement measures could help reduce future incidents.

DETAILS

Total Estimated Cost	$3,200
Jurisdiction	Carroll County
County Wide Ranking	4
Priority Ranking	5

LOCATION

OBJECTIVE

Installation of Advanced Warning Signs including edge-lit “End of Road” signs & “Stop Ahead”; Advance Stop Line Rumble Strips; Adding Stop Bar along Salem Church Road; Upgrading signage and striping at intersection; Flashing sign along Salem Church Road to indicate that a vehicle is present on Tyus Carrollton Rd.

Segment Projects Fact Sheets (Non-State Route)

Sandhill Hulett Rd between Fairfiled Road and SR 166/Bankhead Hwy — Project Segment ID #322

DESCRIPTION

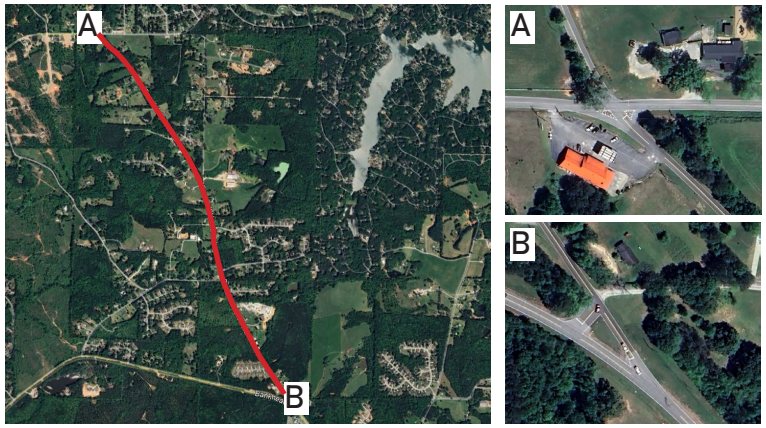
The crash data for Sandhill Hulett Rd between Fairfield Road and SR 166/Bankhead Hwy highlights a mix of angle-related and sideswipe collisions, with a notable number of non-motor vehicle crashes. Left-angle and right-angle crashes, along with head-on collisions, suggest issues with visibility, right-of-way violations, or improper turning maneuvers. The presence of sideswipe crashes in both same and opposite directions indicates potential lane discipline issues, while rear-end crashes point to abrupt stopping or following too closely as contributing factors.

DETAILS

Length	Approximately 2 miles
Short Term Cost	$6,100
Long Term Cost	$350,000
Jurisdiction	Carroll County
Priority Ranking (NSR)	5

**countermeasures can be applied along corridor beyond priority segment*

LOCATION



OBJECTIVE

Short-term Countermeasure: This measure would involve speeding public information include dynamic message signs along Sandhill Hulett Rd; add “curve warning” signs, widen shoulders or consider providing guardrails along sections with shoulder drop-offs and adding passing lanes at intersections where feasible.

Long-Term Countermeasure: Realign Sandhill Hulett Road with SR 166; Install overhead All-Way Stop-Control Signal Flasher at the intersection of Sandhill Hulett Rd and Fairfield Rd.

Tyus Carrollton Road between Salem Church Rd and Maple Street — Project Segment ID #116

DESCRIPTION

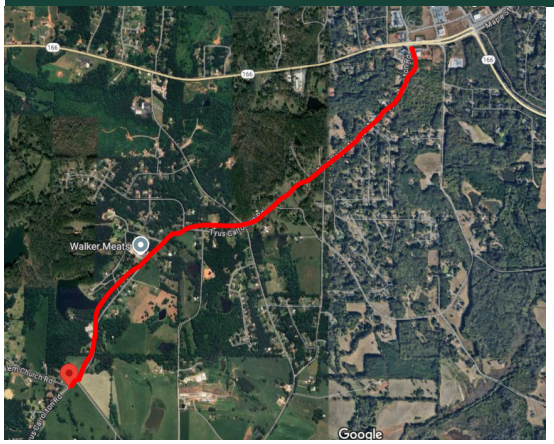
The crash data indicates that suspected serious injuries have occurred in a non-motor vehicle collision, potentially indicating a roadway departure or fixed-object impact, which can pose significant safety risks. Rear-end and angle crashes account for multiple minor and possible injuries, emphasizing the need for intersection and following-distance safety measures. Given the high number of non-motor vehicle collisions, improvements such as enhanced roadside recovery areas, clear zones, and potential barriers could help reduce severe outcomes.

DETAILS

Length	2.2 miles
Total Estimated Cost	$517,000
Jurisdiction	Carroll County
County Wide Ranking	4
Priority Ranking	T-1

**countermeasures can be applied along corridor beyond priority segment*

LOCATION



OBJECTIVE

Short-term Countermeasure: This would involve speeding public information include dynamic message signs along Tyus Carrollton Rd; add “curve warning” signs; add “intersection ahead” signs, clear vegetation along the roadway. Consider providing guardrails along sections with shoulder drop-offs.

Horsley Mill Rd between SR 166/Carrollton Bypass and Pleasant Hill Road — Project Segment ID #186

DESCRIPTION

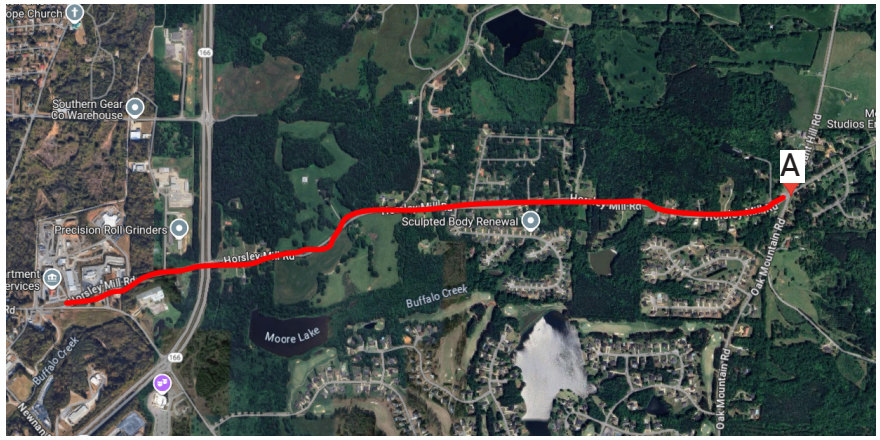
The crash data underscores the need for proactive safety improvements to reduce the risk of severe injuries and enhance overall roadway safety. Notably, angle and head-on collisions accounted for the majority of suspected serious injuries, emphasizing the importance of intersection safety, proper sight distances, and controlled turning movements. Additionally, rear-end crashes made up nearly 20% of all reported incidents, highlighting the need for adequate signage and strategies to improve driver awareness and reaction times. With over half of all crashes involving no reported injuries, there is an opportunity to further reduce crash severity through infrastructure enhancements, enforcement measures, and public education efforts, creating a safer transportation network for all users.

DETAILS

Length	
Short Term Cost	$90,000
Long Term Cost	$2,500,000
Jurisdiction	Carroll County
County Wide Ranking	3
Priority Ranking	T-1

**countermeasures can be applied along corridor beyond priority segment*

LOCATION



OBJECTIVE

Short-term Countermeasure: This would involve speeding public information include dynamic message signs along Horsley Mill Rd; add “curve warning” signs; add “intersection ahead” signs, consider providing guardrails along sections with shoulder drop-offs.

Long-Term Countermeasure: Install a single lane roundabout at the intersection of Horsley Mill Road and Pleasant Hill Road to account for the sight distance/alignment issues.

Stripling Chapel Road between SR 1 and Blandenburg Road — Project Segment ID #97

DESCRIPTION

The crash data highlights the importance of intersection safety and roadway departure prevention, as angle crashes account for a significant portion of reported incidents. A suspected serious injury and multiple minor injuries resulted from these types of crashes, emphasizing the need for improved visibility, traffic control, and turn management. Additionally, rear-end and sideswipe crashes make up a notable share of the total crashes, suggesting a need for better lane discipline, speed management, and driver awareness measures. With over 75% of crashes resulting in no injury, there is an opportunity to further reduce crash severity through targeted infrastructure enhancements and enforcement strategies.

DETAILS

Length	
Short Term Cost	$151,000
Long Term Cost	$2,000,000
Jurisdiction	Carroll County
County Wide Ranking	5
Priority Ranking	4

**countermeasures can be applied along corridor beyond priority segment*

LOCATION

OBJECTIVE

Short-Term: Install Dynamic Message signs to support public information campaigns regarding speeding; install "Curve Warning" signs and "intersection ahead" signs near intersections with vertical curves; Upgraded Reflective Pavement Markings; Install additional signage indicating One-Way operations along Primary School Road.

Long-Term: Investigate opportunities to correct side street skewed approaches with upgrades traffic control (all-way stop or roundabout) at locations such as Whooping Creek Rd and Blandenburg Rd

Sandhill Hulett Road between Four Notch Road and Moss Ferry Road — Project Segment ID #323

DESCRIPTION

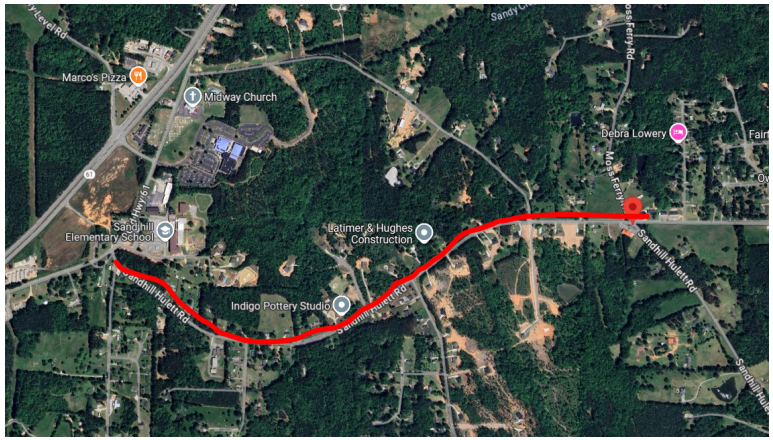
The crash data highlights the importance of addressing roadway departure and intersection-related risks, as these crash types have the potential for severe outcomes. A fatal crash and a suspected serious injury suggest a need for enhanced safety measures, such as improved signage, clear zones, and traffic control strategies. Rear-end crashes make up a significant portion of incidents, reinforcing the need for speed management, driver awareness, and safe following distances. While the majority of crashes resulted in no injuries, proactive safety improvements can help further reduce the likelihood of severe outcomes.

DETAILS

Length	
Short Term Cost	$360,000
Long Term Cost	$2,000,000
Jurisdiction	Carroll County
County Wide Ranking	2
Priority Ranking	5

**countermeasures can be applied along corridor beyond priority segment*

LOCATION



OBJECTIVE

Short Term: Install Dynamic Message signs to support public information campaigns regarding speeding; Install "Curve Warning" signs; Install center and edge line rumble strips along with shoulder widening or guardrails; radar speed feedback signs; install passing lanes at intersections where feasible; Upgraded Reflective Pavement Markings.

Long-Term: Roundabout at Sandhil Hulett Rd at Fairfield Rd

Segment Project Fact Sheet (State Route)

SR 8 between SR 274 and N Van Wert Road — Project Segment ID #323

DESCRIPTION

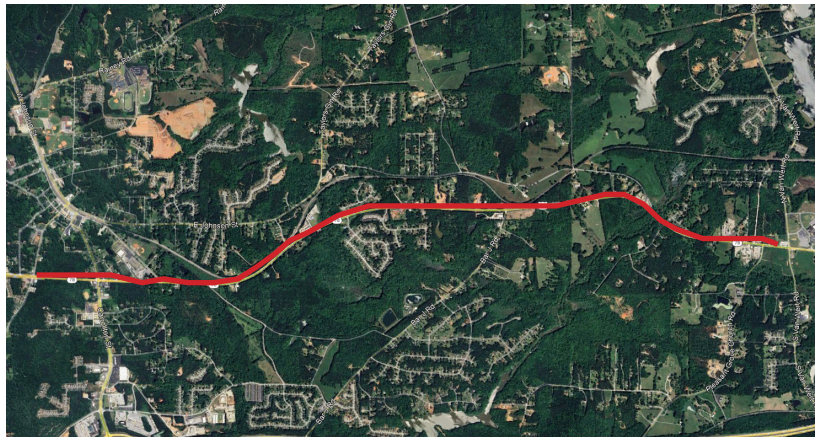
The crash data reveals that rear-end collisions and non-motor vehicle crashes are the most common crash types, comprising almost 70% of all recorded incidents. While rear-end crashes account for the highest number of minor and possible injuries, they resulted in no fatalities. One fatality occurred in a non-motor vehicle crash, which, along with its high number of total crashes, suggests the need for further investigation into pedestrian and cyclist safety. Head-on and left-angle crashes continue to be significant contributors to serious injuries, emphasizing the need for targeted countermeasures at intersections and along key road segments.

DETAILS

Length	3.75 miles
Jurisdiction	Carroll County / GDOT
County Wide Ranking (SR)	1
Priority Ranking (SR)	1

**countermeasures can be applied along corridor beyond priority segment*

LOCATION



OBJECTIVE

Short-Term: Install Dynamic Message signs to support public information campaigns regarding speeding; install “Curve Warning” signs and “intersection ahead” signs near intersections with vertical curves; Install center and edge line rumble strips along with shoulder widening or guardrails; radar speed feedback signs; Upgraded Reflective Pavement Markings.

Long-Term: Upgrade rail crossing gates at Ringer Crossroad

Intersection Project Fact Sheet (State Route)

S Highway 27 at SR 5 — Project Int ID #107

DESCRIPTION

The crash data indicates that left-angle crashes and rear-end collisions account for the majority of incidents, making up 65% of all recorded crashes. Among the most severe crashes, one fatality and three suspected serious injuries were reported, with left-angle and head-on collisions being the primary contributors to high-severity outcomes. Rear-end crashes, while more frequent, resulted mostly in minor injuries or no injury at all. The data suggests a need for targeted safety measures at intersections and along corridors where left-angle and rear-end crashes are prevalent to mitigate future risks.

DETAILS

Jurisdiction	Carroll County / GDOT
County Wide Ranking (SR)	1
Priority Ranking (SR)	6

LOCATION

OBJECTIVE

Short-Term: Refresh pavement marking and intersection signage; Install northbound & southbound left-turn signal heads with Protected Phasing only.

Long-Term: Upgrade single lane roundabout with raised center island with truck apron to serve school buses; Extend left-turn storage length along SR 5 at US 27.

POTENTIAL FUNDING OPPORTUNITIES

Safe Streets and Roads for All (SS4A)

A federal competitive grant program aimed at eliminating fatal and severe injury crashes on public roadways. Infrastructure projects must align with an eligible Safety Action Plan. Only local government entities can receive funding, with priority given to projects in equity priority areas, as stated in the 2024 funding opportunity announcement.

Highway Safety Improvement Program

The Federal Highway Safety Improvement Program (HSIP) is a core federal-aid program that provides funding to states for projects aimed at reducing traffic fatalities and serious injuries on public roads. It supports data-driven, strategic approaches to improving roadway safety through infrastructure enhancements such as intersection upgrades, pedestrian facilities, and roadway lighting.

Quick Response Program

The Georgia DOT Quick Response Program provides grant funding for small-scale, low-cost operational improvements on state and local roadways. Designed for projects that can be implemented quickly, the program funds enhancements such as turn lanes, signal upgrades, signage, and pavement markings to improve traffic flow and safety.

Safe Routes to School Program (SRTS)

The Safe Routes to School (SRTS) grant program provides funding to improve safety and accessibility for children walking and biking to school. It supports infrastructure projects like sidewalks, crosswalks, and traffic calming measures, as well as educational initiatives that promote safe, active transportation. The program aims to reduce traffic-related injuries, encourage healthy habits, and create safer school travel environments.

Rebuilding American Infrastructure with Sustainability and Equity (RAISE)

The Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant program provides federal funding for transportation projects that improve safety, sustainability, equity, and economic competitiveness. It supports a wide range of infrastructure improvements, including roads, bridges, public transit, rail, and multimodal projects. RAISE grants prioritize projects that enhance accessibility, reduce environmental impacts, and benefit underserved communities.

Georgia DOT Safety Grants

The Georgia DOT Safety Grants program provides funding to local governments and agencies for projects that enhance roadway safety and reduce crashes, fatalities, and serious injuries. These grants support infrastructure improvements such as intersection upgrades, pedestrian and bicycle facilities, signage, and lighting.

Transportation Alternatives Program

The Transportation Alternatives Program (TAP) is a federal grant program that funds projects to improve non-motorized transportation infrastructure, such as pedestrian and bicycle facilities, trails, and safe routes to school. Administered by state and local agencies, TAP supports initiatives that enhance mobility, accessibility, and safety while promoting active transportation and community connectivity.

CHAPTER VIII

EVALUATION & MONITORING PROCEDURES

Effective monitoring and evaluation of the Carroll County Safe Streets and Roads for All (SS4A) implementation requires a committed and engaged management team that is proactive in overseeing the execution of the Safety Action Plan. This team will play a critical role in ensuring alignment with safety goals, addressing challenges, and adapting strategies as needed.

Additionally, the active participation of Action Plan implementers is essential, as they are responsible for executing specific initiatives and providing timely updates on progress. To track the plan's success, a structured system will be put in place to systematically collect, organize, and analyze data, which will allow for the ongoing assessment of project outcomes, identify areas for improvement, and ensure that all efforts are effectively contributing to the overall safety goals.

This approach ensures accountability, informed decision-making, and continuous progress in creating safer transportation environments for the community.

1. Oversight and Accountability
2. Reporting and Public Transparency
3. Performance Measures

1. OVERSIGHT AND ACCOUNTABILITY

The Transportation Safety Committee will oversee the implementation of the Safety Action Plan, ensuring continuous progress and accountability.

The Committee will meet regularly, incorporating a safety-specific agenda item to discuss project and program updates.

Action Plan implementers will provide regular status updates on infrastructure, policy, and program initiatives.

2. REPORTING AND PUBLIC TRANSPARENCY

The Transportation Committee will produce a publicly accessible annual report, either as a standalone document or as part of an existing annual transportation report.

The report will include:

- Safety Trends: Fatal and serious injury crash data, highlighting changes over time.
- Project Progress: Updates on priority infrastructure projects, including implementation status and effectiveness.
- Program Progress: Evaluation of safety policies and programs, tracking their impact and adoption.

3. PERFORMANCE MEASURES

To assess the effectiveness of the Safety Action Plan, the following key performance indicators (KPIs) will be monitored:

1. **System Performance Measures:**
   - Total KSI Crashes
   - Active Mode KSI
   - KSI by Manner of Collision
2. **Priority Project Progress:**
   - Status of priority safety improvement projects
   - Evaluation of project effectiveness in improving safety outcomes
3. **Priority Program Progress:**
   - Implementation status of key safety policies and programs.
   - Measurable impact of initiatives on road user behavior and safety culture.
   - Educational Activities Completed
   - Enforcement Activities Completed

This structured approach will ensure continuous evaluation, promote transparency, and guide data-driven safety improvements across Carroll County.

CHAPTER IX.

EDUCATION, PUBLIC AWARENESS, & COMMUNICATION

The Transportation Committee plays a key role in coordinating transportation policies and programs by ensuring alignment across agencies, jurisdictions, and stakeholders to support safety goals. It fosters collaboration, facilitates communication, and guides decision-making for consistent and effective implementation. Overall, the committee helps integrate safety strategies into planning and operations.

LEADERSHIP & OVERSIGHT

The Transportation Safety Committee will champion a Vision Zero culture, highlighting transportation safety as vital to residents' quality of life.

MEETING SCHEDULE & STRATEGIC PLANNING

To ensure a consistent and focused commitment to safety, the committee will:

- Convene quarterly at a designated time and location.
- Develop and maintain a long-term safety education and awareness plan, which will be reviewed and updated regularly.
- Establish an annual strategy outlining planned safety campaigns and initiatives.

CAMPAIGN IMPLEMENTATION & EVALUATION

Each committee meeting will include:

- A review of past and upcoming safety education campaigns, events, and strategies.
- Discussions on the effectiveness of implemented programs and potential improvements.

INTEGRATION WITH SAFETY POLICIES & INFRASTRUCTURE

As new safety policies and infrastructure improvements are introduced, corresponding education and awareness campaigns will be launched to:

- Explain the benefits of the improvements.
- Guide the public on how to use or adapt to the changes for maximum safety impact.

Partners

Partners with varying geographic and disciplinary backgrounds must be involved in safety education and awareness. All campaigns should focus on safety facts and their impact on quality of life. The initial group of partners should be invited to participate in the quarterly Transportation Safety Committee meetings and encouraged to promote safety education and awareness efforts in Carroll County. Active outreach should be used to continuously expand the network of partners. Additionally, opportunities to engage and share key information should be widely advertised to attract a broad range of community stakeholders. A list of potential education and outreach partners is included below.

Table 9.1 Potential Education and Outreach Partners

POTENTIAL PARTNERS
Carroll County Public Works
Carroll County Board of Commissioners
Carroll County Schools
Carroll County Emergency Management Agency
West Georgia Local Emergency Planning Committee
Tanner Health/West Georgia Ambulance
Carroll County Sheriff's Office
Carroll County Health Department
High School and College Social Clubs
Carroll County Chamber of Commerce
Three Rivers Regional Commission
Safe Routes to School
Senior Centers
Disability Rights Groups
Service Organizations (Rotary, Lions Club, Scouts, Boys and Girls Club)
Bicycle Clubs
Motorcycle Clubs
American Association of Retired Persons

Toolbox

A variety of tools should be implemented to support safety education and awareness. All campaigns and programs should be housed on a central safety education webpage for community partners to access for use within their organization's communication channels and social media pages. A sample of education and awareness tools to be organized by the Transportation Safety Committee and promoted by the education and awareness partners are listed below.

Table 9.2 Potential Education and Awareness Tools

POTENTIAL TOOLS
Safe Routes to School Program implemented and maintained in each school
Safety awareness meetings
Focus groups
Surveys
Web campaigns
Social media campaigns
Pop-up community events
Booths at regular municipal events
Safety pledge cards to sign at community events
Safety banners at community events
Social media badges
Stickers of support for safety
Art contests
Essay contests
Videos featuring local citizens or leaders
Safety quizzes
Dashboards
ArcGIS StoryMaps
Radio or podcast interviews
Radio and social media advertisements
Commissioner and municipal newsletters
Newspaper articles

Selecting a Campaign

Safety education and awareness campaigns should address community needs, focusing on specific safety concerns related to countermeasures, back-to-school, holidays, enforcement, and targeted demographics identified through safety data. Examples of potential campaigns are outlined below.

Table 9.3 Examples of Potential Safety Campaigns

TARGET TOPIC	SAFETY EDUCATION AND AWARENESS FOCUS
School Zone Safety	Uniform school zone signage, speeds in school zones, roadway markings and flashing lights, pedestrians, drop off and pick up procedures and times, Addy's Law per stopped school buses, Safe Routes to School program elements
Holidays: Halloween, Memorial Day, Fourth of July, Labor Day, New Year's Eve	Drinking and Driving, nighttime roadway safety for drivers and pedestrians, safety alternatives
Golf Cart Safety	Underage driving, reckless and aggressive driving, share the road
Bicycle and Pedestrian	Signage education, share the road, reflective clothing, lights
Shared the Road Awareness	Roadway rules for vehicles, golf carts, bicycles, pedestrians
Intersection Safety	Left turns (protected and unprotected), roundabout operations, yielding, red light running
Young/New Drivers	Distracted driving, roadway signage and markings education
Speeding	Combination with targeted law enforcement campaigns
Drinking and Driving	Combination with targeted law enforcement campaigns
Safe Routes for Seniors	Needs and preferences to safely walk, access transit, or drive
Railroad Crossings	Procedures for safe vehicle and pedestrian crossing
Reentering Roadway After Tire Slip off Edge	Slow speed, check traffic, steer back on roadway gently
Deer/Wildlife	Brake firmly and stay in travel lane

Implementation and Monitoring

Safety education and awareness activities should be implemented, measured, evaluated, and adjusted on a continuous basis. Guidelines to measure and evaluate the education and awareness element of the Safety Action Plan include:

- Continuous development and implementation of education and awareness campaigns.
- Conduct community surveys before and after each education and awareness campaign to assess changes in awareness and behavior.
- Track participation in event attendance, campaign engagement, and materials disseminated or distributed.
- Prepare *Annual Report on Safety Action* highlighting baseline safety data, summaries of education and awareness campaigns, and updated safety data post campaign and countermeasure implementation.
- Identify obstacles and adjust education and awareness activities to increase reach and effectiveness.

Proposed Schedule

A proposed schedule for implementation of the safety education and awareness program is outlined below.

Table 9.4 Proposed Implementation Schedule

IMPLEMENTATION TIMELINE	STRATEGIC ELEMENTS	MEASURE OF SUCCESS
Spring 2025	· Establish Safety Action Plan Implementation as a primary Transportation Committee agenda item once per quarter with status updates on implementation progress on each monthly agenda.	· Quarterly agenda items should focus on upcoming elements of the plan – countermeasure implementation, policy adoptions, and education, awareness, and enforcement campaigns.
Summer 2025	· Select a safety and awareness campaign focused on one key safety topic to develop and launch in Fall 2025. · Build a coalition of education and awareness partners for support in the outreach process. Ensure all organizations are prepared to participate in plan implementation in a consistent manner. · Create central online storage location for campaign messaging infographics and strategy information. Ensure all partners are aware of and have access to the site.	· Safety and Awareness campaign is selected by the Transportation Committee · Partner database is established. · Education and awareness campaign materials are developed and disseminated.
Fall 2025	· Kick off the safety and awareness campaign with partner promotion, website updates, social media outreach, and community events. · Emphasize consistent messaging with partners and encourage promotion of campaign.	· Implement the first safety and awareness campaign. · Maintain communication and ensure consistency with partners.
Winter 2025	· Select a safety and awareness campaign focused on one key safety topic to develop and launch in Spring 2026. · Continue to add partners to the coalition of education and awareness partners for support.	· Select and develop a second campaign topic. · Grow partners for support database.
Annually after the intial year	· Publish the first Annual Report on Safety Action highlighting baseline safety data, summaries of education and awareness campaigns, and updated safety data post campaign and countermeasure implementation. · Continue to select, develop, promote, and measure a minimum of two safety education and awareness campaign topics per year. · Maintain and grow a strong relationship partner network to support and promote safety education and awareness.	· Progress toward vision zero milestones with reporting throughout the implementation of the Safety Action Plan. · Implementation of a minimum of two safety education and awareness campaigns annually through the endurance of the implementation of the Safety Action Plan. · Continue to identify obstacles and adjust education and awareness activities to increase reach and effectiveness.

Additional Resources

For additional resources to support implementation and monitoring of the Safety Action Plan education and awareness program, the following online resources are continually updated with a variety of initiatives and information.

Table 9.5 Additional Resources

ORGANIZATION	FOCUS	WEBSITE
American Association of State Highway and Transportation Officials (AASHTO)	Resources and information about national safe transportation systems and practices.	https://transportation.org/
Georgia Department of Transportation (GDOT) Safety Programs	Resource for transportation education and awareness campaigns in Georgia.	https://www.dot.ga.gov/GDOT/Pages/Safety.aspx
Georgia Strategic Highway Safety Plan (SHSP)	Comprehensive Plan aimed at reducing traffic fatalities and injuries on Georgia's roadways.	https://www.gahighwaysafety.org/shsp/
National Highway Traffic Safety Administration (NHTSA)	Raise awareness about road safety initiatives and safe driving practices.	nhtsa.gov
Road Safety Toolkit – Federal Highway Administration (FHWA)	Toolkits and resources for road safety through various strategies including Safe Systems Approach.	https://safety.fhwa.dot.gov/tools/
Safe Routes to School (SRTS)	Toolkits for training and workshops to facilitate children walking or biking to school safely.	https://saferoutesga.org/
Vision Zero	Aims to eliminate traffic fatalities and severe injuries.	https://visionzeronetwork.org

May 2025

Appendix A: Safety Countermeasure Fact Sheets

Intersection Countermeasures

COUNTERMEASURE	HIGH SPEEDS	HIGH TRAFFIC VOLUMES	PERMISSIVE LEFT-TURN PHASING	LIMITED SIGHT DISTANCE	SKEWED INTERSECTION	INTERSECTION ON CURVE
Advance signs	✓			✓		✓
Application of multiple low-cost countermeasures	✓			✓		✓
Backplates with retroreflective borders	✓	✓				
Convert intersection to roundabout	✓				✓	✓
Corridor access management	✓	✓				
Flashing yellow arrow	✓	✓	✓			
Improve intersection angle	✓	✓		✓	✓	
Improve intersection sight distance	✓	✓	✓	✓	✓	✓
Left- and right-turn lanes	✓	✓				
Protected left-turn phase	✓	✓	✓	✓		
Yellow change intervals	✓	✓	✓			

Source: ARC Regional Safety Strategy

COUNTERMEASURES | Backplates with Retroreflective Borders

DESCRIPTION

Backplates on traffic signals improve visibility by creating a contrast with the background. Adding a 1- to 3-inch yellow retroreflective border makes them even more noticeable. These backplates help drivers see signals better during both the day and night.

IMPLEMENTATION COST	
High	
Medium	
Low	✓

EXAMPLE PHOTO

Source: South Carolina DOT & FHWA

SAFETY BENEFITS
15% reduction in total crashes

APPLICATION

This treatment can be used on roads with higher speed limits and more traffic (Source: ARC regional safety strategy Plan). It helps improve traffic signal visibility for older drivers and those with color vision deficiencies. It's also useful during power outages, as it provides a clear stop signal for drivers. Transportation agencies should include backplates with reflective borders in their safety measures at intersections. Adding a reflective border to an existing backplate is a low-cost option. This can be done by using reflective tape or by buying a new backplate with a border already on it. The best way to implement this safety measure is to use it consistently at all signalized intersections within a city or state. Some challenges include installation time and assessing if the existing signal supports can handle the extra wind load from a new backplate. Agencies should check the design of the current support structure to ensure it can support the additional weight.

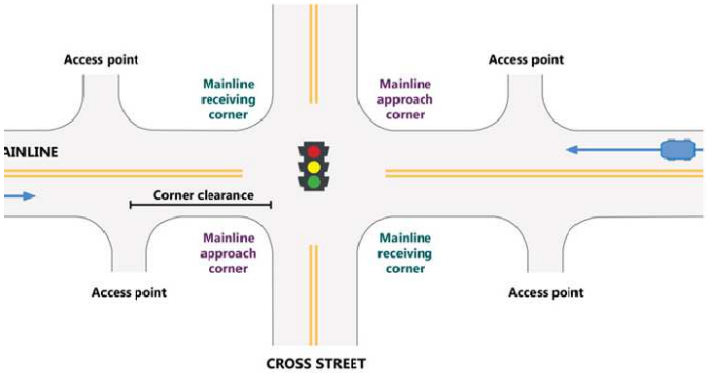
COUNTERMEASURES | Corridor Access Management

DESCRIPTION

Effective access management involves strategically planning and controlling how people and vehicles enter and exit roadways. This includes carefully considering intersections with other roads and driveways leading to nearby properties. By implementing sound access management practices along a corridor, we can improve safety for all users (drivers, pedestrians, cyclists), encourage and biking, and minimize travel delays and traffic congestion. walking

IMPLEMENTATION COST	
High	
Medium	✓
Low	

EXAMPLE PHOTO



Source: FHWA

SAFETY BENEFITS
5-23% reduction in total crashes along Two-lane rural roads
25-31% reduction in fatal and injury crashes along urban/suburban arterial

APPLICATION

The FHWA created crash prediction models to assess how various access management techniques impact safety across different areas, land uses, road types, and traffic volumes. You can use these access management strategies individually or together:

- **Reduce Access Points:** Close unnecessary driveways, combine multiple driveways, or move them to safer spots.
- **Control Spacing:** Maintain proper distances between intersections and access points.
- **Limit Driveway Movements:** Restrict certain turns (e.g., allow only right-in/right-out).
- **Optimize Driveway Placement:** Position driveways near corners to lower crash rates.
- **Restrict Cross-Road Movements:** Use raised medians to prevent dangerous turns.
- **Improve Intersection Design:** Implement roundabouts or designs that reduce left-turn conflicts.
- **Provide Dedicated Turn Lanes:** Create lanes specifically for left turns, right turns, or two-way left turns.
- **Utilize Local Circulation Roads:** Use lower-speed one-way or two-way roads for local traffic to minimize conflict with main roads.

Overall, these strategies aim to improve traffic flow, enhance safety for all users (drivers, pedestrians, cyclists), and reduce accident risks.

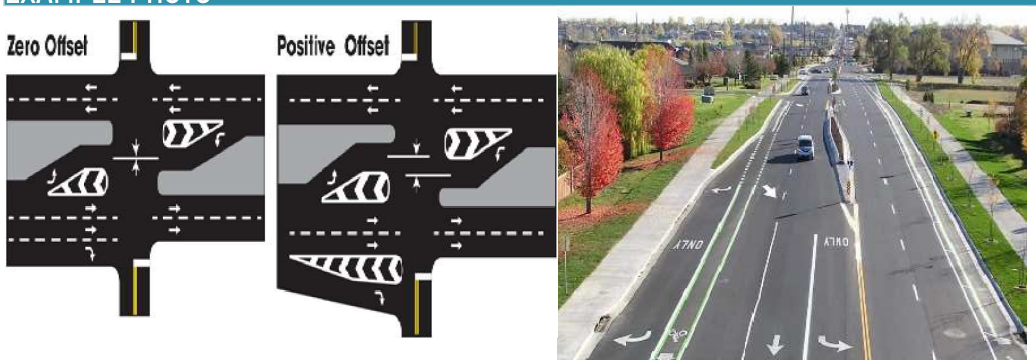
COUNTERMEASURES | Dedicated Left and Right Turn Lanes

DESCRIPTION

Auxiliary turn lanes for both left and right turns enhance intersection safety by separating turning vehicles from the flow of through traffic. These lanes create a designated area for vehicles to decelerate prior to making a turn and for those waiting to execute their turns. Additionally, offsetting the left and right turn lanes increases visibility, significantly boosting safety—particularly when traffic is moving at higher speeds or is less congested.

IMPLEMENTATION COST	
High	
Medium	✓
Low	

EXAMPLE PHOTO



Source: FHWA & City of Greeley, Colorado

SAFETY BENEFITS
Left Turn Lane: 28-48% reduction in total crashes
Positive Offset Left-Turn lanes : 36% reduction in fatal and injury crashes
Right Turn Lanes: 14-26% reduction in total crashes

APPLICATION

At busy intersections with stop control on the minor road, consider installing left- and right-turn lanes to reduce conflicts and improve safety. This is especially important when there are high volumes of turning traffic or a history of turn-related accidents. When designing these lanes, balance pedestrian and cyclist safety with the need for clear visibility. Offset turn lanes can help but be mindful of their impact on pedestrians. Zero or negative offsets can block sightlines and create hazards, particularly for left-turning vehicles and cyclists. Positive offset, on the other hand, can improve sight distance and reduce the risk of severe crashes. By thoughtfully designing turn lanes with offset, you can minimize conflicts and create a safer intersection for all users.

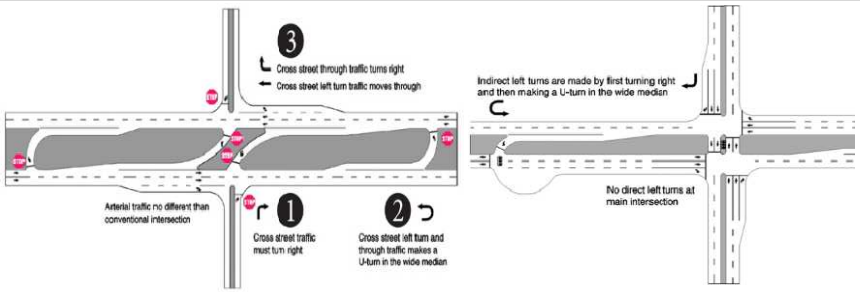
COUNTERMEASURES | Reduced Left-Turn Conflict Intersections (RCUT)

DESCRIPTION

Reduced Left-Turn Conflict Intersections are innovative geometric designs that reconfigure how left-turn movements are made. By streamlining driver decisions, these designs reduce the risk of high-severity crashes, such as head-on or angle collisions. Two particularly effective designs that use U-turns to facilitate specific left-turn movements are the Restricted Crossing U-Turn (RCUT) and the Median U-Turn (MUT).

IMPLEMENTATION COST	
High	✓
Medium	✓
Low	

EXAMPLE PHOTO



Source: FHWA

SAFETY BENEFITS
Two-way stop Controlled to RCUT: 54% reduction in fatal and injury crashes
Signalized intersection to Signalized RCUT : 22% reduction in fatal and injury crashes
Unsignalized intersection to Unsignalized RCUT : 63% reduction in fatal and injury crashes
MUT : 30% reduction in intersection related injury crash rate

APPLICATION

The RCUT (Reduced Conflict Intersection)—also known as a J-Turn or Superstreet—replaces direct left turns for minor road traffic with a simpler maneuver. Drivers first make a right turn and then a U-turn at a designated location. This design is highly versatile, functioning effectively in a variety of settings, from rural high-speed roads to busy urban and suburban multimodal corridors. The MUT (Median U-Turn Intersection), on the other hand, eliminates direct left turns for major road traffic. Instead, drivers continue straight through the intersection, make a U-turn farther downstream, and then turn right at the main intersection. Both designs improve safety and traffic efficiency by significantly reducing conflicts associated with left-turn movements.

COUNTERMEASURES | Roundabouts

DESCRIPTION

A modern roundabout is a circular intersection designed to move traffic safely and efficiently. It features channelized, curved approaches that naturally reduce vehicle speed. Additionally, roundabouts implement entry yield control, granting right-of-way to vehicles already circulating within the intersection. Traffic flows counterclockwise around a central island, which further minimizes potential conflict points between vehicles. As a result of these design elements, roundabouts significantly lower speeds and reduce conflicts, leading to a substantial decrease in crashes that result in injuries or fatalities.

IMPLEMENTATION COST

High	✓
Medium	✓
Low	

EXAMPLE PHOTO

Source: FHWA

SAFETY BENEFITS

Two way stop Controlled to Roundabout: 82% reduction in fatal and injury crashes
Signalized intersection to Roundabout : 78% reduction in fatal and injury crashes

APPLICATION

Roundabouts can be utilized in both urban and rural settings, accommodating a variety of traffic conditions. They serve as effective alternatives to traffic signals, two-way stop signs, and all-way stop signs. Additionally, roundabouts are particularly useful for managing vehicle speed and facilitating the transition of traffic from high-speed to low-speed environments, such as at freeway interchange ramp terminals and rural intersections on high-speed roads.

COUNTERMEASURES | Systemic Application of Multiple Low-Cost Measurements (Stop-Controlled)

DESCRIPTION

This systemic approach to intersection safety emphasizes the implementation of a range of low-cost improvements at numerous stop-controlled intersections. These enhancements, which include upgraded signage and improved pavement markings, are designed to boost driver awareness and recognition of both the intersection itself and any potential hazards.

IMPLEMENTATION COST	
High	
Medium	
Low	✓

EXAMPLE PHOTO

Source: FHWA & SCDOT

SAFETY BENEFITS
10% reduction of fatal and injury crashes at all locations/types/areas
15% reduction of nighttime crashes at all locations/types/areas
27% reduction of fatal and injury crashes at rural intersections
19% reduction of fatal and injury crashes at Two-lane by Two-lane intersections

APPLICATION

To improve safety at stop-controlled intersections, the following low-cost countermeasures can be implemented:

On the Through Approach:

- Enhanced warning signage: Double- and oversized advance warning signs with supplemental street name plaques and flashing beacons, if necessary.
- Reflective sign post upgrades: Retroreflective sheeting on sign posts to improve visibility.
- Improved pavement markings: Enhanced edge lines to delineate through lanes.

On the Stop Approach:

- Advanced warning signage: Double- and oversized “Stop Ahead” warning signs with flashing beacons, if necessary.
- Enhanced stop sign placement: Double- and oversized Stop signs to increase visibility.
- Reflective sign post upgrades: Retroreflective sheeting on sign posts to improve visibility.
- Properly placed stop bars: Ensuring adequate clearance and visibility for stopped vehicles.
- Clear sight triangles: Removing vegetation, parking, or obstructions that limit sight distance.
- Double arrow warning signs: At T-intersections, where necessary, to indicate turning traffic.

COUNTERMEASURES | Yellow Change Intervals

DESCRIPTION

At a signalized intersection, the yellow change interval refers to the duration during which the yellow signal is displayed after the green signal has ended. This yellow indication serves as a warning to roadway users that the green light is about to turn red.

IMPLEMENTATION COST	
High	
Medium	
Low	✓

EXAMPLE PHOTO

Source: FHWA

SAFETY BENEFITS
36-50% reduction in red-light running
8-14% reduction in total crashes
12% reduction in injury crashes

APPLICATION

Red-light running is a significant contributor to severe crashes at signalized intersections. Therefore, accurately timing the yellow change interval is crucial. An interval that is too short can force drivers to run the red light to avoid a collision, while an excessively long interval can encourage drivers to intentionally disregard the red light. Factors such as vehicle speed, driver reaction time, vehicle deceleration, and intersection geometry must be considered when determining the appropriate yellow change interval.

To enhance safety and reduce red-light running, transportation agencies should:

- Review and update their traffic signal timing policies and procedures.
- Implement regular evaluation and adjustment protocols for existing signal timing.
- Consult the Manual on Uniform Traffic Control Devices (MUTCD) for guidance on yellow change interval timing requirements and recommendations.

Roadway Departure Countermeasures

COUNTERMEASURE	NARROW ROAD	NARROW SHOULDER	UNPAVED SHOULDER	HIGH SPEEDS	MULTIPLE LANES	SHARP CURVES	STEEP SLOPES
Advance markings for curves	✓	✓	✓	✓		✓	
Advance signs	✓	✓		✓		✓	
Enhanced delineation for horizontal curves	✓			✓		✓	
Enhanced friction for horizontal curves	✓			✓		✓	
Median barriers				✓	✓		
Median buffer				✓	✓		
Raised pavement markers	✓	✓		✓	✓	✓	
Roadside design improvements				✓		✓	✓
Rumble strips/stripes	✓	✓	✓	✓		✓	✓
SafetyEdge^{SM}	✓	✓	✓	✓	✓	✓	✓
Wider pavement markings	✓	✓		✓	✓	✓	
Wider shoulder	✓	✓	✓	✓		✓	✓

Source: ARC Regional Safety Strategy

ROADWAY COUNTERMEASURES

COUNTERMEASURES | Enhanced Delineation for Horizontal Curves

DESCRIPTION

Improved delineation significantly boosts driver awareness of impending curves by offering distinct visual indicators regarding the curve's direction, sharpness, and advisable speed. Effective strategies may include advanced pavement markings, in-lane curve warnings, retroreflective strips on signposts, curve delineators, chevron signs, larger fluorescent or retroreflective signage, dynamic curve warning displays, and speed radar feedback signs.

IMPLEMENTATION COST	
High	
Medium	
Low	✓

EXAMPLE PHOTO

Source: FHWA

SAFETY BENEFITS
Chevrons Signs : 16% reduction in non intersection fatal and injury crashes
Oversized Chevron Signs: 15% reduction in fatal and injury crashes
In Lane Curve Warning Pavement Markings: 35-38% reduction in all crashes.
New Fluorescent Curve Signs: 18% reduction in non-intersection, head -on, run-off-road, and sideswipe in rural areas.

APPLICATION

Agencies can successfully adopt enhanced delineation strategies by taking the following steps:

1. Aligning Signing Practices with MUTCD Standards: By ensuring that signing practices conform to the Manual on Uniform Traffic Control Devices (MUTCD) principles, agencies can provide consistent traffic control devices for similar curves. This uniformity helps set clear expectations for drivers.

2. Implementing a Systematic Approach for Problem Identification: To enhance safety, a thorough analysis of problematic curves is essential. This assessment should consider factors such as curve radius, traffic volume, the occurrence of intersections within the curve, and any visual obstructions. These elements will help prioritize areas that require improvements.

3. Choosing the Most Effective Delineation Strategies: Once the issues are identified and MUTCD compliance is verified, agencies should select the most suitable delineation strategies. An incremental approach that begins with the most cost-effective solutions can often yield the best results over time.

COUNTERMEASURES | Longitudinal Rumble Strips and Stripes on Two-lane Roads

DESCRIPTION

Rumble strips are raised or milled features on the road surface designed to alert drivers through tactile and auditory feedback when they stray from their lane. These strips can be installed on the shoulder, along the edge of the road, or near the center of an undivided highway. Rumble stripes, on the other hand, are a type of rumble strip where a pavement marking is applied on top of the raised strip. This design enhancement improves visibility and durability of the marking, especially in wet or low-light conditions, and is particularly beneficial in areas where snowplowing operations are common.

IMPLEMENTATION COST	
High	
Medium	
Low	✓

EXAMPLE PHOTO

Source: FHWA

SAFETY BENEFITS
Center line Rumble Strips : 44-64% reduction in head-on fatal and injury crashes on two-lane rural roads
Shoulder Rumble Strips: 13-51% reduction in single vehicle, run-off-road fatal and injury crashes

APPLICATION

In the United States, roadway departure crashes contribute to over half of all fatal roadway incidents each year. To mitigate these occurrences, rumble strips and stripes are employed to alert distracted, drowsy, or inattentive drivers who veer out of their lanes. Their effectiveness increases significantly when implemented on a systematic basis. Transportation agencies should prioritize the installation of milled centerline rumble strips, including in passing zones, as well as milled edge line or shoulder rumble strips that incorporate bicycle gaps. These measures should be considered for broad safety initiatives, targeted corridor improvements, and during reconstruction or resurfacing projects.

COUNTERMEASURES | Median Barriers

DESCRIPTION

Median barriers serve as crucial safety features on divided highways, effectively separating opposing lanes of traffic. By doing so, they significantly diminish the likelihood of head-on collisions, which tend to occur more frequently at the higher speeds typical of these roadways.

IMPLEMENTATION COST	
High	✓
Medium	✓
Low	✓

EXAMPLE PHOTO

Source: FHWA

SAFETY BENEFITS
97% reduction in cross-median crashes

APPLICATION

AASHTO's Roadside Design Guide (RDG) provides guidelines for median barrier installation on high-speed, fully controlled-access roadways. Barriers are generally recommended for medians 30 feet or less in width with an average daily traffic (ADT) exceeding 20,000 vehicles per day. Barriers are optional for medians wider than 50 feet and ADTs below 20,000 vehicles per day. For medians between 30 and 50 feet, the RDG suggests an analysis to determine the cost-effectiveness of installation. To reduce cross-median crashes, transportation agencies should review their head-on crash history on divided highways to identify hot spots and implement a systemic approach to barrier placement based on risk factors such as traffic volume, vehicle types, median crossover history, crash incidents, and roadway geometry.

Types of Median Barriers:

- Cable Barriers: These flexible systems consist of steel cables anchored by sturdy posts. They are designed to absorb crash energy, thereby reducing the force of impact on vehicle occupants.
- Metal-Beam Guardrails: Constructed with semi-rigid W-beam or box-beam configurations, these barriers deform upon impact. This not only absorbs some of the energy from a collision but also helps redirect the vehicle away from danger.
- Concrete Barriers: As rigid structures, these barriers offer little deflection during an impact. Their primary function is to redirect collision energy, and they require minimal ongoing maintenance.

COUNTERMEASURES | Roadside Design Improvement at Curves

DESCRIPTION

Horizontal curves present a significant safety challenge, accounting for 27% of all fatal crashes. Alarmingly, 80% of these incidents involve vehicles veering off the roadway. To combat this issue, "Roadside Design Improvements" focus on enhancing safety along the outer edges of curves, where the risk is highest. These improvements include a variety of treatments aimed at reducing the severity of crashes by providing safer recovery options for vehicles that leave the roadway. By minimizing the likelihood of fatalities and serious injuries, these measures can be applied individually or in combination. They are especially recommended for curves where data indicates a high risk of roadway departure leading to severe or fatal outcomes.

IMPLEMENTATION COST	
High	
Medium	✓
Low	✓

EXAMPLE PHOTO

Source: ARC

SAFETY BENEFITS
Flatten sideslopes : 8-12% reduction for single-vehicle crashes
Increase the distance to roadside features: 22-44% reduction for all crashes

APPLICATION

Horizontal curves are a major safety concern, contributing to 27% of all fatal crashes. Alarmingly, 80% of these crashes involve vehicles running off the roadway. To address this hazard, "Roadside Design Improvements" focus on enhancing safety along the outer edges of curves, where the risk is greatest. These improvements consist of various measures designed to reduce crash severity by providing safer recovery options for vehicles that leave the roadway. By decreasing the likelihood of fatalities and serious injuries, these strategies can be implemented individually or in combination. They are particularly recommended for curves with data indicating a high risk of severe or fatal crashes caused by roadway departures.

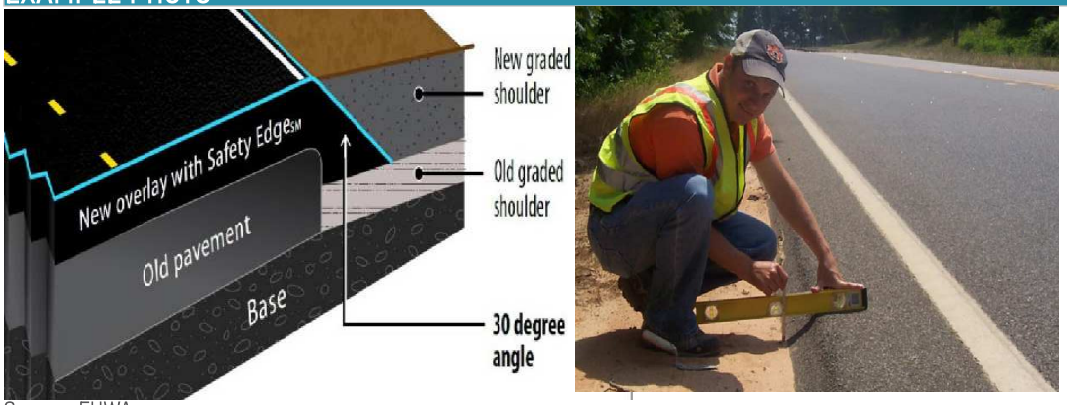
COUNTERMEASURES | Safety Edge

DESCRIPTION

The SafetyEdgeSM technology shapes the edge of the pavement at approximately 30 degrees from the pavement cross slope during the paving process. This safety practice eliminates the potential for vertical drop-off at the pavement edge, has minimal effect on project cost, and can improve pavement durability by reducing edge raveling of asphalt. Rural road crashes involving edge drop-offs are 2-4 times more likely to include a fatality than other crashes on similar roads.1 Vehicles may leave the roadway for various reasons ranging from distracted driver errors to low visibility, or to the presence of an animal on the road. Exposed vertical pavement edges can cause vehicles to become unstable and prevent their safe return to the roadway. The SafetyEdgeSM gives drivers the opportunity to return to their travel lane while maintaining control of their vehicle.

IMPLEMENTATION COST	
High	
Medium	
Low	✓

EXAMPLE PHOTO



Source: FHWA

SAFETY BENEFITS
11% reduction in fatal and injury crashes
21% reduction in run-off road crashes
19% reduction in head-on crashes

APPLICATION

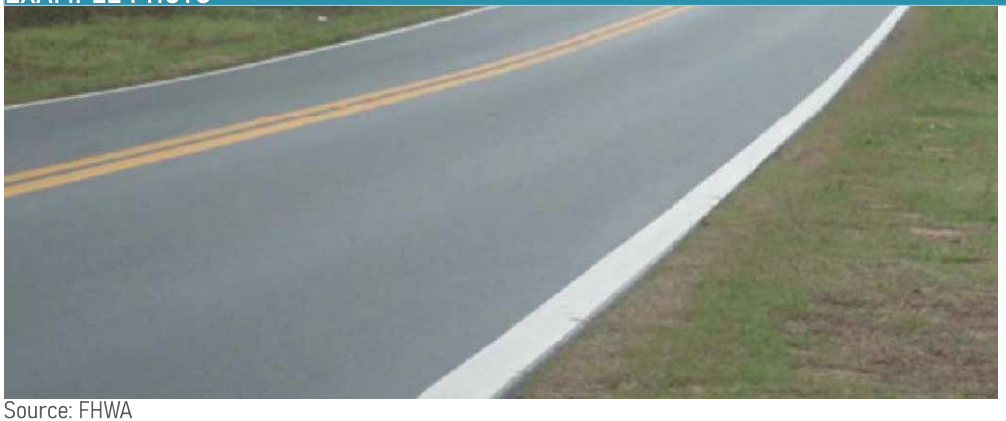
The SafetyEdgeSM technology requires only the addition of a commercially available device to the screed or endgate when laying hot-mix asphalt. For concrete pavements, shaping the edge is even simpler and can be done on-site by the contractor. Unlike conventional pavement edges, some agencies allow the SafetyEdgeSM to remain exposed during construction. However, it's essential to ensure that the adjacent roadside is flush with the top of the pavement for both the SafetyEdgeSM and traditional pavement edges before the project concludes. Over time, regardless of the edge type, exposure due to settling, erosion, and tire wear may occur. In such cases, the gentle slope provided by the SafetyEdgeSM is preferred over the traditional vertical pavement edge.

COUNTERMEASURES | Wider Edge Lines

DESCRIPTION

Roadway departures account for over half of all traffic fatalities in the United States. A significant contributing factor is drivers' inability to clearly perceive the edge of the travel lanes and the road's alignment ahead. To mitigate this risk, wider edge lines can significantly improve lane boundary visibility. By increasing the marking width from the standard 4 inches to 6 inches, drivers are provided with a more defined visual cue. This enhanced visibility reduces the likelihood of unintended lane departures.

EXAMPLE PHOTO



Source: FHWA

IMPLEMENTATION COST	
High	
Medium	
Low	✓

SAFETY BENEFITS
37% reduction for non-intersection, fatal and injury crashes on rural, two-lane roads.
22% reduction in fatal and injury crashes on rural freeways

APPLICATION

Wider edge lines increase drivers' perception of the edge of the travel lane and can provide a safety benefit to all facility types (e.g., freeways, multilane divided and undivided highways, two-lane highways) in both urban and rural areas. Agencies should also consider implementing a systemic approach to wider edge line installation-based roadway departure crash risk factors. Potential risk factors for two-lane rural roads include:

Pavement and shoulder widths.

Presence of curves.

Traffic volumes.

History of nighttime crashes.

Table 5.3 provides an overview of the benefits of proven speeding countermeasures, while individual fact sheets that follow offer more detailed insights into their advantages and applications.

Table 5.3 Speed Management Countermeasures

COUNTERMEASURE	IMPROVES COMPLIANCE WITH SPEED LIMITS	REDUCES SPEEDING-RELATED CRASHES	ENHANCES SAFETY FOR ALL ROAD USERS	ADAPTS TO TRAFFIC & WEATHER CONDITIONS	SUPPORTS EFFICIENT ENFORCEMENT
Appropriate Speed Limits for All Road Users	✓	✓	✓		
Variable Speed Limites (VSLs)	✓	✓	✓	✓	
Speed Safety Cameras (SSCs)	✓	✓	✓		✓

SPEED MANAGEMENT

COUNTERMEASURES | Appropriate Speed Limits for All Road Users

DESCRIPTION

Controlling speed is crucial for reducing traffic fatalities and serious injuries, especially on non-limited access roads where vehicles and vulnerable road users (like pedestrians and cyclists) share space. States and local governments play a key role in setting appropriate speed limits to protect everyone, particularly vulnerable road users. Enforcing these limits is a cornerstone of the Safe System Approach, a comprehensive framework for improving road safety. Evidence shows that adjusting speed limits can effectively lower travel speeds, reducing the frequency and severity of traffic crashes.

IMPLEMENTATION COST	
High	
Medium	
Low	✓

EXAMPLE PHOTO

Source: MUTCD

SAFETY BENEFITS

Setting a speed limit no more than 5 mph below the 85th-percentile speed may result in fewer total and fatal plus injury crashes, and lead to drivers complying closely with the posted speed limit

APPLICATION

Posted speed limits often match the legislative statutory speed limits. However, designated authorities, including state and sometimes local jurisdictions, can establish non-statutory speed limits or designate reduced speed zones—and many are doing so. Non-statutory speed limits must be based on an engineering study, conducted in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), involving multiple factors and engineering judgment. When setting a speed limit, agencies should consider a range of factors, including pedestrian and bicyclist activity, crash history, land use context, intersection spacing, driveway density, roadway geometry, roadside conditions, roadway functional classification, traffic volume, and observed speeds.

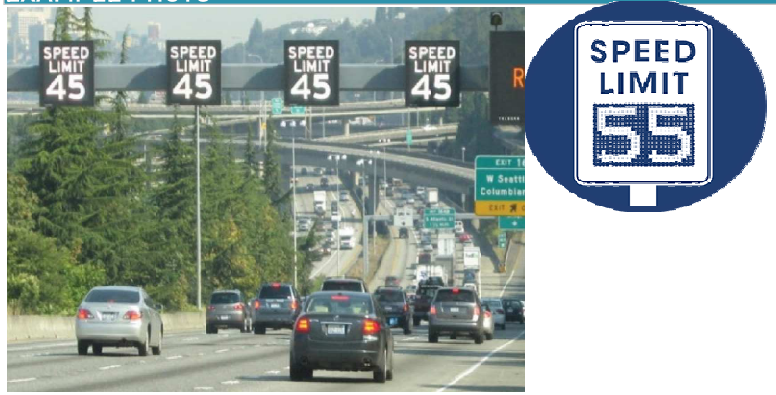
COUNTERMEASURES | Variable Speed Limits (VSLs)

DESCRIPTION

Setting appropriate speed limits is crucial for maintaining a safe and efficient transportation network. These limits are determined through engineering studies that consider factors like traffic volumes, operating speeds, roadway characteristics, and crash history. However, road conditions can change rapidly due to factors such as congestion, crashes, and weather. Drivers usually choose their speeds based on ideal conditions like good weather, straight roads, and clear visibility. When these conditions aren't met, the risk of crashes increases. Implementing variable speed limits (VSLs) that adapt to changing circumstances can help reduce crash frequency and severity.

IMPLEMENTATION COST	
High	✓
Medium	✓
Low	✓

EXAMPLE PHOTO



Source: FHWA & WSDOT

SAFETY BENEFITS
34% reduction in total crashes
65% reduction for rear-end crashes
51% reduction in fatal and injury crashes

APPLICATION

Variable Speed Limits (VSLs) use current roadway information, such as traffic speed, volume, weather, and road conditions, to determine and display appropriate speeds to drivers. This strategy enhances safety and traffic flow by reducing speed variance, also known as speed harmonization. VSLs improve driver expectations by providing advance information about slowdowns and potential lane closures, thus reducing the likelihood of secondary crashes. They can also mitigate adverse weather conditions or slow fast-moving traffic as it approaches a queue or bottleneck. VSLs are particularly effective on urban and rural freeways and high-speed arterials with speed limits over 40 mph. They are often part of Active Traffic Management (ATM) plans or incorporated into existing Road Weather Information Systems. When used with ATM, VSLs can reduce rear-end, sideswipe, and other crashes on high-speed roadways. VSLs may be implemented as regulatory or advisory systems and can apply to entire roadway segments or individual lanes.

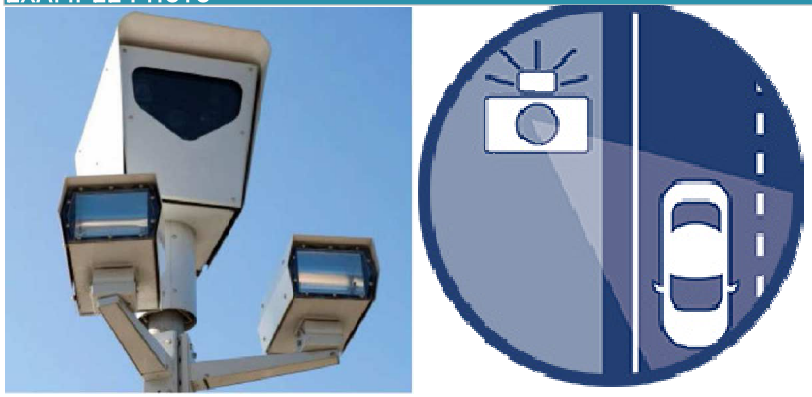
COUNTERMEASURES | Speed Safety Camera (SSCs)

DESCRIPTION

Safe Speeds is a core principle of the Safe System Approach because high-speed crashes are more likely to be fatal. Enforcing safe speeds has been challenging, but with better information and tools, communities can reduce speeds. Agencies can use Speed Safety Cameras (SSCs) to effectively supplement traditional enforcement, engineering measures, and education. SSCs detect speeding and capture photographic or video evidence of vehicles violating the speed limit, helping to change social norms around speeding.

IMPLEMENTATION COST	
High	✓
Medium	✓
Low	

EXAMPLE PHOTO



Source: FHWA

SAFETY BENEFITS
Fixed Units: 54% reduction in total crashes and 47% reduction for injury crashes.
P2P Units: 37% reduction for fatal and injury crashes on urban expressways and principal arterial.
Mobile Units: 20% reduction in fatal and injury crashes on urban principal arterial.

APPLICATION

Agencies should conduct a network analysis of speeding-related crashes to identify locations to implement SSCs. The analysis can include scope (e.g., widespread, localized), location types (e.g., urban/suburban/rural, work zones, residential, school zones), roadway types (e.g., expressways, arterials, local streets), times of day, and road users most affected by speed-related crashes (e.g., pedestrians, bicyclists).

SSCs can be deployed as:

- **Fixed units**—a single, stationary camera targeting one location.
- **Point-to-Point (P2P) units**—multiple cameras to capture average speed over a certain distance.
- **Mobile units**—a portable camera, generally in a vehicle or trailer.

Table 5.4 Pedestrian and Bicyclist Countermeasures

Source: ARC Regional Safety Strategy

COUNTERMEASURE	HIGH SPEEDS	HIGH TRAFFIC VOLUMES	HIGH PEDESTRIAN VOLUMES	HIGH BICYCLE VOLUMES	MULTIPLE LANES	NO MEDIAN	LACK OF FACILITIES	LIMITED SIGHT DISTANCE	POOR VISIBILITY
Advance warning signs and markings	✓	✓	✓	✓	✓		✓	✓	✓
Curb extensions			✓		✓	✓	✓	✓	✓
Dedicated bicycle lanes	✓	✓		✓	✓		✓		
Grade separated crossing	✓	✓	✓	✓	✓	✓		✓	
High visibility crosswalk			✓				✓		✓
Leading pedestrian interval	✓	✓	✓		✓				
Lighting			✓	✓			✓		✓
Parking restriction near crossing		✓			✓	✓		✓	✓
Pedestrian hybrid signal	✓	✓	✓		✓	✓		✓	✓
Pedestrian refuge island	✓	✓	✓		✓	✓	✓	✓	✓
Prohibit right-turn on red		✓	✓					✓	✓
Protected left-turn phasing	✓	✓	✓					✓	✓
Raised crosswalk			✓				✓		
Rapid rectangular flashing beacon	✓	✓	✓		✓	✓			✓
Road diet	✓			✓	✓	✓	✓		
Separated multiuse path	✓	✓	✓	✓			✓		
Sidewalks	✓	✓	✓		✓		✓		✓

PEDESTRIAN AND BICYCLIST COUNTERMEASURES

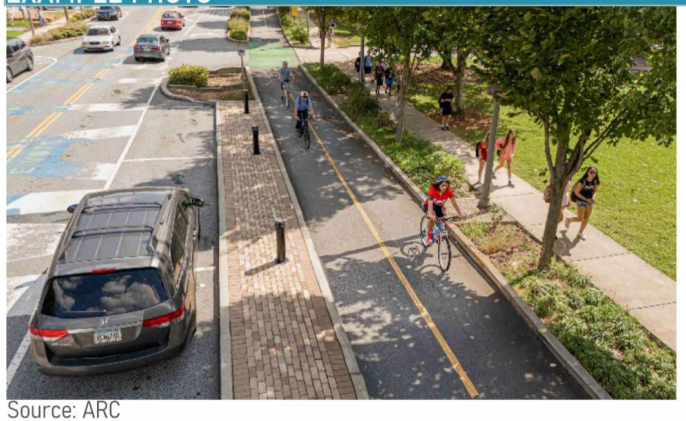
COUNTERMEASURES | Bicycle Lanes

DESCRIPTION

Most fatal bicycle crashes occur outside intersections, especially when motor vehicles overtake cyclists. The risk is heightened by the size and speed differences between vehicles and bicycles, which deters many from cycling. To enhance safety and encourage cycling, states and localities must prioritize installing dedicated bicycle lanes. This crucial step aligns with the Safe System Approach, which emphasizes separating users in space to minimize the risk of severe crashes.

IMPLEMENTATION COST	
High	✓
Medium	✓
Low	✓

EXAMPLE PHOTO



Source: ARC

SAFETY BENEFITS
Bicycle Lane Additions: 49% reduction in total crashes on urban Four-lane undivided collectors and local roads.
Bicycle Lane Additions: 30% reduction in total crashes on urban Two-lane undivided collectors and local roads.

APPLICATION

FHWA's Bikeway Selection Guide and Incorporating On-Road Bicycle Networks into Resurfacing Projects help agencies determine the most beneficial facilities for various contexts. Bicycle lanes can be added to new roadways or existing roads by reallocating space in the right-of-way through Road Diets. Separated bicycle lanes, using vertical elements like flexible delineator posts, curbs, or vegetation, provide additional safety by creating a physical barrier between cyclists and motorized traffic lanes. For marked bike lanes without vertical elements, a lateral offset with a marked buffer helps further separate bicyclists from vehicle traffic, enhancing safety.

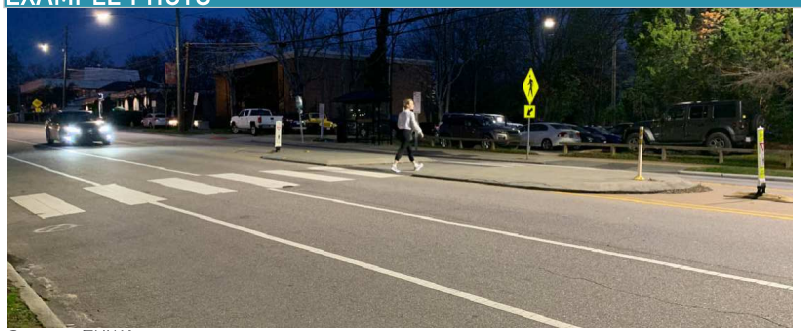
COUNTERMEASURES | Crosswalk Visibility Enhancements

DESCRIPTION

Reduced visibility at crosswalks, caused by poor lighting, parked vehicles, and roadway curvature, greatly compromises pedestrian safety. On busy multilane roads with over 10,000 Average Annual Daily Traffic (AADT), a simple marked crosswalk is often not enough. Implementing more robust crossing improvements is crucial to reduce the risk of pedestrian accidents. High-visibility crosswalks, adequate lighting, and clear signage/markings are three key enhancements that improve crosswalk visibility. These measures not only increase driver awareness of pedestrians but also guide users to safe crossing locations. Agencies can implement these features individually or in combination.

IMPLEMENTATION COST	
High	
Medium	
Low	✓

EXAMPLE PHOTO



Source: FHWA

SAFETY BENEFITS
Bicycle Lane Additions: 49% reduction in total crashes on urban Four-lane undivided collectors and local roads.
Bicycle Lane Additions: 30% reduction in total crashes on urban Two-lane undivided collectors and local roads.

APPLICATION

High-visibility crosswalks

High-visibility crosswalks use patterns (i.e., bar pairs, continental, ladder) that are visible to both the driver and pedestrian from farther away compared to traditional transverse line crosswalks. They should be considered at all midblock pedestrian crossings and uncontrolled intersections. Agencies should use materials such as inlay or thermoplastic tape, instead of paint or brick, for highly reflective crosswalk markings.

Improved Lighting

The goal of crosswalk lighting should be to illuminate with positive contrast to make it easier for a driver to visually identify the pedestrian. This involves carefully placing the luminaires in forward locations to avoid a silhouette effect of the pedestrian.

Enhanced Signing and Pavement Markings

On multilane roadways, agencies can use "YIELD Here to Pedestrians" or "STOP Here for Pedestrians" signs 20 to 50 feet in advance of a marked crosswalk to indicate where a driver should stop or yield to pedestrians, depending on State law. To supplement the signing, agencies can also install a STOP or YIELD bar (commonly referred to as "shark's teeth") pavement markings.

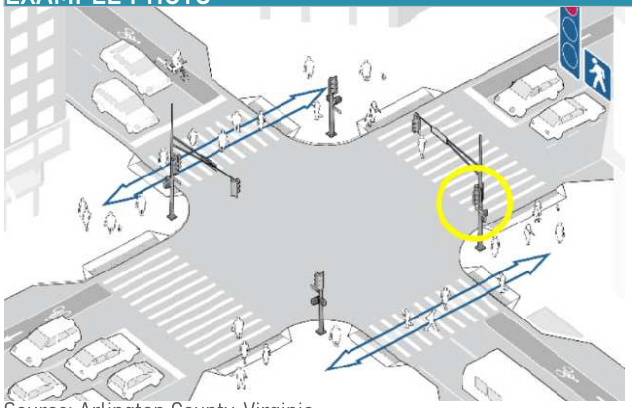
COUNTERMEASURES | Leading Pedestrian Interval (LPI)

DESCRIPTION

A leading pedestrian interval (LPI) allows pedestrians to enter the crosswalk at a signalized intersection 3-7 seconds before vehicles receive a green signal. This extra time enables pedestrians to establish their presence in the crosswalk before vehicles start turning. LPIs offer several benefits, including increased visibility of pedestrians, reduced conflicts between pedestrians and vehicles, a higher likelihood of motorists yielding to pedestrians, and enhanced safety for pedestrians who may be slower to start crossing the intersection.

IMPLEMENTATION COST	
High	
Medium	
Low	✓

EXAMPLE PHOTO



Source: Arlington County, Virginia

SAFETY BENEFITS
13% reduction in pedestrian-vehicle crashes at intersection

APPLICATION

FHWA's Handbook for Designing Roadways for the Aging Population recommends implementing Leading Pedestrian Intervals (LPIs) at intersections with high turning vehicle volumes. Transportation agencies should consult the Manual on Uniform Traffic Control Devices (MUTCD) for guidance on LPI timing and ensure pedestrian signals are accessible to all users. The cost of implementing LPIs is very low when it only requires altering signal timing.

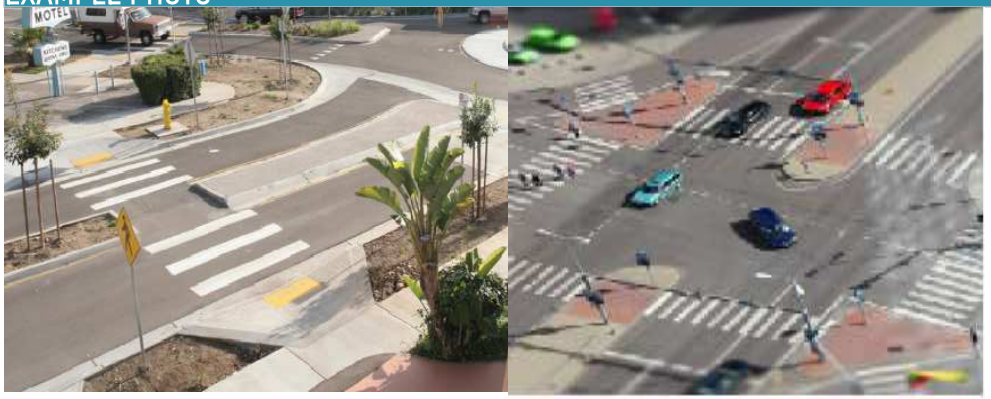
COUNTERMEASURES | Medians and Pedestrian Refuge Islands

DESCRIPTION

A median is the space separating opposing lanes of traffic, excluding turn lanes. In urban and suburban settings, medians may be defined by pavement markings, raised structures, or islands designed to separate motorized and non-motorized road users. A pedestrian refuge island, or crossing area, is a specialized type of median that provides a designated safe space for pedestrians to pause while crossing the road, enhancing their protection and safety.

IMPLEMENTATION COST	
High	
Medium	✓
Low	✓

EXAMPLE PHOTO



Source: FHWA

SAFETY BENEFITS
Median with Marked Crosswalk: 46% reduction in pedestrian crashes.
Pedestrian Refuge Island: 56% reduction in pedestrian crashes.

APPLICATION

Transportation agencies should explore the inclusion of medians or pedestrian refuge islands in curbed sections of urban and suburban multilane roadways, particularly in areas with heavy pedestrian and vehicle traffic, traffic volumes exceeding 9,000 vehicles per day, and travel speeds greater than 35 mph. Ideally, these features should be 8 feet wide to ensure pedestrian comfort. They should be implemented at mid-block crossings, along approaches to multilane intersections, and in proximity to transit stops or other areas frequented by pedestrians.

COUNTERMEASURES | Pedestrian Hybrid Beacons (PHB)

DESCRIPTION

The Pedestrian Hybrid Beacon (PHB) is a traffic control device designed to improve pedestrian safety at mid-block crossings and uncontrolled intersections on high-speed roadways. Featuring two red lenses above a single yellow lens, the PHB remains inactive until a pedestrian activates it by pressing a call button. Once triggered, the beacon begins a flashing yellow-to-red light sequence, alerting motorists to slow down and stop, granting pedestrians the right-of-way to cross. After pedestrians complete their crossing, the beacon deactivates and returns to its inactive state.

IMPLEMENTATION COST	
High	✓
Medium	✓
Low	

EXAMPLE PHOTO

Source: FHWA

SAFETY BENEFITS
55% reduction in pedestrian crashes.
29% reduction in total crashes.
15% reduction in serious injury and fatal crashes.

APPLICATION

Transportation agencies should refer to the Manual on Uniform Traffic Control Devices (MUTCD) for guidance on the appropriate application of Pedestrian Hybrid Beacons (PHBs). PHBs are most effectively used in locations where pedestrian crossings are challenging, such as where speed limits exceed 35 miles per hour, traffic volumes exceed 9,000 vehicles per day, and three or more lanes must be crossed. Successful PHB installations necessitate a marked crosswalk and a pedestrian countdown signal. To ensure community understanding and acceptance, agencies should conduct public education and outreach campaigns prior to PHB implementation.

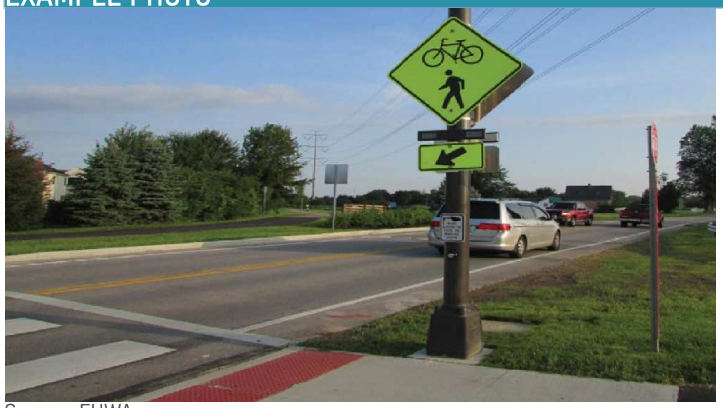
COUNTERMEASURES | Rectangular Rapid Flashing Beacons (RRFBs)

DESCRIPTION

Marked crosswalks and pedestrian warning signs improve safety, but they may not always ensure drivers notice and yield to pedestrians. To enhance visibility and increase driver awareness at uncontrolled, marked crosswalks, transportation agencies can install Pedestrian Actuated Rectangular Rapid Flashing Beacons (RRFBs). RRFBs consist of two rectangular yellow LED arrays that flash alternately at a high frequency when activated. This rapid flashing significantly improves the visibility of pedestrians to approaching drivers.

IMPLEMENTATION COST	
High	
Medium	✓
Low	

EXAMPLE PHOTO



Source: FHWA

SAFETY BENEFITS
47% reduction in pedestrian crashes.
98% increase for motorist yielding.

APPLICATION

The RRFB is applicable to many types of pedestrian crossings but is particularly effective at multilane crossings with speed limits less than 40 miles per hour. Research suggests RRFBs can result in motorist yielding rates as high at 98 percent at marked crosswalks, but varies depending on the location, posted speed limit, pedestrian crossing distance, one- versus two-way road, and the number of travel lanes. RRFBs can also accompany school or trail crossing warning signs. RRFBs are placed on both sides of a crosswalk below the pedestrian crossing sign and above the diagonal downward arrow plaque pointing at the crossing. The flashing pattern can be activated with pushbuttons or passive (e.g., video or infrared) pedestrian detection, and should be unlit when not activated.

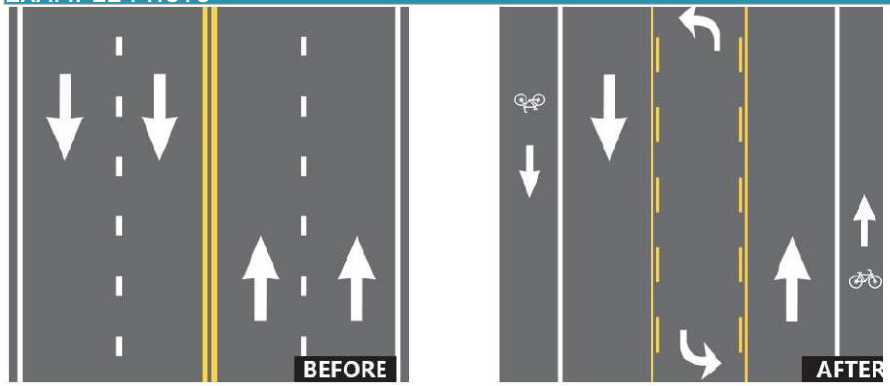
COUNTERMEASURES | Road Diets (Roadway Reconfiguration)

DESCRIPTION

A Road Diet, or roadway reconfiguration, can improve safety, calm traffic, provide better mobility and access for all road users, and enhance overall quality of life. A Road Diet typically involves converting an existing four-lane undivided roadway to a three-lane roadway consisting of two through lanes and a center two-way left-turn lane (TWLTL).

IMPLEMENTATION COST	
High	
Medium	✓
Low	✓

EXAMPLE PHOTO



Source: FHWA

SAFETY BENEFITS
Four-lane to Three-lane Road Diet Conversion: 19-47% reduction in total crashes.

APPLICATION

Road Diet can be a low-cost safety solution when planned in conjunction with a simple pavement overlay, and the reconfiguration can be accomplished at no additional cost. Typically, a Road Diet is implemented on a roadway with a current and future average daily traffic of 25,000 or less.

COUNTERMEASURES | Paths/Sidewalks

DESCRIPTION

A walkway is any type of defined space or pathway for use by a person traveling by foot or using a wheelchair. These may be pedestrian walkways, shared use paths, sidewalks, or roadway shoulders.

IMPLEMENTATION COST	
High	✓
Medium	✓
Low	✓

EXAMPLE PHOTO

Source: FHWA

SAFETY BENEFITS

Sidewalks: 65-89% reduction in crashes involving pedestrian walking along roadways.

APPLICATION

Well-designed pedestrian walkways, shared use paths, and sidewalks enhance pedestrian safety and mobility. Pedestrians should have a direct and connected network of walking routes to reach their destinations without gaps or sudden changes. In rural or suburban areas where such walkways aren't feasible, we would like to continue to advocate for actual paths since we community is very path friendly, instead of marked shoulders.

Transportation agencies should incorporate pedestrian facilities into all roadway projects unless exceptional circumstances exist. It is crucial to provide and maintain accessible safe sidewalks along both sides of the road in urban areas, especially near school zones, transit locations, and areas with high pedestrian activity.

COUNTERMEASURES | Lighting

DESCRIPTION

Nighttime driving is significantly more dangerous than daytime driving. Although only 25% of vehicle miles are traveled at night, they account for a disproportionately high number of fatal crashes, with a fatality rate three times higher than during the day. This increased risk is due to reduced visibility, which limits a driver's ability to quickly react to hazards or roadway changes within the limited range of headlights. To mitigate this risk, continuous or spot lighting can be strategically implemented along road segments, at intersections, and at pedestrian crossings to enhance visibility and reduce the likelihood of crashes.

IMPLEMENTATION COST	
High	✓
Medium	✓
Low	

EXAMPLE PHOTO

Source: FHWA

SAFETY BENEFITS
42% reduction for nighttime injury pedestrian crashes at intersection.
33-38% reduction for nighttime crashes at rural and urban intersections.
28% reduction for nighttime injury crashes on rural and urban highways.

APPLICATION

Roadway Segments: Research indicates that continuous lighting on both rural and urban highways (including freeways) has an established safety benefit for motorized vehicles. Agencies can provide adequate visibility of the roadway and its users through the uniform application of lighting that provides full coverage along the roadway and the strategic placement of lighting where it is needed the most.

Intersection and Pedestrian Crossings: Increased visibility at intersections at nighttime is important since various modes of travel cross paths at these locations. Agencies should consider providing lighting to intersections based on factors such as a history of crashes at nighttime, traffic volume, the volume of non-motorized users, the presence of crosswalks and raised medians, and the presence of transit stops and boarding volumes.

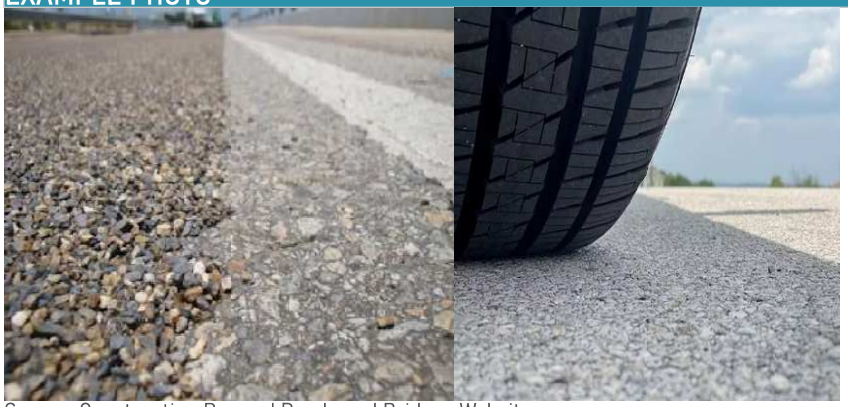
COUNTERMEASURES | Pavement Friction Management

DESCRIPTION

Pavement friction is a crucial factor influencing vehicle-roadway interaction and significantly impacts crash frequency. Regularly measuring, monitoring, and maintaining pavement friction, particularly at locations with frequent turning, slowing, and stopping maneuvers, is essential for preventing numerous roadway departure, intersection, and pedestrian-related crashes. Leveraging continuous pavement friction data in conjunction with crash and roadway data enables more targeted and efficient application of friction treatments like High Friction Surface Treatment (HFST), maximizing their effectiveness in enhancing road safety.

IMPLEMENTATION COST	
High	
Medium	✓
Low	

EXAMPLE PHOTO



Source: Construction Pro and Roads and Bridges Website

SAFETY BENEFITS
63% reduction for injury crashes at ramps.
48% reduction for injury crashes at horizontal curves.
20% reduction for total crashes at intersection.

APPLICATION

High Friction Surface Treatment (HFST) comprises a durable, anti-abrasion, and polish-resistant aggregate applied over a thermosetting polymer resin binder. This binder secures the aggregate in place, enhancing friction and skid resistance. Calcined bauxite is the most effective aggregate for HFST applications. Applications of HFST: HFST should be used in locations requiring increased friction, such as horizontal curves, interchange ramps, intersection approaches, higher-speed signalized and stop-controlled intersections, steep downward grades, and areas with a history of rear-end, failure-to-yield, wet-weather, or red-light-running crashes. Crosswalk approaches also benefit from HFST.

COUNTERMEASURES | Road Safety Audit (RSAs)

DESCRIPTION

While most transportation agencies have traditional safety review procedures in place, a Road Safety Audit (RSA) or assessment stands out as a unique approach. RSAs are conducted by a multidisciplinary team that is independent of the project. They consider all road users, account for human factors and road user capabilities, are documented in a formal report, and require a formal response from the road owner.

IMPLEMENTATION COST	
High	
Medium	✓
Low	✓

EXAMPLE PHOTO

Source: FHWA

SAFETY BENEFITS
10-60% reduction in total crashes

APPLICATION

RSAs can be performed in any phase of project development, from planning through construction. Agencies may focus RSAs specifically on motorized vehicles, pedestrians, bicyclists, motorcyclists, or a combination of these roadway users. Agencies are encouraged to conduct an RSA at the earliest stage possible, as all roadway design options and alternatives are being explored.

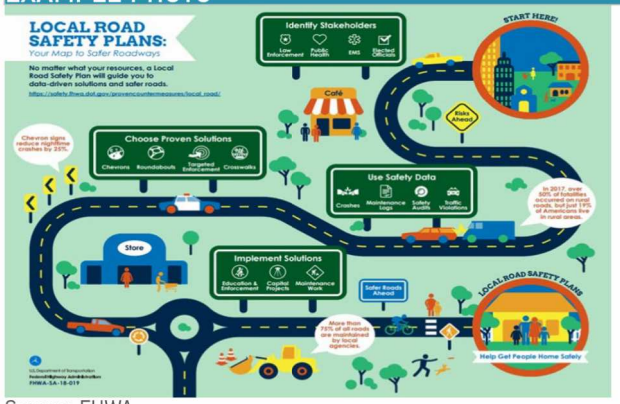
COUNTERMEASURES | Local Road Safety Plans (LRSPs)

DESCRIPTION

A Local Road Safety Plan (LRSP) offers a structured approach to identifying, analyzing, and prioritizing safety improvements on local roads. Tailored to address specific local needs and issues, the LRSP process results in a prioritized action list aimed at reducing fatalities and serious injuries. The Federal Highway Administration (FHWA) provides valuable resources, including an LRSP Do-It-Yourself website, to guide local agencies and their partners in creating and implementing effective LRSPs

IMPLEMENTATION COST	
High	
Medium	✓
Low	

EXAMPLE PHOTO



Source: FHWA

SAFETY BENEFITS
10-60% reduction in total crashes

APPLICATION

Developing a Local Road Safety Plan (LRSP) is essential for enhancing road safety at the local level and aligning with a State's Strategic Highway Safety Plan (SHSP). Key elements of an LRSP include engaging stakeholders from engineering, enforcement, education, and emergency services; fostering collaboration among various agencies to leverage expertise and resources; identifying target crash types and implementing proven safety countermeasures; and establishing timelines and goals for implementation and evaluation. LRSPs are valuable tools for prioritizing safety improvements, demonstrating proactive risk management, and reducing fatalities and injuries on local roads. They should be considered living documents that are regularly updated to reflect evolving local needs and priorities.

A RESOLUTION OF THE BOARD OF COMMISSIONERS FOR CARROLL COUNTY GEORGIA
ADOPTING A VISION ZERO POLICY

Whereas, Carroll County experienced 84 roadway fatalities and 219 crashes that resulted in life-altering injuries between 2018 and 2022; and

Whereas, traffic deaths and serious injuries are preventable and often result from roadway designs that are ineffective in accommodating multimodal use; and

Whereas, a Safe System Approach acknowledges that humans make mistakes and therefore, roadways must be designed to minimize the impact of crashes on the human body; and

Whereas, Carroll County, as well as the populace, have a collective responsibility to contribute to a safe system; and

Whereas, Carroll County received a federal Safe Streets and Roads for All Action Plan grant in 2023, and

Whereas, Carroll County collaborated with stakeholders including its cities, major employers and nonprofit partners to develop a data-driven and community-based Safety Action Plan over 2024 and early 2025; and

Whereas, public input collected during the Safety Action Plan process provides evidence of the citizenry's desire for roadway safety improvements; and

Whereas, the County's population is aging, based on U.S. Census Bureau data, so specific initiatives for older driver safety are needed; and

Whereas, Vision Zero is a holistic strategy aimed at eliminating all traffic fatalities and severe injuries suffered by all road users while increasing safe, healthy, equitable mobility for all; and

Whereas, streets and transportation systems have traditionally been designed primarily to move cars efficiently, and Vision Zero supports a paradigm shift by designing streets and transportation systems to move all people safely, including people of all ages and abilities, pedestrians, bicyclists, public transit users, and motorcyclists, as well as drivers and passengers of motor vehicles; and

Whereas, Vision Zero resolutions have been adopted by many jurisdictions across the United States,

Now, Therefore, Be It Resolved by the Board of Commissioners:

Carroll County joins the Vision Zero movement by committing to a goal of zero deaths and serious injuries that are a result of roadway crashes in Carroll County by 2040.

Carroll County commits to safer streets for all users, including drivers, pedestrians, cyclists, transit users, and individuals utilizing various modes of transportation.

Carroll County commits to continued collaboration with neighboring jurisdictions to advance projects identified by the Safety Action Plan.

Carroll County commits to monitoring and reporting on progress toward the Vision Zero goal. The Carroll County Clerk shall certify the adoption of this Resolution, effective immediately, by the Board of Commissioners.

PASSED AND ADOPTED by the Board of Commissioners of the Carroll County, State of Georgia, on the 3rd of June, 2025.

CLERK'S CERTIFICATION

I, Lynda L. Bingham, Clerk of the Board of Commissioners of Carroll County, Georgia and keeper of the records and seal thereof, DO HEREBY CERTIFY that the ***Vision Zero Policy Resolution*** *was approved at the June 3, 2025 Carroll County Board of Commissioners Meeting.*

Given under my hand and the official seal of Carroll County, this 9th day of June, 2025

Lynda L. Bingham, County Clerk

[SEAL]