

Anderson County, TN Safety Action Plan



Adopted by the Anderson County Commission on 5/19/2025
Endorsed by the Knoxville Regional TPO Executive Board on 5/28/2025

CONTENTS

Introduction.....iii

Public Input.....iv

Equity and Crash Analysis.....vi

Priority Corridors.....vii

Policy and Process Recommendations.....x

Conclusion.....xi

Appendix A: Crash Analysis and Methodologyxii

Appendix B: Contextual Factor Analysis and Equity Integrationxiv

Appendix C: Recommendations Framework.....xxiv

CONSULTANT TEAM



INTRODUCTION

The Anderson County Safety Action Plan is an extension of the Knoxville Regional Transportation Planning Organization's (TPO) [Regional Roadway Safety Action Plan](#), which was completed in 2023. The Regional Plan aligned with the core elements of the U.S. Department of Transportation's Safe Streets and Roads for All (SS4A) program, enabling the Knoxville TPO to secure SS4A implementation funding. The Plan included the oversight of a Safety Task Force and leadership commitment from The Knoxville Regional TPO to reduce fatalities and serious injuries by 66% by 2045. The Anderson County Safety Action Plan operates within this regional leadership commitment and was guided by members of the Safety Task Force from the Knoxville Regional Plan. The same Safety Task Force is responsible for the implementation and monitoring of this Anderson County Safety Action Plan. It is led by staff from the TPO and the Anderson County Highway Department, and the responsibility for ongoing implementation and monitoring will fall to local officials in Anderson County. The Anderson County Highway Department regularly coordinates with local elected officials, emergency responders, and school administrators to identify traffic safety issues and solutions, which this plan will help inform.

Appending the Knoxville TPO's Regional Roadway Safety Action Plan, this plan is more specifically tailored towards improving safety outcomes on non-state-owned public roads in unincorporated areas of Anderson County, as well as the communities of Norris and Rocky Top. Specific to the Anderson County area, this plan summarizes the findings from detailed crash and contextual factor analysis, such as roadway width and posted speed limits, public input, and assessment of equity areas. The Plan identifies priority corridors and recommendations that will guide the County's roadway safety strategy moving forward. Additional technical information relevant to this document, including detailed countermeasure recommendations for prioritized corridors, is available in the Appendices.

Public Input

Public feedback was gathered through an online mapping tool (Figure 1), as well as two in-person meetings where residents identified roadway safety concerns across Anderson County. The meetings were facilitated by Anderson County Staff and included a summary of the project and associated crash analyses. After community input was collected, comments were categorized into two major themes:

The first theme focused on roadway safety and visibility. Residents called for improved signage, reflectors, and guardrails, particularly in areas with sharp curves, bridge piers, and steep drop-offs. Specific locations such as the intersection of Marlow Road and Dutch Valley Road were cited for their limited sightlines. Concerns also included roadway erosion and icy spots during the winter months.

The second theme addressed speeding and enforcement. Participants reported high-speed passing and dangerous behavior by large trucks, often occurring on narrow rural roads. Many respondents noted a lack of visible enforcement, contributing to what was described as a “speedway” mentality. Several suggestions were made to reduce speed limits and remove passing zones to improve safety for residents, farmers, and vulnerable road users.

Interactive Safety Map

Anderson County Safe Streets & Roads for All Study / Interactive Safety Map

INSTRUCTIONS

We want your feedback on any safety issues that you may have observed as you move around Anderson County whether by a motorized (car, truck, motorcycle) or non-motorized (walking or biking) mode of travel.

There are several categories of safety concerns that you can choose from as follows:

- **Roadway Safety Issue** - select this for any general safety issue related to the roadway or at a specific intersection that may be causing crashes or near-misses. An example would be if you think that there is an unsafe drop-off next to a road that may need guardrail installed or repaired.
- **Speeding Issue** - this is to denote any specific location where you regularly observe vehicles driving too fast such as around parks or schools where children or many pedestrians are present.
- **Pedestrian Issue** - use this marker to identify locations that are unsafe for walking such as streets that might need a sidewalk added.
- **Bicycle Issue** - use this marker to identify a particular need for safer bike accommodations.
- **Visibility Issue** - this marker allows you to identify locations where there may be inadequate sight distance for making a safe turn onto a roadway such as from overgrown vegetation.
- **Lighting Issue** - this marker denotes where you think additional roadway lighting would be beneficial to improve safety at night or in bad weather conditions.
- **Ideas or Suggestions** - please mark any locations where you have suggested changes or other ideas that should be considered for improving safety.

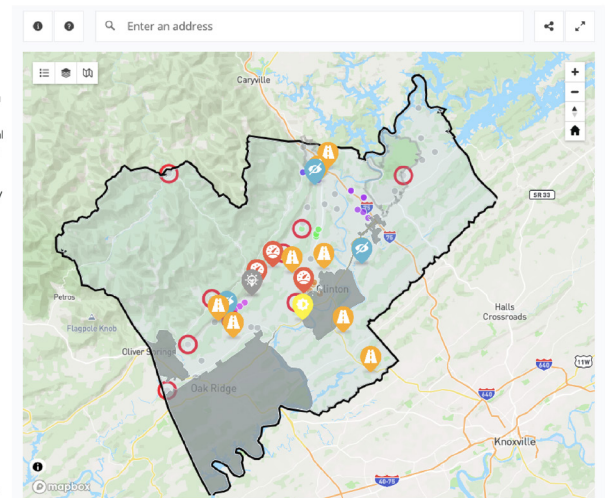





Figure 1. Online Public Input Mapping Tool

The geographic distribution of where the public identified safety concerns in relation to serious injury crashes is displayed in Figure 2.

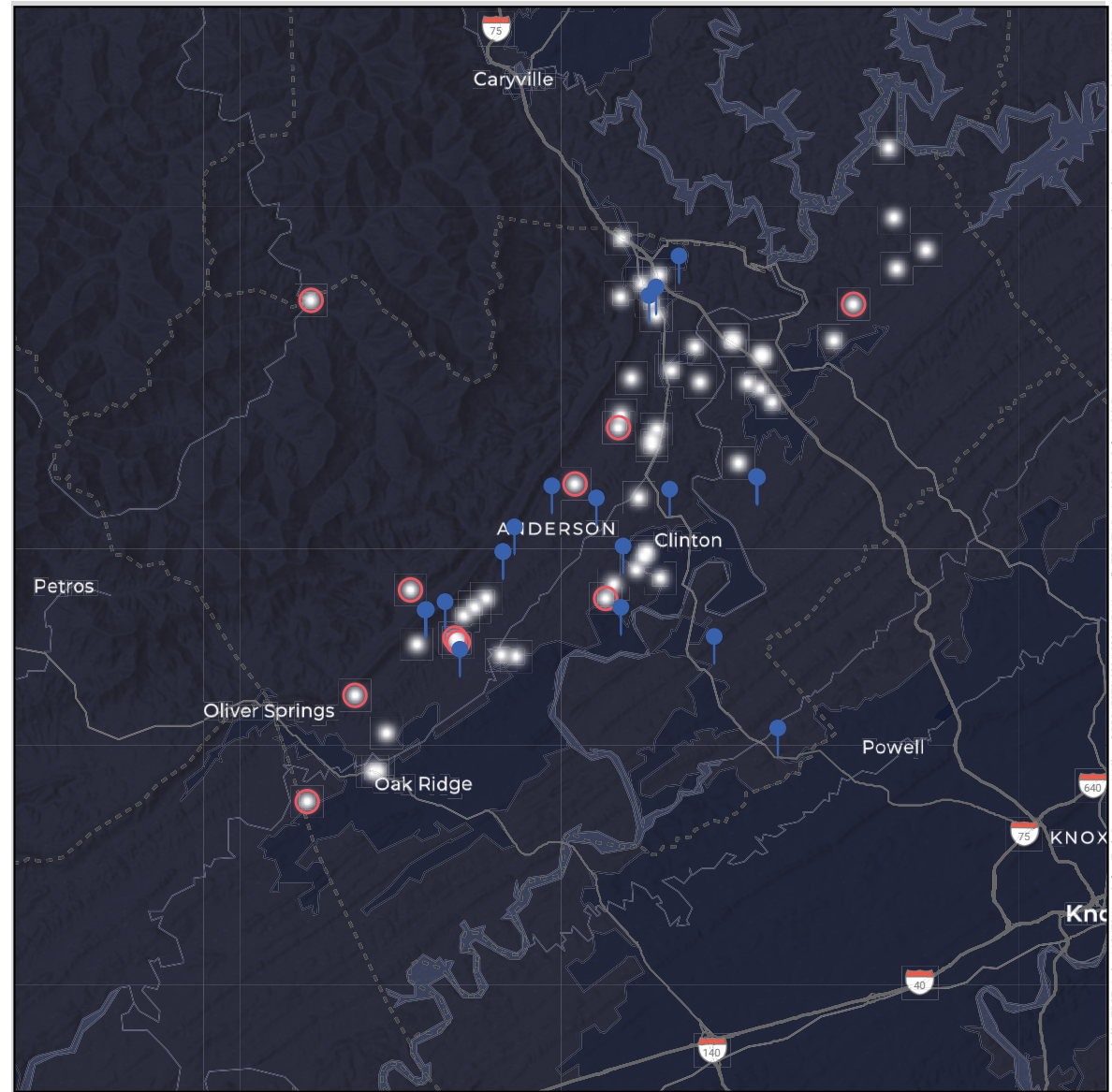
ANDERSON COUNTY, TN SAFETY ACTION PLAN

PUBLIC COMMENTS

CRASHES RESULTING IN A
SERIOUS BODILY INJURY OR
FATALITY (UNINCORPORATED
AREAS)

-  Serious Injury Crash
-  Fatality
-  Public Comment

alta 0 2 4 MILES



Data provided by TDOT via the AASHTOware Safety Tool. Document: N:\Shared\PROJECTS\2024\174_Knoxville_TPO, TN Regional Rotary Safety Analysis.aprx. Date saved: 3/12/2024.

Figure 2. *Public Comments and Fatal and Serious Injury Crashes*

Equity and Crash Analysis

Under guidance of the project management team, including Safety Task Force members from the Knoxville Regional Safety Action Plan, a refined crash analysis was conducted. This analysis excluded interstates, state routes, and municipalities such as Oak Ridge and Clinton, which fall outside the County's jurisdiction. The refined dataset included 52 crashes resulting in fatalities or serious injuries.

To assess equity, the team overlaid crash locations with data from the Environmental Protection Agency's Climate and Economic Justice Screening Tool. This tool identifies disadvantaged communities based on environmental, health, and socioeconomic factors. Five census block groups in Anderson County are classified as disadvantaged, including parts of Fraterville and Rocky Top. Of the 52 high-severity crashes analyzed, 20 occurred in these disadvantaged areas, particularly in the western portion of the county along and near US Route 25W. Full findings from the Equity analysis can be found in Appendix A.

An analysis of contextual factors revealed that most crashes occurred on two-lane, two-way rural roads with rolling terrain. Rural minor collectors were overrepresented, accounting for 36 percent of the crashes resulting in a fatality or serious injury, despite making up just seven percent of the road network. Over half of the fatal crashes occurred on roadways with a 45 MPH posted speed limit. Additionally, 65 percent of crashes resulting in a fatality or serious injury involved no crash with another vehicle. Common crash types included overturns, ditch run-offs, and crashes with fixed objects like trees or utility poles. The complete results and resulting crash profiles can be found in Appendix B. These resulting crash profiles were used in priority corridor identification and ranking.

Priority Corridors

Using the AASHTOware Network Screening Tool and ePDO crash weighting, the project team identified eleven priority roadway segments. Segments were included from across unincorporated areas, ensuring that the communities of Norris and Rocky Top were represented. Each roadway segment was assessed for relevance to the crash profiles and categorized by risk level. After selection, the following criteria were used to weigh and rank each segment:

- **Crash Count** – The number of total crashes, regardless of severity, along each corridor.
- **Crash Severity** – Segments were ranked using Equivalent Property Damage Only (ePDO) values to emphasize fatal and serious injury crashes.
- **Roadway Characteristics** – Factors such as speed limit, functional class, and roadway geometry were analyzed to identify high-risk conditions to help inform countermeasure section.
- **Equity Considerations** – Higher priority was given to corridors located in or near disadvantaged communities identified using EPA's CEJST tool.
- **Public Input** – Segments with multiple safety concerns raised by community members received elevated priority.
- **Geographic Distribution** – Efforts were made to include corridors from across the county, including within Norris and Rocky Top.

Priority Corridors

Table 1. *Priority Corridors*

Roadway	Segment ID	From	To
Dutch Valley Road	A	Old Lake City Highway	Sulphur Springs Road
Marlow Road & Marlow Circle	B	Oliver Springs Highway (SR 61)	Dutch Valley Road
Laurel Road	C	Sulphur Springs Road	Oliver Springs Highway (SR 61)
Dutch Valley Road	D	Frost Bottom Road (SR 330)	AJ Robbins Lane
Reservoir Road & East Norris Road	E	US 441 (SR 61)	Red Hill Road
Half Moon Road	F	Frost Bottom Road (SR 330)	Grave Hill Lane
Hillvale Road & Miller Road	G	Golden Lane	N Charles G Seivers Blvd (SR 61)
Dutch Valley Road	H	Walden Ridge Road	AJ Robbins Lane
Cobb Hollow Road	I	Norris Freeway (US 441)	Lovely Bluff Road
Brushy Valley Road	J	Firetower Road	Norris Freeway (US 441)
Sulphur Springs Rd	K	Dutch Valley Road	Carroll Hollow Road

Intersection crashes were also evaluated. Intersections were flagged for consideration if they had an ePDO greater than four and at least one fatal or serious injury crash that could be mitigated. Only crashes related to non-state routes were included when evaluating intersections with state routes. For each prioritized segment and intersection, Appendix C recommends appropriate countermeasures and includes suggested timelines based on best practices for Highway Safety Improvement Projects at the state level.

Detailed countermeasure information for each of the priority segments can be found in Appendix C.

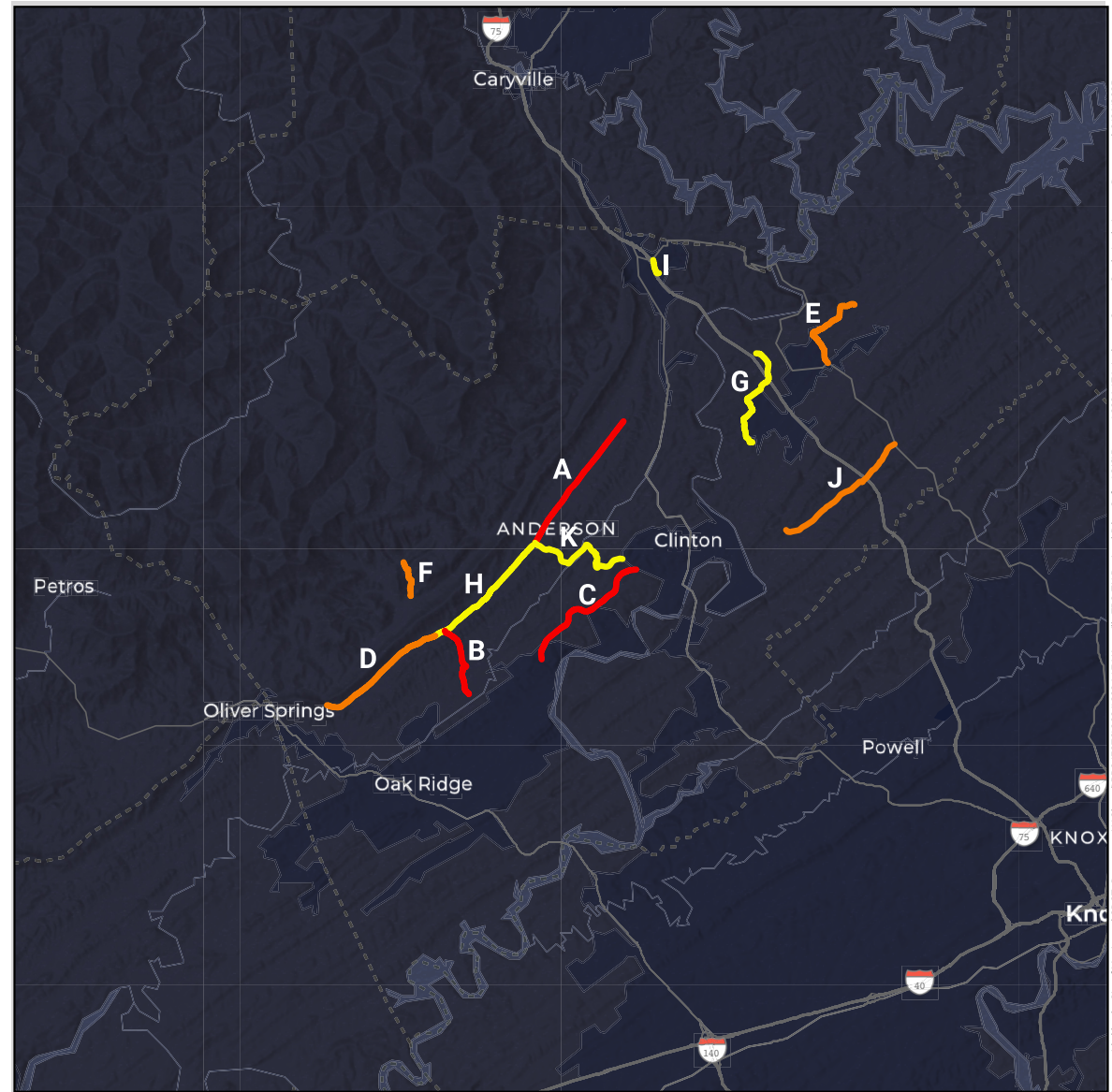
ANDERSON COUNTY SAFETY ACTION PLAN

PRIORITY CORRIDORS

Top Segments ePDO

- Less than 100
- 101 to 200
- 201+

alta 0 2 4 MILES



Data provided by the City of Moser and GDOT. Document: \\S\Shared\PROJECTS\2024\2024-174 Knoxville TPO, TN Regional Safety GIS\Process\2024-174 Anderson County_Crash_Analysis.aprx. Date saved: 3/26/2025.

Figure 3. *Priority Roadway Segments*

Policy and Process Recommendations

To address the findings from the crash profiles and public feedback, a set of policy and process recommendations are proposed to enhance safety on rural roads and system wide.

- A speed management policy is recommended to reduce posted limits from 45 MPH to 35 MPH on select rural roads. This change should be based on a speed study and supported by updated signage and speed feedback technology. Locations such as Dutch Valley Road may be prioritized for early implementation.
- The County should expand enforcement strategies to reduce impaired and distracted driving. Increased DUI checkpoints, greater patrol coverage, and targeted public campaigns during high-risk periods are key elements. Where permissible, automated enforcement technologies should be considered.
- A public education campaign is needed to raise awareness about safe driving practices on rural roads. This campaign should use digital, print, radio, and signage formats to highlight hazards such as lane departure, speeding, and distracted driving.
- Anderson County should establish a data-driven process for crash monitoring and evaluation. A centralized database should track crashes, enforcement actions, and safety interventions. Annual reviews and a public-facing dashboard would help measure effectiveness and guide future improvements.

More detailed descriptions of these recommendations can be found in Appendix C.

Conclusion

The Anderson County Safety Action Plan presents a data-informed, community-centered path forward to reduce serious injuries and fatalities on local roads. The plan integrates crash data, equity mapping, community input, and national best practices to prioritize high-priority areas and guide strategic investments for SS4A implementation. To ensure its recommendations can be implemented effectively, the Plan should be formally adopted by the appropriate governing body. Adoption will position Anderson County to apply for SS4A implementation grants and other safety-focused funding opportunities while also affirming the County's commitment to building safer streets for all residents.

For more detailed findings and methodology, refer to the appendices.

APPENDICIES

Appendix A: Crash Analysis and Methodology

Alta Planning + Design conducted crash analysis using Tennessee DOT's AASHTOware Safety crash dataset and online mapping tool. The data was filtered to exclude interstates and state routes, which are outside the County's jurisdiction.

Methodology

The team downloaded TNDOT crash data, using the following queries:

1. All Crashes in County Jurisdiction. Count: 4,748 data points.
 - a. Date filter: 01-01-2016 to 09-26-2021
 - b. Routes: Exclude interstates, exclude state routes
2. Vulnerable Roadway User (VRU) Crashes in County Jurisdiction. Count: 40 data points.
 - a. Date filter: 01-01-2016 to 09-26-2021
 - b. Routes: Exclude interstates, exclude state routes
 - c. Vulnerable Roadway User Involved: Yes

After downloading data, crashes were analyzed first by breaking down severities. For All Crashes, all further analysis focused on Fatal (labelled [K]) and Serious Injury (labelled [A]) crashes only.

Several key factors were assessed. They are noted below with their corresponding data category's name.

1. How severe were crashes (Type of Crash),
2. Where on the roadway crashes occurred (Relation to First Roadway),
3. In what light and weather conditions (Light Conditions; Weather Conditions) and,
4. How the crash occurred (Manner of First Collision).

When a notable finding emerged, investigation continued to find associated characteristics of that type of data point. Please find discussion of key findings below.

Key Findings

Overall, Anderson County's local and county roads were the site of 4,748 crashes. Of these, 25 were Fatal and 136 were Serious Injury crashes.

40 crashes involved a VRU, and 11 (27%) of these were Fatal or Serious Injury Crashes.

A notable finding was that 65% (104) of KSI crashes involved 'No Collision w/ Vehicle'.

- 10% (11) were collisions with pedestrians or cyclists leading to a fatality or serious injury.

- 26% (27) of these crashes involved lane departure.
- 26% (27) of these crashes involved lane departure.
- 8% (8) of these crashes occurred in dark, lit conditions.
- Overall, 'No Collision w/ Vehicle' represented 42% of **all crashes** in Anderson County.

Another notable finding was that 7 of 25 Fatal crashes and 20 of 136 Serious Injury crashes occurred in dark, unlit conditions.

- Of these, 1 fatality and 1 serious injury were VRU crashes.

The top 5 crash routes were:

1. 1264 (11 KSI)
2. 3724 (7 KSI)
3. 3725 (6 KSI)
4. 4073 (6 KSI)
5. 1421 (6 KSI)

Appendix B: Contextual Factor Analysis and Equity Integration

Following the project check-in in November 2024, Alta refined the crash dataset to focus solely on the unincorporated areas of Anderson County that fall outside the TPO boundary. The data was filtered to exclude crashes within the municipalities of Clinton, Oak Ridge, Oliver Springs, areas south of the Clinch River, interstates, and state routes, which are outside the County's jurisdiction or considered in previous crash analysis for the Knoxville Regional TPO. The methodology for this filtering can be found in the Contextual Factor Analysis section of this memo. This filtering resulted in a total of 52 crashes involving fatalities (K) or serious injuries (SI). The dataset was then cleaned to facilitate further analysis in the equity and contextual factor assessments.

Contextual Factor Analysis Description

The contextual factor analysis, also known as a risk factor analysis, provides a deeper examination of environmental and other external conditions that influence the safety and risk for people traveling in the study area. Traditional crash data analysis is limited to the information captured in official crash reports. For example, a report may indicate that speed was a contributing factor but may not include the posted speed limit at the crash location, the number of travel lanes, or nearby land uses that could affect driver behavior.

This type of analysis differs from crash data analysis by focusing on broader conditions related to past crashes. It helps identify patterns of vulnerability based on these conditions, offering insight into where similar risks may exist elsewhere in the study area.

Equity Integration of Crash Analysis using CEJST Data

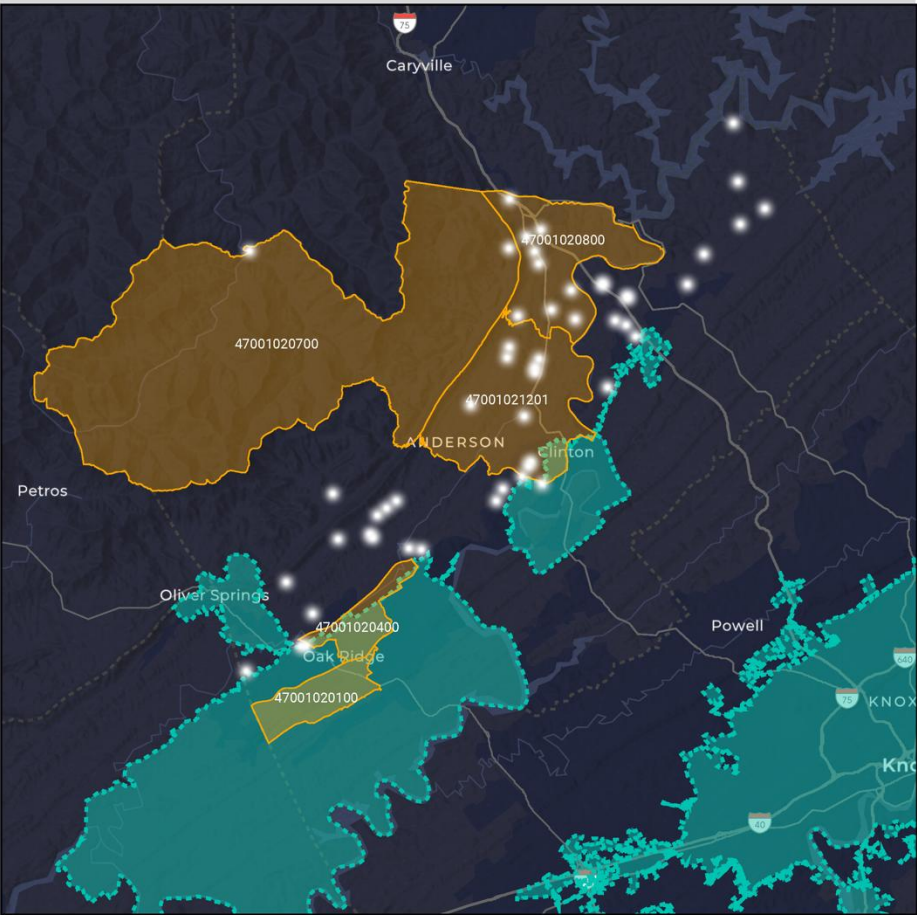
Alta Planning + Design conducted a mapping overlay of crashes resulting in a fatality or serious injury using the Environmental Protection Agency's (EPA) Climate & Economic Justice Screening Tool (CEJST). The CEJST is an index that identifies communities most vulnerable to environmental harm and the effects of climate change. The tool incorporates various factors, including environmental burdens (such as water and air quality), health disparities (such as the prevalence of heart disease and overrepresentation of older adults or children), socioeconomic variables (such as income and employment), and other factors that help pinpoint current and future vulnerabilities.

In total, five Census Block Groups in Anderson County are classified as disadvantaged. These include the following 10-digit GEOIDs: 47001020400, 47001020100, 4700021201, 4700020700, and 4700020800. These areas encompass parts of Oak Ridge and Clinton, as well as unincorporated communities, such as Fraterville (see Map 1). Map 1 also illustrates the number of crashes resulting in a fatality or serious injury that overlap with these disadvantaged areas. Of the 52 crashes resulting in a fatality or serious injury selected for further analysis, 20 occurred within disadvantaged areas, the majority of which are located west of U.S. Route 25W.

Map 1: Equity Integration of KSI Crash Analysis

ANDERSON COUNTY SAFE
STREETS FOR ALL (SS4A)
ACTION PLAN (DRAFT)

- EQUITY INTEGRATION
- CRASHES RESULTING IN A
SERIOUS BODILY INJURY OR FATALITY
(UNINCORPORATED AREAS)
- CEJST Area (Anderson County only)
- Incorporates Areas
- KSI Crashes



Data provided by the EPA and TDOT. Document: N:\Shared\BIO\BCT\BCT-2024-174\Knoxville_TPO_TN\Regional_Safety_BSP\Process\2024-174\Anderson_County_Crash_Analysis.aprx. Date saved: 7/22/2023.

Crash Clustering

To help inform recommendations and prioritize specific areas, a clustering analysis was conducted. The parameters of this analysis grouped all crashes resulting in a fatality or serious injury from the subset where four or more crashes occurred within a 1-mile radius. In total, five clusters with four or more crashes were identified. Two of these clusters are entirely within a disadvantaged area, while one is partially within a disadvantaged area. One cluster is centered west of Norris along I-75, and the other is located north of Oak Ridge, near the intersection of Dutch Valley Road and Marlow Road, which includes two fatal crashes. See Reference Map 2 for more details.

Map 2: KSI Crash Clustering

ANDERSON COUNTY SAFE
STREETS FOR ALL (SS4A)
ACTION PLAN (DRAFT)

CRASH CLUSTERING

CRASHES RESULTING IN A
SERIOUS BODILY INJURY OR FATALITY
(UNINCORPORATED AREAS)

KSI Crash Clusters
(cluster of 4 or more
within 1 mile)

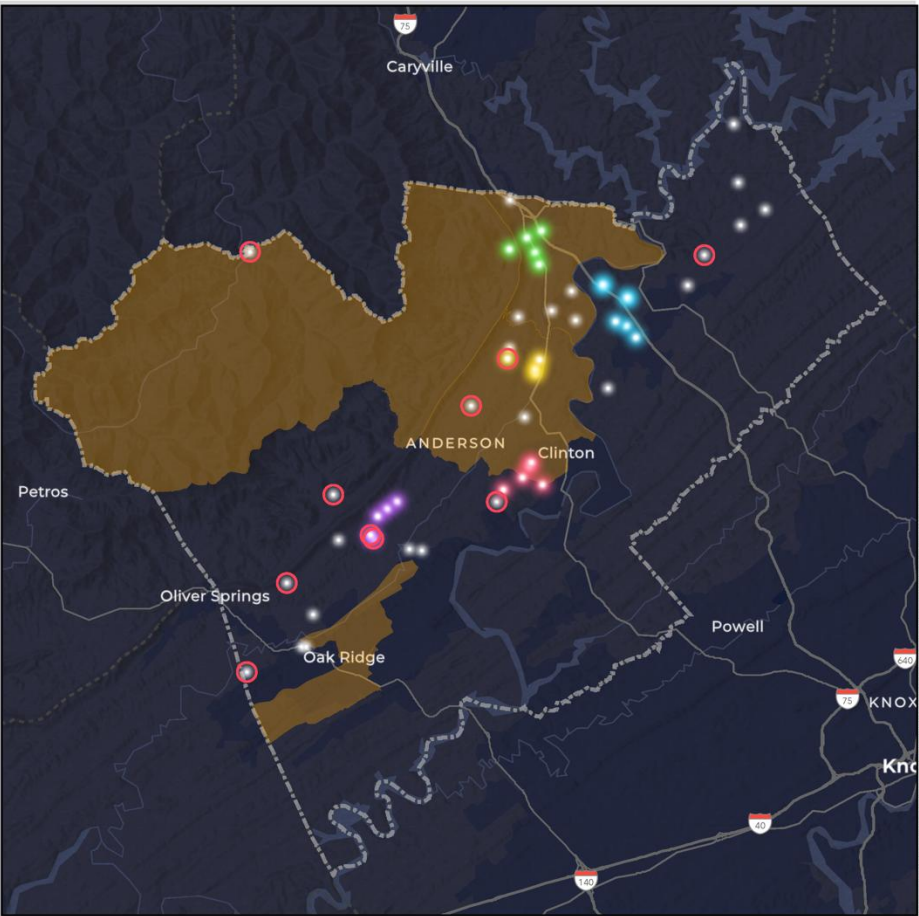
Color ID

- Cluster 1 (5 crashes)
- Cluster 2 (5 crashes)
- Cluster 3 (5 crashes)
- Cluster 4 (4 crashes)
- Cluster 5 (5 crashes)
- Other KSI Crashes

Fatality

CEJST Area (Anderson County only)

alta 0 2 4 MILES



Contextual Factor Analysis

Alta Planning + Design conducted a second phase of crash analysis using Tennessee DOT's AASHTOWare Safety crash dataset. For this phase of the analysis, the same data used in the equity integration and clustering analysis was used.

Methodology

The team downloaded TDOT crash data, using the following queries:

Killed and Seriously Injured (KSI) Crashes in County Jurisdiction. Count: 52 data points.

- d. Date filter: 01-01-2016 to 09-26-2021
- e. Routes: Exclude interstates, exclude state routes
- f. Municipalities: were excluded to only display crashes in unincorporated Anderson County. Excludes the municipalities of Clinton, Oak Ridge, Oliver Springs, areas south of the Clinch River

The first phase of the analysis examined crash severities, the relationship of crashes to the first roadway, lighting and weather conditions, and the manner of the first collision. After presenting the findings to the project team, a refined analysis was conducted based on guidance from the discussion of the initial findings.

The dataset was filtered to exclude municipalities that had been included in the first phase of analysis, reducing the number of KSI crashes analyzed from 161 to 52. Several new contextual factors were assessed:

- 5. The roadway's posted speed limit.
- 6. Whether the road was one or two-way.
- 7. Terrain.
- 8. Number of Lanes.
- 9. Functional Class.

When a notable finding emerged, investigation continued to find associated characteristics of that type of data point. Please find discussion of key findings below.

Crash Factors

Overall, Anderson County's local and county roads were the site of 10 Fatal and 42 Serious Injury crashes.

Speed

Half of Fatal Crashes occurred on roadways with a posted speed limit of 45mph. The speed limit data has limitations, as 37% of crashes had no reported speed limit (0mph). This missing information corresponds with a Local road classification, both rural and urban. See Figure 1.

KSI Crashes on 45mph speed roadways were concentrated on Rural Minor Collectors. See Figure 2.

Figure 3. Speed Limit

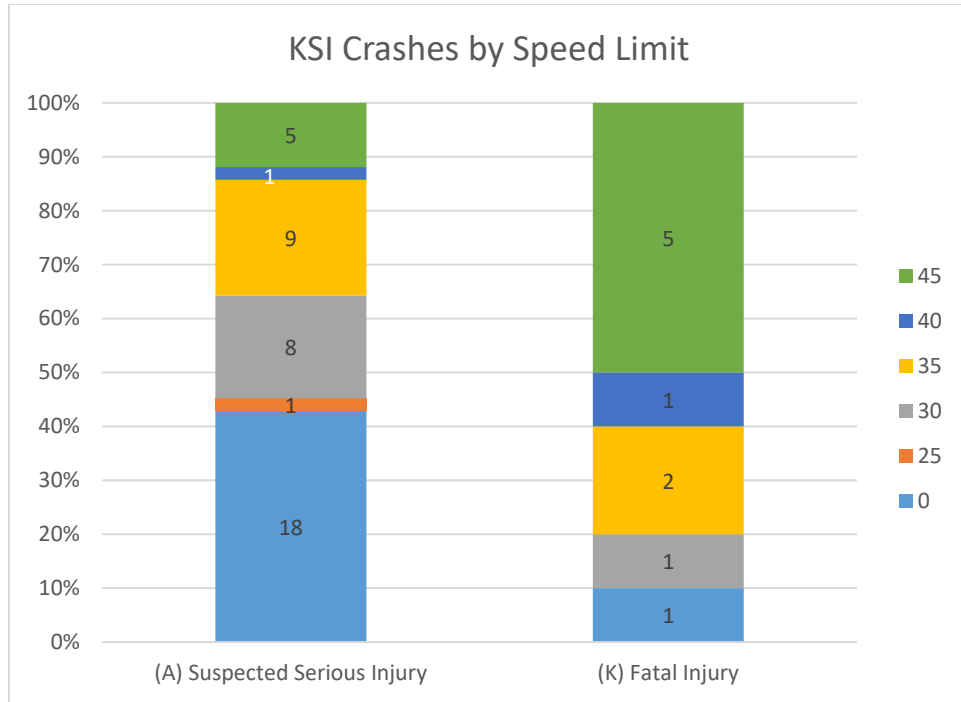
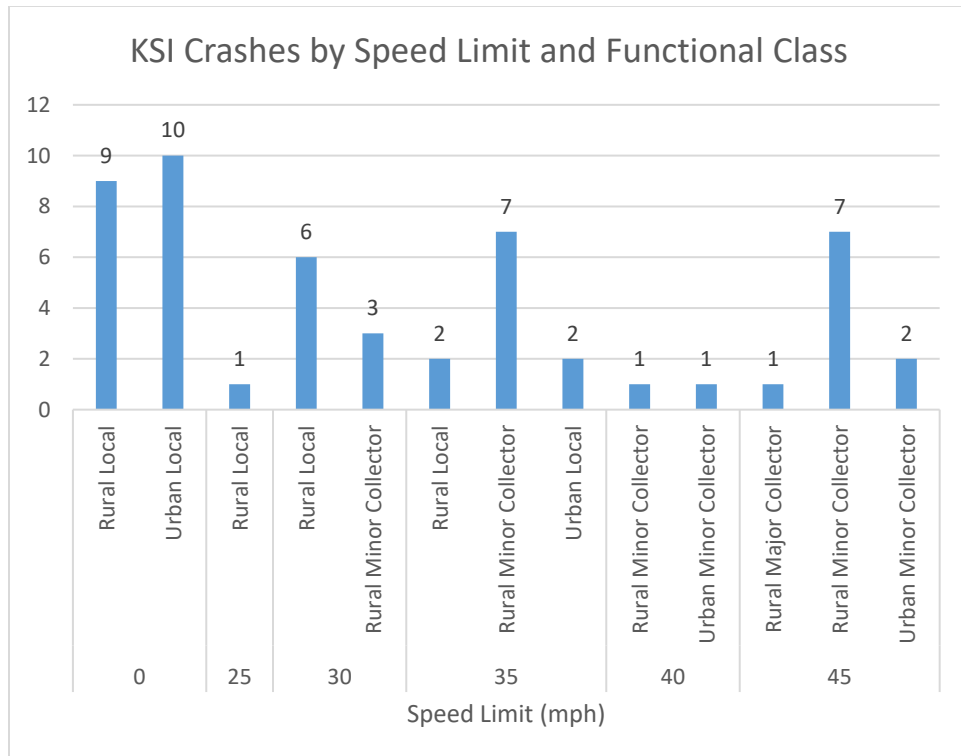


Figure 4. Speed Limit and Functional Class



Functional Class

Rural Minor Collectors were the site of 70% of fatalities.

A notable finding of the previous phase was that most crashes resulting in a fatality or serious injury (80%) involved ‘No Collision w/ Vehicle’. Rural Local and Rural Minor Collector roads had an equal number of ‘No Collision w/ Vehicle’ crashes, representing 72% of these. See Figure 3.

Rural Minor Collectors and Rural Local roads had an equal number of KSI crashes, representing 70% of KSI crashes. See Figure 4.

Figure 5. Functional Class Breakdown of No Collision with Vehicle Crashes

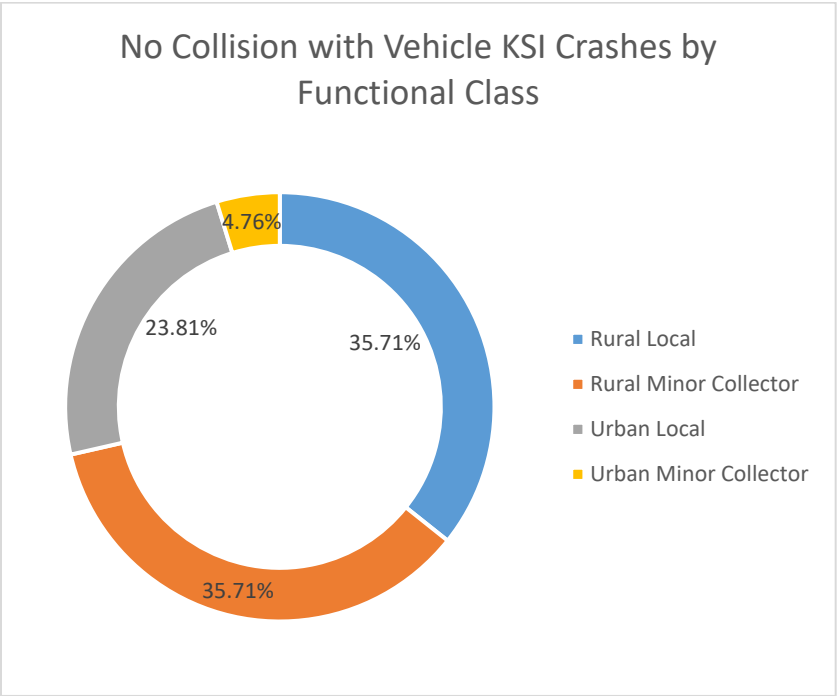
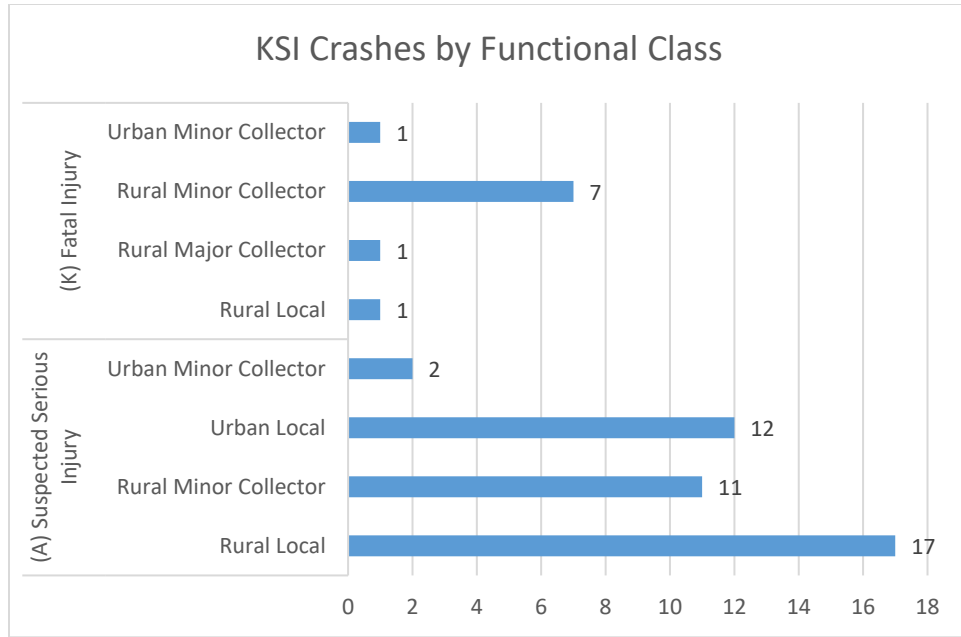


Figure 6. Functional Class



One or Two-Way

98% of KSI crashes happened on two-way roads. Just one Serious Injury crash happened on a One-Way road.

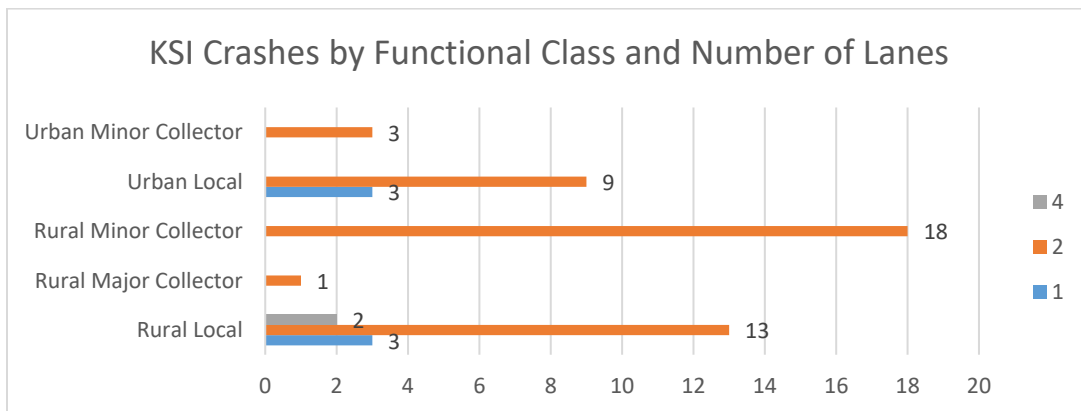
Terrain

94% of KSI crashes happened in Rolling terrain. Just three Serious Injury crashes happened in Mountainous terrain.

Number of Lanes

All fatalities and 81% of Serious Injury crashes occurred on two-lane roads. See Figure 5.

Figure 7. Functional Class and Number of Lanes



Contextual Factor Analysis

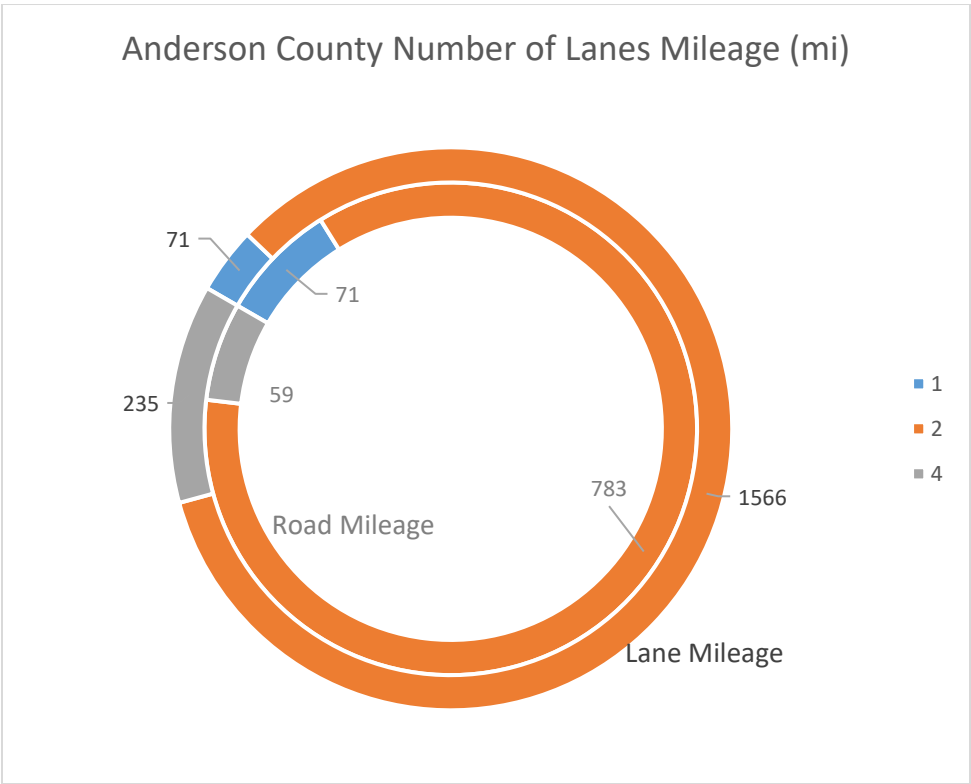
Analysis of Anderson County’s road network reveals the lane mileage of its roads according to the same contextual factors used above. Categories that represent less than one percent of the county’s mileage was excluded, for example, a 10 mph posted speed limit only represented 0.8 miles of road, countywide.

- 1. The roadway’s posted speed limit.
- 2. Whether the road was one or two-way.
- 3. Terrain.
- 4. Number of Lanes.
- 5. Functional Class.

Lane Mileage and Number of Lanes

Lane Mileage refers to the length of a road segment (in miles), multiplied by its number of lanes. This metric gives us a more accurate picture of the ‘travel-able’ miles of road in Anderson County. Two lane roadways dominate Anderson County, representing 84% of the lane mileage. See figure 6.

Figure 8. Number of Lanes Mileage



Speed and Functional Class

As mentioned above, posted speed limits of 0 mph are a significant data category (916 lane miles). These data are almost exclusively associated with the functional classifications of Rural Local and Urban Local. See Figure 7.

After excluding speed limits of 0 mph, the remaining 1042 lane miles are shown by functional class and speed limit in Figure 8.

Figure 9. Functional Classification and Speed Limits (0 mph only)

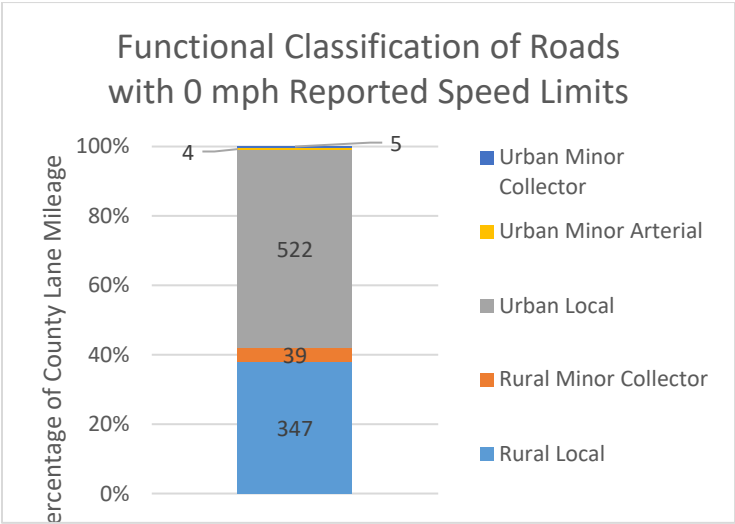
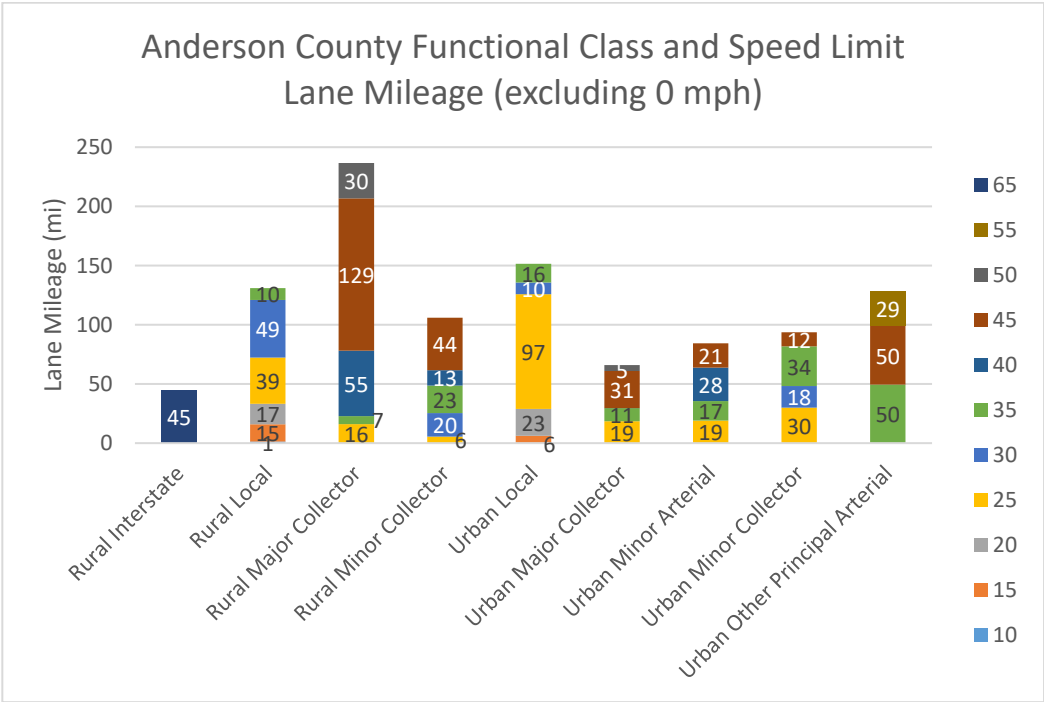


Figure 10. Functional Class and Speed Limit Lane Mileage (excluding 0 mph)



One or Two-Way Lane Mileage

Two way traffic accounted for 99.6% of the county’s total lane mileage.

Terrain Lane Mileage

Rolling terrain accounted for 93% of the county’s total lane mileage, with the remaining mileage counting as mountainous.

Summary of Findings

The contextual factor and equity analyses provided important insights into the patterns and underlying risks associated with severe crashes in unincorporated Anderson County. This process identified that most fatal and serious injury crashes occurred on rural, two-lane roads with 45 mile per hour speed limits and rolling terrain, especially on Rural Minor Collectors. These roads also make up a large share of the county's total lane mileage.

The equity analysis found that many of these severe crashes disproportionately affected disadvantaged communities. This showed that 20 of the 52 severe crashes occurred in areas identified as disadvantaged by the Environmental Protection Agency's Climate and Economic Justice Screening Tool. Several crash clusters were located fully or partly within these communities. These findings highlight the need to target safety improvements based on roadway conditions and prioritize investment in underserved and high-risk areas. The findings were incorporated into the location prioritization and countermeasure selection process outlined in Appendix C.

Appendix C: Recommendations Framework

This appendix includes four sections: crash profiles, public input summary, priority roadway segments, and draft policy and process recommendations.

Following the second project check-in in February 2025, Alta Planning + Design developed crash profiles based on the crash and contextual factor analyses. Additionally, network screening was completed using the ePDO weighting, which is an analysis used to rank fatal and injury crashes with property damage-only crashes and highlight priority roadway segments. The project team evaluated the network screening results to ensure there was minimal overlap with incorporated areas and that at least one segment from the communities of Norris and Rocky Top were included. In total, 11 roadway segments were identified for potential countermeasure selection, which were then evaluated based on the number of safety concerns identified by the public. Each of the roadway segments was evaluated for relevance to the crash profiles and given a ranking of low, medium, or high, or very high.

Finally, draft policy and process recommendations were developed to address themes identified in the analyses.

Crash Profiles

The following crash profiles were developed from the themes identified in the crash and contextual factor analyses. They summarize where there were overrepresentations in the data and help to guide countermeasure selection and policy and process recommendations system-wide.

Crashes along rural roadways, particularly minor collector roadways

Source: contextual factor analysis

- 36 percent (18) of KSI crashes, including 7 of the ten fatal crashes occur along rural minor collector roadway.
- This roadway classification accounts for 7 percent of total roadway miles.
- Over half of the rural minor collector crashes happen on roadways signed 35MPH or less.
- 11 of these KSI crashes did not involve a collision with another vehicle.

Roadways signed 45 MPH

Source: contextual factor analysis

- Half of fatal crashes occur along roadways signed 45MPH.
- Roadways signed 45 MPH comprise 12 percent of the roadways miles in Anderson County.

Crashes involving No Collision w/ Vehicle

Source: Crash Analysis (countywide)

65% (104) of KSI crashes involved 'No Collision w/ Vehicle'

- 19 (12%): overturn
- 16 (10%): ditch
- 16 (10%): standing tree

- 11 (7%): utility pole
- 8 (5%): pedestrian
- 26% (27) of these crashes involved lane departure.
- 8% (8) of these crashes occurred in dark, lit conditions

Overall, 'No Collision w/ Vehicle' represented 42% of **all crashes** in Anderson County

VRU Crashes

Source: Crash Analysis (countywide)

- 100% were involved with a motor vehicle
- 8 (20%) were intersection related
- 9 (23%) were in dark-not lighted conditions
- 6 (15%) were in cloudy or rainy conditions
- Most crashes occurred in incorporated areas.

Public Input

Feedback was collected from the public through an online mapping tool. Participants were asked to report any safety issues they have observed while traveling throughout Anderson County. The comments and suggestions received cover a range of safety concerns but can generally be grouped into two main categories, as summarized below.

Roadway Safety and Visibility Concerns

- Desire to enhance visibility and safety at dangerous turns and curves with widening, hillside clearing, and improved signage, particularly where there are limited sightlines, such as turning from Marlow Rd onto Dutch Valley Rd.
- Suggestions to address roadside erosion and freezing wet spots to prevent accidents, especially in winter.
- Ideas to install or improve guardrails in areas with sharp drop-offs, bridge piers, and high-risk locations.
- Suggestion to add reflectors to guardrails and improve curve warnings to increase awareness and reduce accidents.

Speeding and Enforcement Concerns

- Perception that frequent passing at high speeds creates dangerous conditions for farmers and residents accessing driveways.
- Mention that lack of patrols and enforcement contributes to a "speedway" mentality. Suggestions that increased enforcement could also address issues with 18-wheelers disregarding road restrictions.
- Consideration to remove passing zones in certain areas to reduce speeding and improve safety.

Map 1: Public Input Comment Locations and KSI Crashes

ANDERSON COUNTY SAFE STREETS FOR ALL (SS4A) ACTION PLAN

PUBLIC COMMENTS

CRASHES RESULTING IN A
SERIOUS BODILY INJURY OR FATALITY
(UNINCORPORATED AREAS)

Fatality



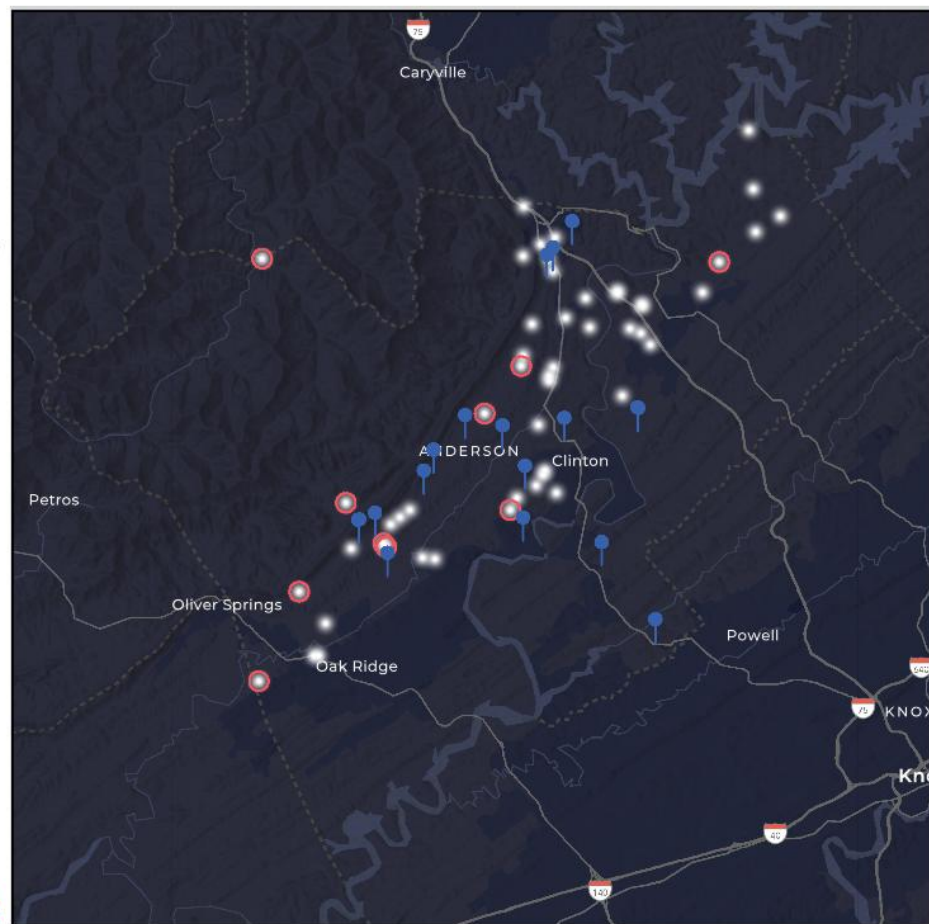
KSI Crashes

Public Comments



alta

0 2 4 MILES



Priority Roadway Segments

Using the AASHTOware Network Screening Tool and ArcMap Pro, the project team identified the top roadway segments in unincorporated Anderson County. Ranking the top segments by Equivalent Property Damage (EPD) based on crash severities, then overlaying recommendation criteria based on equity and public input, the top segments are detailed in the below. For each roadway segment in the following section, potential countermeasures with timelines are provided. These timelines are based on project delivery timelines from regional best practices for Highway Safety Improvement Projects at the state level, and are provided for guidance. Actual project timelines may vary from these described.

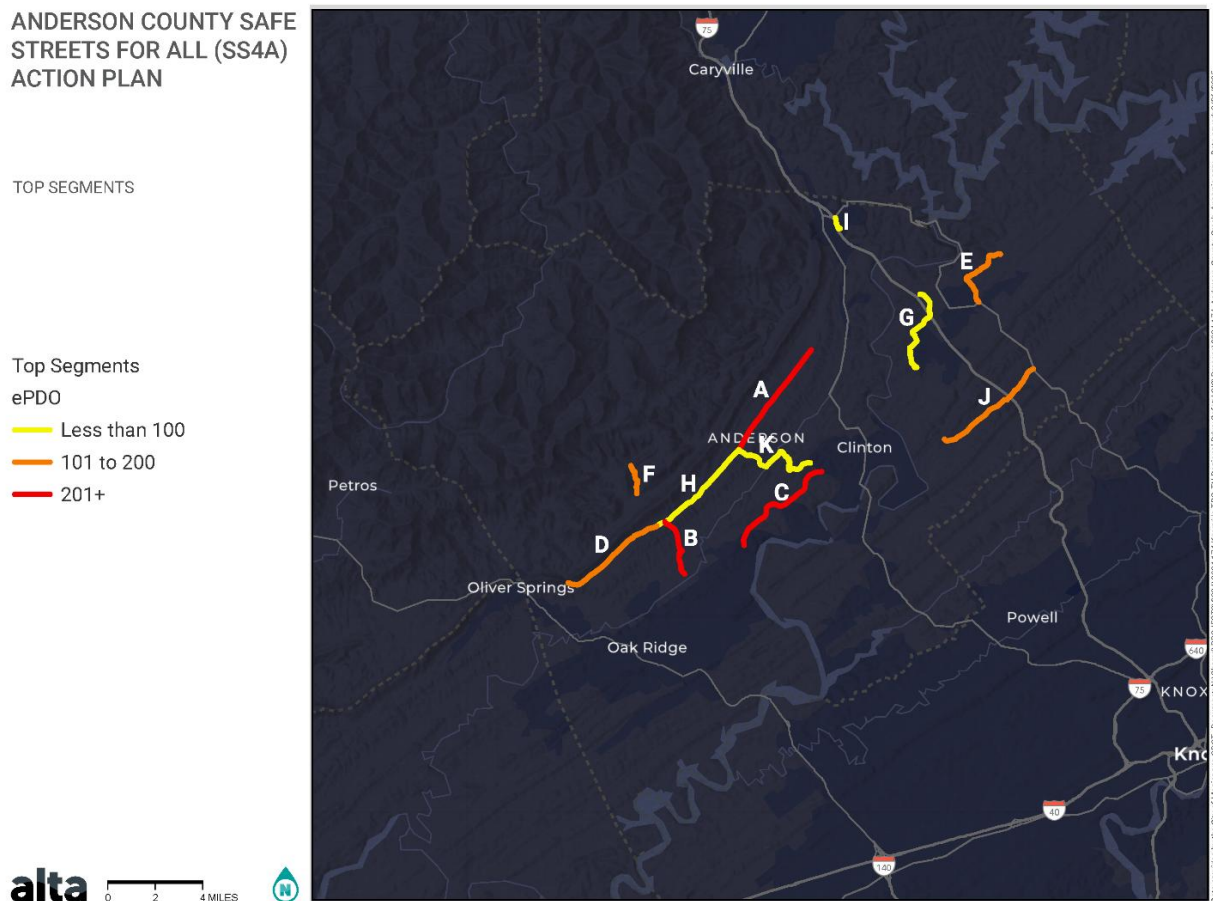
Using EPD and PDO Crash Weights to Rank Roadway Segments

Ranking equivalent property damage is a method where crashes resulting in injuries or fatalities are assigned a factor based on their severity compared to property damage-only (PDO) crashes. This approach quantifies the impact of crashes involving fatalities or injuries by their equivalent property damage. It is a metric used to assess the severity of crashes based on existing data and to identify high-risk locations. For example, if a property damage-only crash is deemed to carry 10% of the risk of an injury crash, the EPD factor for that type of crash would be 0.1. Thus, 10 PDO crashes would be equivalent to 1 injury crash in the analysis. Typically, crashes resulting in serious injuries are valued higher, and fatal crashes are assigned much higher EPD factors than PDO crashes.

Countermeasure Considerations

In the countermeasure evaluation process, certain strategies were excluded despite their intuitive appeal or suggestions from the project team. This is either due to insufficient empirical support or the absence of a quantifiable crash modification factor (CMF), which is needed to calculate how a countermeasure is expected to influence crash frequency. For example, raised pavement markers, considered for Dutch Valley Road, were ultimately not included due to limited effectiveness and potential to increase vehicle speeds on curves. Lighting installations on Reservoir Road and East Norris Road were not deemed cost-effective given the minimal incidence of nighttime crashes on these segments. Another item considered, tree trimming along Sulphur Springs Road, was not included as this type of intervention is typically classified as routine maintenance and lacks an established CMF, even though it could potentially be beneficial for road surface conditions in wet weather.

Map 2: Priority Roadway Segments





Intersection Crashes

Intersection crashes along segments are analyzed separately by AASHTOWare. As such, intersection treatments were considered if the intersection had an ePDO greater than 4 (that is, there was either one injury crash during the 5 analysis years or one property damage-only crash per year). Any intersection meeting that criteria was evaluated to determine whether the crashes were actually intersection-related, and if there was more than one injury crash (or one fatal or serious injury crash) that could be mitigated with a safety countermeasure. At intersections with state routes, only the crashes related to the non-state route were analyzed. For example, a crash involving a vehicle turning from the state route to the non-state route would be excluded, but a crash involving a vehicle turning from the non-state route onto the state route would be included.

Road Segment A: Dutch Valley Road from Old Lake City Highway to Sulphur Springs Road

Roadway Type: Rural Minor Collector

Map	Photo (Source: Google Maps)
	

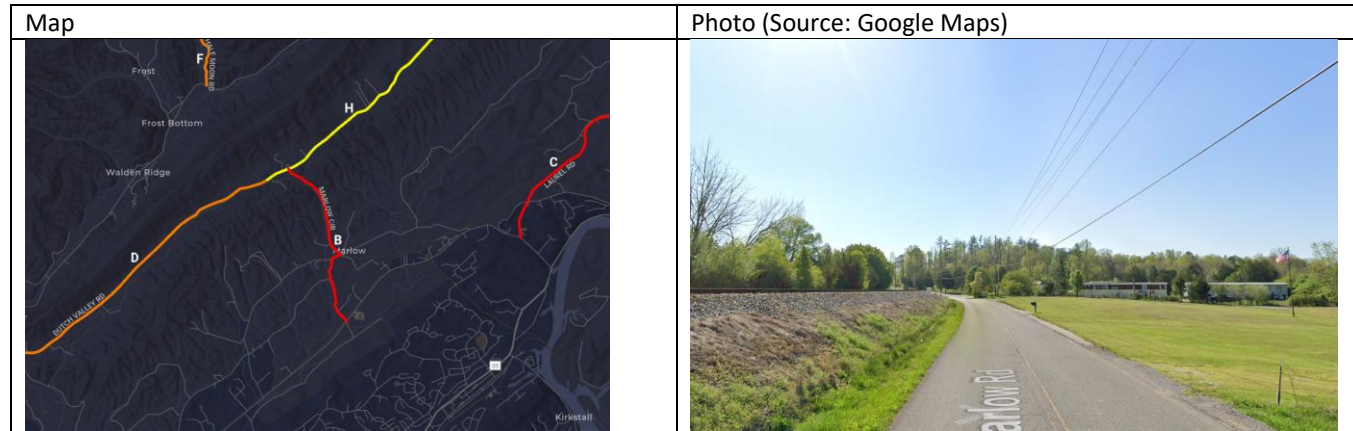
Crash Count	Fatal Crashes	Public Comments	CESJT Area	Primary Manner of First Collision	Primary Driver Actions	ePDO	Crash Profile Relevance
14	2	1	Yes	No Collision With Vehicle (86%)	Lane departure; exceeding posted speed	303.8	Very High

Segment Countermeasure Identification

Treatment	Crash Relevance (% of segment crashes)	Timeline
Install Guardrail with delineators – CMF 10306/10307	57%	Quick (<1 year)
Shoulder Rumblestrips – CMF 6850	50%	Quick (<1 year)
Wider edgeline (4 in to 6 in) – CMF 4737	50%	Quick (<1 year)
Shoulder Widening -Rural – CMF 6657	50%	Moderate (1-2 years)
Centerline Rumblestrips – CMF 6850	43%	Quick (<1 year)
Lighting Improvements Along Roadway – CMF 7776	29%	Moderate (1-2 years)

Road Segment B: Marlow Road & Marlow Circle from Oliver Springs Highway (SR 61) to Dutch Valley Road

Roadway Type: Rural Minor Collector



Marlow Road from Dutch Valley Road to Powder Mill Road/Marlow Circle

Marlow Circle (west) from Marlow Road/Pine Ridge Road to SR 61

Crash Count	Fatal Crashes	Public Comments	CESJT Area	Primary Manner of First Collision	Primary Driver Actions	ePDO	Crash Profile Relevance
11	2	2	No	No Collision With Vehicle (64%)	Lane departure	286.3	Very High

Segment Countermeasure Identification

Treatment	Crash Relevance (% of segment crashes)	Timeline
High friction surface treatment, horizontal curves – CMF 10333	54%	Quick (<1 year)
Curve signage and delineation improvements – CMF 10613	54%	Quick (<1 year)
Shoulder Rumblestrips – CMF 6850	45%	Quick (<1 year)
Install Guardrail with delineators – CMF 10306/10307	45%	Quick (<1 year)
Centerline Rumblestrips – CMF 6850	45%	Quick (<1 year)
Wider edgeline (4 in to 6 in) – CMF 4737	45%	Quick (<1 year)
Shoulder Widening (Rural) – CMF 6657	45%	Moderate (1-2 years)

Road Segment C: Laurel Road from Sulphur Springs Road to Oliver Springs Highway (SR 61)

Roadway Type: Urban Minor Collector



Crash Count	Fatal Crashes	Public Comments	CESJT Area	Primary Manner of First Collision	Primary Driver Actions	ePDO	Crash Profile Relevance
43	1	1	No	No Collision With Vehicle (77%)	Lane Departure; Following Improperly	220.5	Medium-High

Segment Countermeasure Identification

Treatment	Crash Relevance (% of segment crashes)	Timeline
Shoulder or edgeline rumble strips – CMF 6850	58%	Quick (<1 year)
Wider edgeline (4 in to 6 in) – CMF 4737	58%	Quick (<1 year)
Install Guardrail with delineators – CMF 10306/10307	51%	Quick (<1 year)
High friction surface treatment, horizontal curves – CMF 10333	33%	Quick (<1 year)
Curve signage and delineation improvements – CMF 10613	33%	Quick (<1 year)
Lighting Improvements Along Roadway – CMF 7776	33%	Moderate (1-2 years)
Centerline rumble strips – CMF 6850	14%	Quick (<1 year)

Intersection Countermeasure Identification


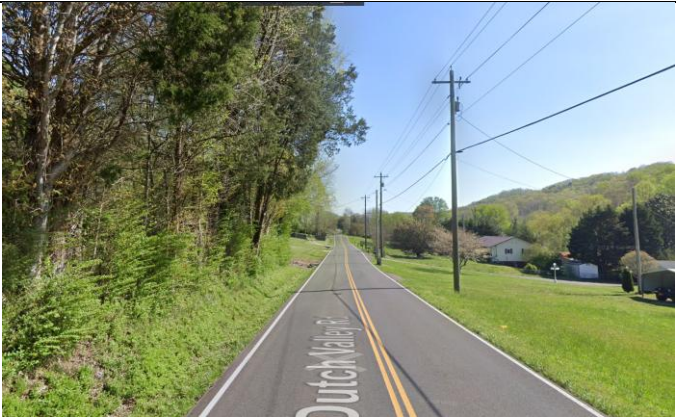
Intersection of Laurel Road and Sulphur Springs Road

(10 total crashes: 1 serious injury crash, 3 minor injury, 6 PDO | ePDO 30.1).

Treatment	Crash Relevance (% of intersection crashes)	Timeline
Systemic signage improvements, unsignalized intersections	60%	Quick (<1 year)
All-way stop control	60%	Quick (<1 year)
Intersection lighting	60%	Moderate (1-2 years)
Improve sight distance – CMF 9656	60%	Moderate (1-2 years)

Road Segment D: Dutch Valley Road from Frost Bottom Road (SR 330) to AJ Robbins Lane

Roadway Type: Rural Minor Collector

Map	Photo (Source: Google Maps)
	


Crash Count	Fatal Crashes	Public Comments	CESJT Area	Primary Manner of First Collision	Primary Driver Actions	ePDO	Crash Profile Relevance
26	1	2	No	No Collision With Vehicle (85%)	Lane Departure; Improper Passing; Inattentive	180.11	High

Segment Countermeasure Identification

Treatment	Crash Relevance (% of segment crashes)	Timeline
Install Guardrail with delineators – CMF 10306/10307	62%	Quick (<1 year)
Shoulder Rumblestrips – CMF 6850	54%	Quick (<1 year)
Wider edgeline (4 in to 6 in) – CMF 4737	54%	Quick (<1 year)
Shoulder Widening -Rural – CMF 6657	54%	Moderate (1-2 years)
Centerline Rumblestrips – CMF 6850	31%	Quick (<1 year)
Curve signage and delineation improvements – CMF 10613	27%	Quick (<1 year)

Road Segment E: Reservoir Road & East Norris Road from US 441/SR 61 to Red Hill Road

Roadway Type: Rural Minor Collector

Map	Photo (Source: Google Maps)
	

Reservoir Road from Red Hill Road/Lambdin Road to Norris Circle

West Circle Road from Reservoir Road to Norris Square

Norris Square from West Norris Road to East Norris Road

East Norris Road from Norris Square to US 441/SR 61

Crash Count	Fatal Crashes	Public Comments	CESJT Area	Primary Manner of First Collision	Primary Driver Actions	ePDO	Crash Profile Relevance
10	1	0	No	No Collision W/ Vehicle	Driver Distracted; Inattentive	154.9	Medium

Segment Countermeasure Identification

Treatment	Crash Relevance (% of segment crashes)	Timeline
Curve signage and delineation improvements – CMF 10613	70%	Quick (<1 year)
High friction surface treatment, horizontal curves – CMF 10333	70%	Quick (<1 year)
Install Guardrail with delineators – CMF 10306/10307	40%	Quick (<1 year)
Shoulder Rumblestrips – CMF ID 6850	30%	Quick (<1 year)
Wider edgeline (4 in to 6 in) – CMF 4737	30%	Quick (<1 year)
Shoulder Widening (Rural) – CMF ID 6657	30%	Moderate (1-2 years)
Centerline Rumblestrips – CMF 6850	20%	Quick (<1 year)

Intersection Countermeasure Identification

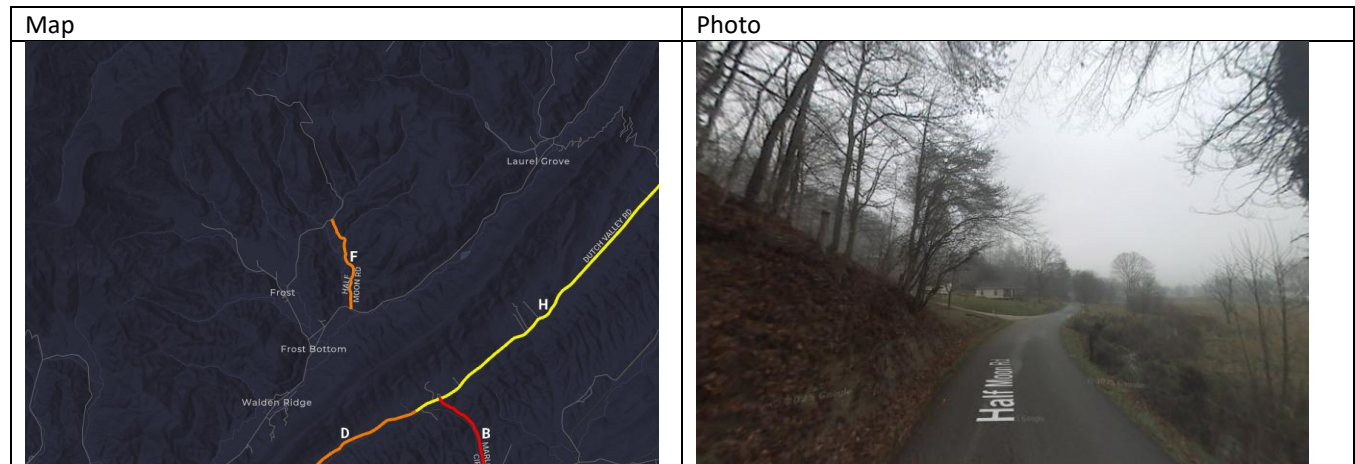
Intersection of **Reservoir Road/Red Hill Road and Lambdin Road**

(9 total crashes: 3 minor injury, 6 PDO | ePDO 19.87)

Treatment	Crash Relevance (% of intersection crashes)	Timeline
Curve signage and delineation improvements – CMF 10613	89%	Quick (<1 year)
High friction surface treatment, horizontal curves – CMF 10333	89%	Quick (<1 year)

Road Segment F: Half Moon Road from Frost Bottom Road (SR 330) to Grave Hill Lane

Roadway Type: Rural Local



Crash Count	Fatal Crashes	Public Comments	CESJT Area	Primary Manner of First Collision	Primary Driver Actions	ePDO	Crash Profile Relevance
3	1	0	No	Head-On; No Collision W/ Vehicle	Lane Departure	144.3	Medium

Segment Countermeasure Identification

Treatment	Crash Relevance (% of segment crashes)	Timeline
Place centerline and edgeline markings – CMF 101	66%	Quick (<1 year)
Enforcement of Drug Impaired Driving	33%	Quick (<1 year)
Shoulder Rumblestrips – CMF ID 6850	33%	Quick (<1 year)
Curve signage and delineation improvements – CMF 10613	33%	Quick (<1 year)
Lighting Improvements (Along Roadway) (CMF ID: 7776)	33%	Moderate (1-2 years)

Road Segment G: Hillvale Road & Miller Road from Golden Lane to N Charles G Seivers Blvd (SR 61)

Roadway Type: Rural Local



Hillvale Road from Golden Lane to Miller Road & Peach Orchard Road
Miller Road from Hillvale Road & Peach Orchard Road to SR 61

Crash Count	Fatal Crashes	Public Comments	CESJT Area	Primary Manner of First Collision	Primary Driver Actions	ePDO	Crash Profile Relevance
42	0	0	No	No Collision W/ Vehicle	Lane Departure; Speed Too Fast for Conditions	82.2	Medium

Segment Countermeasure Identification

Treatment	Crash Relevance (% of segment crashes)	Timeline
Curve signage and delineation improvements – CMF 10613	71%	Quick (<1 year)
High friction surface treatment, horizontal curves – CMF 10333	71%	Quick (<1 year)
Shoulder Rumblestrips – CMF 6850	52%	Quick (<1 year)
Install Guardrail with delineators – CMF 10306/10307	45%	Quick (<1 year)
Lighting Improvements Along Roadway – CMF 7776	43%	Moderate (1-2 years)
Centerline Rumblestrips – CMF 6850	29%	Quick (<1 year)
Place centerline and edgeline markings – CMF 101	5% <i>**Miller Road only</i>	Quick (<1 year)

*Note that roadway was resurfaced ca. 2023, and thus that countermeasure does not appear in the table above.

Intersection Countermeasure Identification

Intersection of **Hillvale Road, Miller Road, and Peach Orchard Road**

(6 total crashes: 1 serious injury crash, 2 possible injury, 3 PDO | ePDO 20.03)

Treatment	Crash Relevance (% of intersection crashes)	Timeline
Curve signage and delineation improvements – CMF 10613	100%	Quick (<1 year)

Road Segment H: Dutch Valley Road from Walden Ridge Road to AJ Robbins Lane

Roadway Type: Rural Minor Collector



Crash Count	Fatal Crashes	Public Comments	CESJT Area	Primary Manner of First Collision	Primary Driver Actions	ePDO	Crash Profile Relevance
22	0	4	No	No Collision W/ Vehicle	Lane Departure; Speed Too Fast for Conditions	76.2	Medium

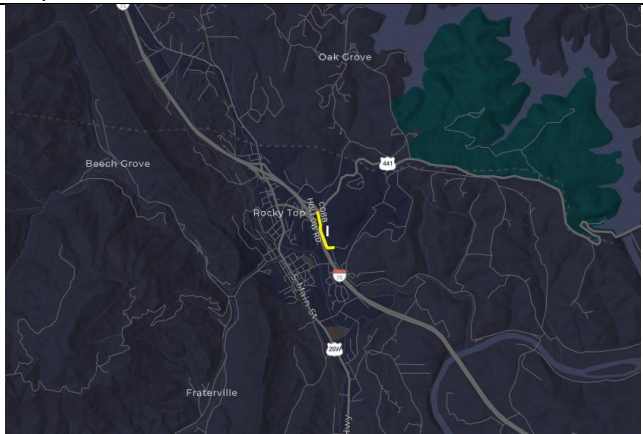

Segment Countermeasure Identification

Treatment	Crash Relevance (% of segment crashes)	Timeline
Install Guardrail with delineators – CMF 10306/10307	64%	Quick (<1 year)
Lighting Improvements Along Roadway – CMF 7776	50%	Moderate (1-2 years)
Shoulder Rumblestrips – CMF 6850	41%	Quick (<1 year)
Shoulder Widening - Rural – CMF 6657	41%	Moderate (1-2 years)
Wider edgeline (4 in to 6 in) – CMF 4737	41%	Quick (<1 year)
Centerline Rumblestrips – CMF 6850	23%	Quick (<1 year)
Curve signage and delineation improvements – CMF 10613	32%	Quick (<1 year)

*Note that roadway was resurfaced ca. 2022, and thus that countermeasure does not appear in the table above.

Road Segment I: Cobb Hollow Road from Norris Freeway (US 441) to Lovely Bluff Road

Roadway Type: Urban Local

Map	Photo (Source: Google Maps)
	

Crash Count	Fatal Crashes	Public Comments	CESJT Area	Primary Manner of First Collision	Primary Driver Actions	ePDO	Crash Profile Relevance
11	0	0	Yes	No Collision W/ Vehicle (91%)	Lane Departure; Over Correcting	25.49	Medium

Segment Countermeasure Identification

Treatment	Crash Relevance (% of segment crashes)	Timeline
Install Guardrail with delineators – CMF 10306/10307	82%	Quick (<1 year)
Curve signage and delineation improvements – CMF 10613	82%	Quick (<1 year)
Shoulder Rumblestrips – CMF 6850	45%	Quick (<1 year)
Wider edgeline (4 in to 6 in) – CMF 4737	45%	Quick (<1 year)
Shoulder Widening - Rural – CMF 6657	45%	Moderate (1-2 years)
Centerline Rumblestrips – CMF 6850	36%	Quick (<1 year)
Lighting Improvements (Along Roadway) (CMF ID: 7776)	18%	Moderate (1-2 years)
Enforcement of Drug Impaired Driving	9%	Quick (<1 year)

Road Segment J: Brushy Valley Road from Firetower Road to Norris Freeway (US 441)

Roadway Type: Rural Local

Map	Photo (Source: Google Maps)
	

Crash Count	Fatal Crashes	Public Comments	CESJT Area	Primary Manner of First Collision	Primary Driver Actions	ePDO	Crash Profile Relevance
15	1	0	No	No Collision W/ Vehicle (80%)	Lane Departure; Speeding	174.7	High

Segment Countermeasure Identification

Treatment	Crash Relevance (% of segment crashes)	Timeline
Install Guardrail with delineators – CMF 10306/10307	60%	Quick (<1 year)
Curve signage and delineation improvements – CMF 10613	60%	Quick (<1 year)
High friction surface treatment, horizontal curves – CMF 10333	60%	Quick (<1 year)
Lighting Improvements Along Roadway – CMF 7776	40%	Moderate (1-2 years)
Shoulder Rumblestrips – CMF 6850	33%	Quick (<1 year)
Wider edgeline (4 in to 6 in) – CMF 4737	33%	Quick (<1 year)
Shoulder Widening - Rural – CMF 6657	33%	Moderate (1-2 years)
Centerline Rumblestrips – CMF 6850	27%	Quick (<1 year)

*Note that roadway was resurfaced ca. 2022, and thus that countermeasure does not appear in the table above.



Intersection Countermeasure Evaluation

Intersection of **Brushy Valley Road and Brooks Gap Road** (4 total crashes: 1 minor injury, 3 PDO | ePDO 7.6) and **Brushy Valley Road and Moores Gap Rd** (5 total crashes: 1 serious injury crash, 2 minor injury, 2 PDO | ePDO 21.5).

Treatment	Crash Relevance (% of intersection crashes)	Timeline
Curve signage and delineation improvements – CMF 10613	56%	Quick (<1 year)
High friction surface treatment, horizontal curves – CMF 10333	56%	Quick (<1 year)
Intersection lighting	56%	Moderate (1-2 years)
Install Guardrail – CMF 8391/8393	44%	Quick (<1 year)
Systemic signage improvements, unsignalized intersections	22%	Quick (<1 year)

Road Segment K: Sulphur Springs Rd from Dutch Valley Road to Carroll Hollow Road

Roadway Type: Rural Minor Collector

Map	Photo (Source: Google Maps)
	

Crash Count	Fatal Crashes	Public Comments	CESJT Area	Primary Manner of First Collision	Primary Driver Actions	ePDO	Crash Profile Relevance
34	0	0	No	No Collision W/ Vehicle (79%)	Lane Departure	18.6	High

Segment Countermeasure Identification

Treatment	Crash Relevance (% of segment crashes)	Timeline
Install Guardrail with delineators – CMF 10306/10307	65%	Quick (<1 year)
Shoulder rumble strips – CMF 6850	62%	Quick (<1 year)
Curve Signing or Delineation – CMF ID 10613	50%	Quick (<1 year)
High friction surface treatment, horizontal curves – CMF 10333	50%	Quick (<1 year)
Wider edgeline (4 in to 6 in) – CMF 4737	50%	Quick (<1 year)
Shoulder widening (rural) – CMF ID 6657	50%	Moderate (1-2 years)
Resurface pavement (wet weather crashes) – CMF 7271	32%	Moderate (1-2 years)
Centerline Rumblestrips – CMF 6850	24%	Quick (<1 year)

Other Considered Treatments

In some cases, countermeasures were considered that might seem intuitive but are not supported by safety data or lack an established crash modification factor (CMF), which is the primary method used to estimate expected changes in crash frequency. For instance, on roadways like Dutch Valley Road, raised pavement markers (RPMs) were evaluated but ultimately not recommended. Research shows that RPMs are less effective than other treatments considered in this analysis. One reason is that RPMs may lead to increased operating speeds, which can be especially problematic on sharp curves where speed is a greater safety concern.

The project team also evaluated installing lighting along certain segments where it ultimately wasn't included. In these instances, this option was determined not to be cost-effective from a safety standpoint, particularly in areas with low numbers of nighttime crashes. For example, Reservoir Road and East Norris Road had only two "dark, not lighted" crashes, both of which resulted in property damage only. Tree trimming was another potential strategy, especially along Sulphur Springs Road. While removing trees could help improve safety by allowing the road surface to dry more quickly, this is considered a routine maintenance activity and does not have a defined CMF. Therefore, it was not identified as a formal countermeasure.

Policy and Process Recommendations

Based on the crash profiles and priority roadway segment analysis, the following policy and process recommendations are proposed to enhance roadway safety, particularly in rural areas of Anderson County. These recommendations focus on speed management, enforcement, infrastructure improvements, and public awareness campaigns.

1. Speed Management Policy

Recommendation: Lower speed limits on select rural roadways from 45 MPH to 35 MPH where data supports excessive speed as a contributing factor in fatal and serious injury (KSI) crashes.

Implementation Steps:

- Conduct a speed study on high-risk rural roadways to evaluate compliance with speed limits and identify sections where reduction to 35 MPH is justified.
- Work with the Tennessee Department of Transportation (TDOT) and local officials to update speed limit regulations and post appropriate signage.
- Implement dynamic speed feedback signs in areas with historically high-speed-related crashes, such as Dutch Valley Road.
- Monitor crash data post-implementation to assess the impact and adjust as necessary.

2. Enforcement of Impaired and Distracted Driving

Recommendation: Strengthen law enforcement efforts to reduce impaired and distracted driving incidents, especially in high-crash segments.

Implementation Steps:

- Increase DUI checkpoints along high-risk corridors, particularly on weekends and evenings.
- Partner with local law enforcement agencies to enhance patrols in crash-prone areas.
- Deploy automated enforcement technologies, such as speed and red-light cameras, where legally permissible.
- Conduct targeted campaigns during peak seasons for impaired driving (holidays, special events).

3. Safe Rural Driving Public Awareness Campaign

Recommendation: Develop and implement a countywide education campaign focused on safe rural driving practices, targeting lane departure, excessive speed, and distracted driving.

Implementation Steps:

- Develop digital and print materials highlighting rural road hazards and countermeasures.
- Collaborate with local schools, businesses, and community organizations to distribute educational materials.
- Launch social media and radio campaigns emphasizing the risks of rural road crashes.
- Use roadside signage and billboards to remind drivers of key safety messages.

4. Data-Driven Crash Analysis and Monitoring

Recommendation: Establish a process for continuous data collection and crash monitoring to evaluate the effectiveness of implemented safety measures. Potentially using the TDOT AASHTOWare dashboard.

Implementation Steps:

- Create a centralized database for tracking crash reports, enforcement actions, and roadway modifications.
- Conduct annual reviews of crash data to identify emerging trends and areas needing intervention.
- Work with regional transportation agencies to incorporate findings into long-term safety plans.
- Develop a public-facing dashboard to provide transparency on roadway safety improvements.