SAFE STREETS FOR WNC
REGIONAL SAFETY ACTION PLAN

2025

WE REMEMBER

This action plan is in memory to those whose lives were lost or seriously impacted in traffic crashes in the Western North Carolina region: mothers, daughters, sons, fathers, wives, husbands, siblings, and friends who have been killed or seriously injured on our streets. Your memory inspires us to take action.

In the final months of developing the Safe Streets for WNC plan, the region has witnessed tragic roadway fatalities involving people walking, biking, and driving. At one Asheville intersection alone, two pedestrians were killed within a span of two months. Roadway safety has reached a crisis point—affecting individuals of all ages and modes of travel. It is imperative to respond to known safety problems and help

Acknowledgements

The value of the collective feedback gathered during the Safe Streets for WNC Regional Safety Action Plan (SSWNC) community engagements cannot be understated. The ideas captured from core stakeholders, leadership, and the people of Western North Carolina (WNC) are the foundation upon which this action plan is built.

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a program of Land of Sky
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LAND OF SKY RURAL PLANNING ORGANIZATION

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McAdams

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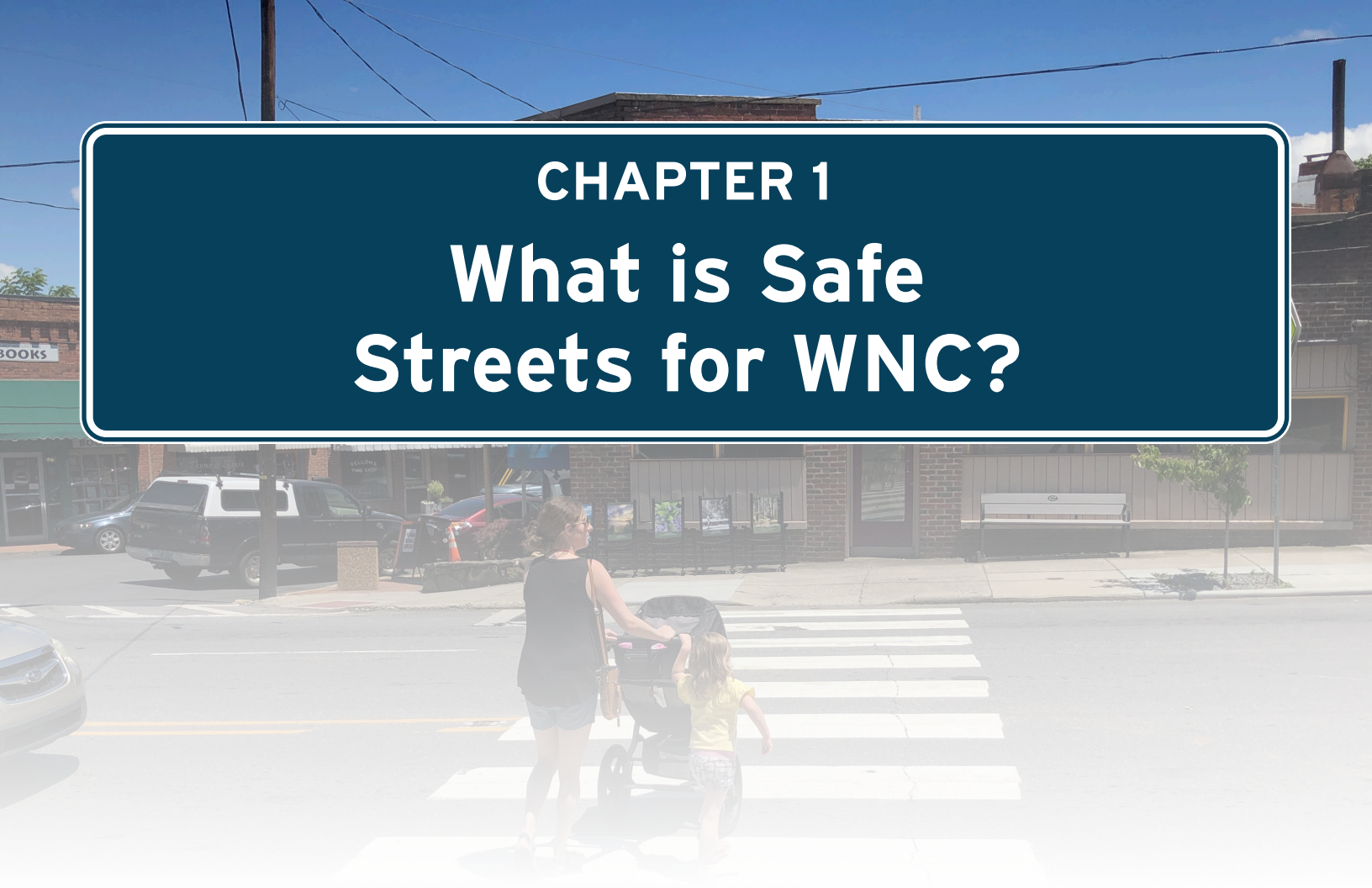


CHAPTER 1
What is Safe Streets for WNC?

WHAT IS SAFE STREETS FOR WNC?

To address and combat increasing trends in preventable roadway crashes, the French Broad River Metropolitan Planning Organization (FBRMPO) and Land of Sky Rural Planning Organization (LOSRPO) developed a plan for the Land of Sky region in Western North Carolina (WNC), referred to here as SSWNC Safety Action Plan. FBRMPO and LOSRPO initiated the planning process in early 2024 and completed the plan in August 2025.

The SSWNC Safety Action Plan is a comprehensive initiative dedicated to creating safer and more accessible roadways for everyone and is funded through the US Department of Transportation (USDOT) Safe Streets and Roads for All grant program.

Safe Streets for WNC Goal:

This region will achieve a 10% reduction in fatal and serious injury crashes by 2035, an additional 45% reduction by 2045, and move toward zero fatalities and serious injuries by 2050.

The plan focuses on reducing fatal and serious injury roadway crashes, improving conditions for people traveling by all modes, and promoting responsible use of our roadways for Buncombe, Haywood, Henderson, Madison, and Transylvania Counties.

The SSWNC Plan provides the region with comprehensive insights into crash histories and safety trends, including regional and county-specific data on crash patterns, contributing factors, and the socio-economic impacts on disadvantaged communities so that together, everyone will be able to safely travel on our region's roads.

Navigating Safe Streets

A regional, comprehensive safety action plan provides a strategic framework to improve transportation safety by identifying, analyzing, and addressing safety concerns. It helps prioritize investments, coordinate efforts across jurisdictions, and promote consistent safety standards that contribute to a safer, more accessible transportation network for all communities and people within the region.

SSWNC is built on a regional commitment to safety, guiding project selection and planning with a safety-first approach for WNC. To support the vision of reaching zero deaths by 2050, the FBRMPO and LOSRPO established the following six goals:

- Integrate the Safe System Approach into all policies and programs for a more consistent application of safety into plans and projects.
- Incorporate safety into development and disaster recovery projects to mitigate effects of rapid growth on traffic safety.
- Address severe speed related crashes through context-based speed management and traffic calming.
- Increase commitment to a regional culture of safety by partnering with the media, educating elected officials, and improving communication with North Carolina Department of Transportation (NCDOT).
- Leverage the capacity of funds for implementing safety projects through staff training, corridor safety assessments, and enhanced project delivery.
- Increase awareness of risks and potential strategies to improve safety for focus populations and vulnerable road users.

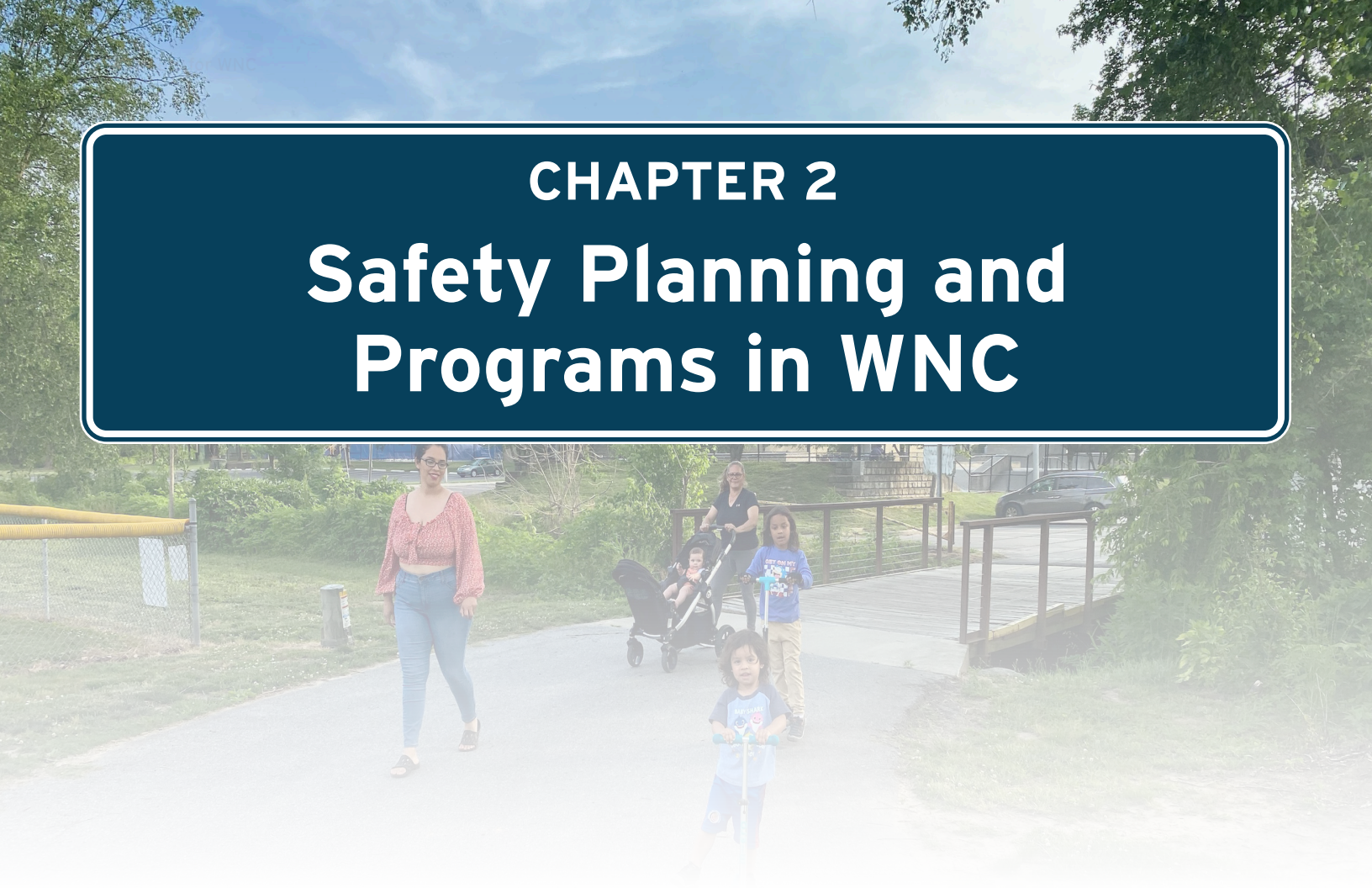
Safety Planning Process

The FBRMPO / LOSRPO carefully followed a six-step process, as illustrated in Figure 1.1, to develop the safety action plan to ensure comprehensive and effective outcomes.

- The **initial step** established a multidisciplinary partnership with diverse stakeholders, bringing together experts from various fields to offer insights and provide Action Plan oversight. SSWNC partners included members of local government, roadway safety partners, community organizations, and residents.
- The **second step** included rigorous data analysis to uncover safety problems and risks through an inventory and analysis of crash conditions.
- The data analysis helped inform the **third step** by identifying areas and populations most at risk of fatal and serious injury crashes and by pinpointing where to prioritize preventative safety projects and strategies. This step also included targeted outreach efforts to underserved populations, using community events and engagement activities to build connections and gather input.
- The **fourth step** centered on identifying strategies, developing performance measures tied to specific crash reduction strategies, and prioritizing projects.
- In the **fifth step**, the team developed a countermeasure toolbox that incorporated all elements of the Safe System Approach and provided recommendations for policies, guidelines, and project planning opportunities to support the integration of safety into both short- and long-term improvements.
- The **sixth** and **final step** outlines how to evaluate and update the SSWNC Safety Action Plan over time.

Source: VHB

Figure 1.1: Steps in the Safety Planning Process



CHAPTER 2
Safety Planning and Programs in WNC

Safe System Approach

The principles of the Safe System Approach (SSA) are the basis of SSWNC. The SSA aims to address and mitigate the risks within the complex transportation network. Unlike traditional safety methods, the SSA focuses on both human error and vulnerability, designing a system with redundancies to protect all users.

The six principles of the Safe System Approach drive a paradigm shift in roadway safety, moving from a reactive model—responding to crashes as they happen—to a proactive strategy that anticipates human error. This approach builds multiple layers of protection to prevent crashes and reduce harm when they do occur, providing a holistic and comprehensive framework for improving transportation safety.

The SSWNC Plan integrated the Safe System Approach throughout the planning process in several ways. The team analyzed both historical crash data and potential risk across all crash types to guide decision-making. They grounded the plan's goals in the core principles of the Safe System Approach and structured stakeholder outreach around its key elements, using focus groups to gather targeted input. The team also evaluated existing plans and programs through a Safe System lens to ensure alignment with this proactive safety framework.

> ***"The Safe System Approach recognizes that humans are vulnerable and make mistakes. A Safe System is designed, operated, and maintained so that those mistakes never lead to death or serious injury. All transportation stakeholders share responsibility in creating a safe system. This includes proactive and redundant strategies to address risks before they lead to deaths or serious injuries."***
>
> - Safe System Approach, USDOT

Plan and Policy Review

Local Plans and Programs

The SSWNC team reviewed statewide, regional, and local plans and policies to identify opportunities to improve transportation safety. The team reviewed plans and policies by scoring each plan based on the extent to which each plan or study addressed the different elements and principles of the Safe System Approach. Scoring criteria asked questions such as how the region's plans, projects, and programs accomplish the following:

- Account for the safety of all people using roadways.
- Consider size and type of vehicles and vehicle fleets.
- Call for setting and enforcing safe speeds.
- Account for human mistakes in roadway design.
- Discuss emergency response and human trauma due to crashes.

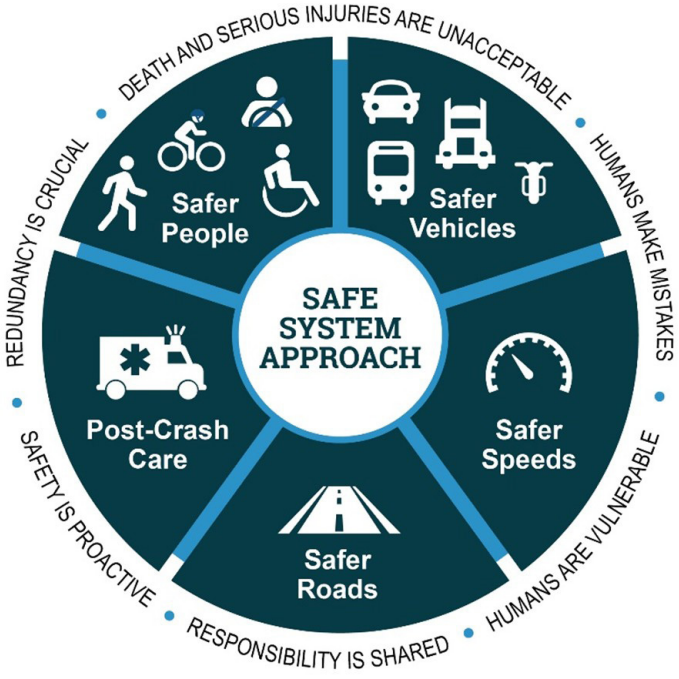
The following is a list of the plans, programs, and policies reviewed:

- FBRMPO Metropolitan Transportation Plan (MTP) 2045
- Buncombe County 2043 Comprehensive Plan
- City of Asheville Close the GAP
- Canton Bicycle and Pedestrian Plan
- Henderson County Greenway Master Plan
- Blue Ridge Bike Plan
- Brevard Pedestrian and Bike Plan
- Henderson County Comprehensive Plan
- Madison County Comprehensive Transportation Plan (CTP)
- FBRMPO Congestion Management Process
- City of Brevard Downtown Master Plan and Streetscape Design
- Biltmore McDowell Corridor Study
- Black Mountain Parking and Circulation Study
- Henderson County/Apple Country Public Transit Feasibility Study
- Hendersonville Road Corridor Study
- Hendersonville Pedestrian Safety Study
- FBRMPO Regional Transit Feasibility Study
- Hendersonville Pedestrian Plan

> ***"Goal: Provide and maintain safer and more secure places to live, walk, bike, ride the bus, and drive."***
>
> - FBRMPO Elevate 2050 MTP

The review of selected plans in the region revealed both strengths and opportunities for improvement in transportation planning efforts. Most plans addressed topics covering Safer Roads and Safer People, but gave little or no attention to Safer Speeds, Safer Vehicles, and Post Crash Care. Many plans focused on bicycle or pedestrian transportation or considered all travel modes, reflecting support for the Safer People element of the Safe System Approach. All plans included projects or network designs aimed at improving roadway access for multiple modes, contributing to the goals of Safer Roads. Several plans also effectively addressed the connection between land use and roadway design. Most plans incorporated crash severity data to identify hot spots, aligning with the Safe System Approach's focus on preventing fatal and serious injuries rather than all preventing all crashes. Crash hot spot analysis is a reactive methodology. Future planning efforts should also use safety data to identify risk factors and support a proactive, systemic approach to project scoping and development.

The limited focus on Safer Vehicles in current plans is understandable, as agencies involved typically do not oversee vehicle design or fleet management. However, with the rapid advancement of vehicle-to-everything (V2X) technologies (technologies that enable vehicles to communicate with other entities), this topic will become increasingly relevant to transportation planning, and future efforts should proactively address it. Similarly, most plans concentrate on engineering and network design and rarely address crash response, which explains the minimal attention to Post-Crash Care.



Source: FHWA

Figure 2.1: The Safe System Approach Principles and Objectives

Involving first responders in the planning process can help integrate this critical aspect. The limited discussion of Safer Speeds reflects a broader challenge: NCDOT and local governments often lack the tools to assess traffic speed conditions and identify effective solutions. To address this, transportation and safety planning efforts should define context-sensitive target speeds and use them to guide future project development.

See the Technical Appendix for more information about the findings from this review.

Statewide Programs for Safety

Statewide plans and programs like the Highway Safety Improvement Program (HSIP), the Strategic Highway Safety Plan (SHSP), and the Highway Safety Plan (HSP) outline priority safety problems in North Carolina. These plans and programs align with the SSWNC Plan to ensure the region is eligible for NCDOT implementation funding.

Highway Safety Improvement Program & Strategic Highway Safety Plan

The HSIP is a Federal-aid program focused on significantly reducing traffic deaths and serious injuries on all public roads, including non-state-owned roads and those on Tribal lands. In North Carolina, NCDOT's Traffic Safety Unit administers the HSIP using a data-driven, strategic approach to improve highway safety on all public roads. The HSIP consists of three core programs: the SHSP, the state HSIP which includes lists of highway safety improvement projects, and the Railway-Highway Crossing Program (RHCP).

NCDOT's HSIP prioritizes projects for three types of crashes linked to roadway design and physical context: Lane Departure, Intersections, and Pedestrians and Bicyclists. Table 2.1 highlights the total number of projects and types of improvements constructed or programmed for the HSIP and Spot Safety (smaller-scale safety projects) funding in the Land of Sky region (Buncombe, Haywood, Henderson, Madison and Transylvania Counties). These projects are at different stages of development and may begin several years after funding is awarded.

The SHSP, a part of the HSIP, was updated in 2024 with active participation and contributions from stakeholders representing diverse safety needs, populations, and geographies across North Carolina. The SHSP is a linkage between local and federal planning and safety plans. SSWNC aligns its efforts with the goals, vision, safety priorities, and solutions outlined in the SHSP.

Highway Safety Plan

The Governor's Highway Safety Program (GHSP) and National Highway Traffic Safety Administration (NHTSA) jointly create and update the North Carolina Highway Safety Plan (HSP). The HSP evaluates performance measures, analyzes current traffic safety conditions, outlines public engagement efforts and countermeasures, and details projects that GHSP plans to fund for a 3-year period.

In contrast with the SHSP, the HSP identifies priority crash types linked to human behaviors, which for 2024-2026 included:

- Alcohol-Impaired Driving
- Occupant Protection
- Speeding and Police Traffic Services
- Young Drivers
- Motorcyclists
- Pedestrians
- Older Drivers
- Traffic Records

2020-2024 FUNDED AND IN-PROGRESS SAFETY PROJECTS IN WNC / LAND OF SKY REGION[1]

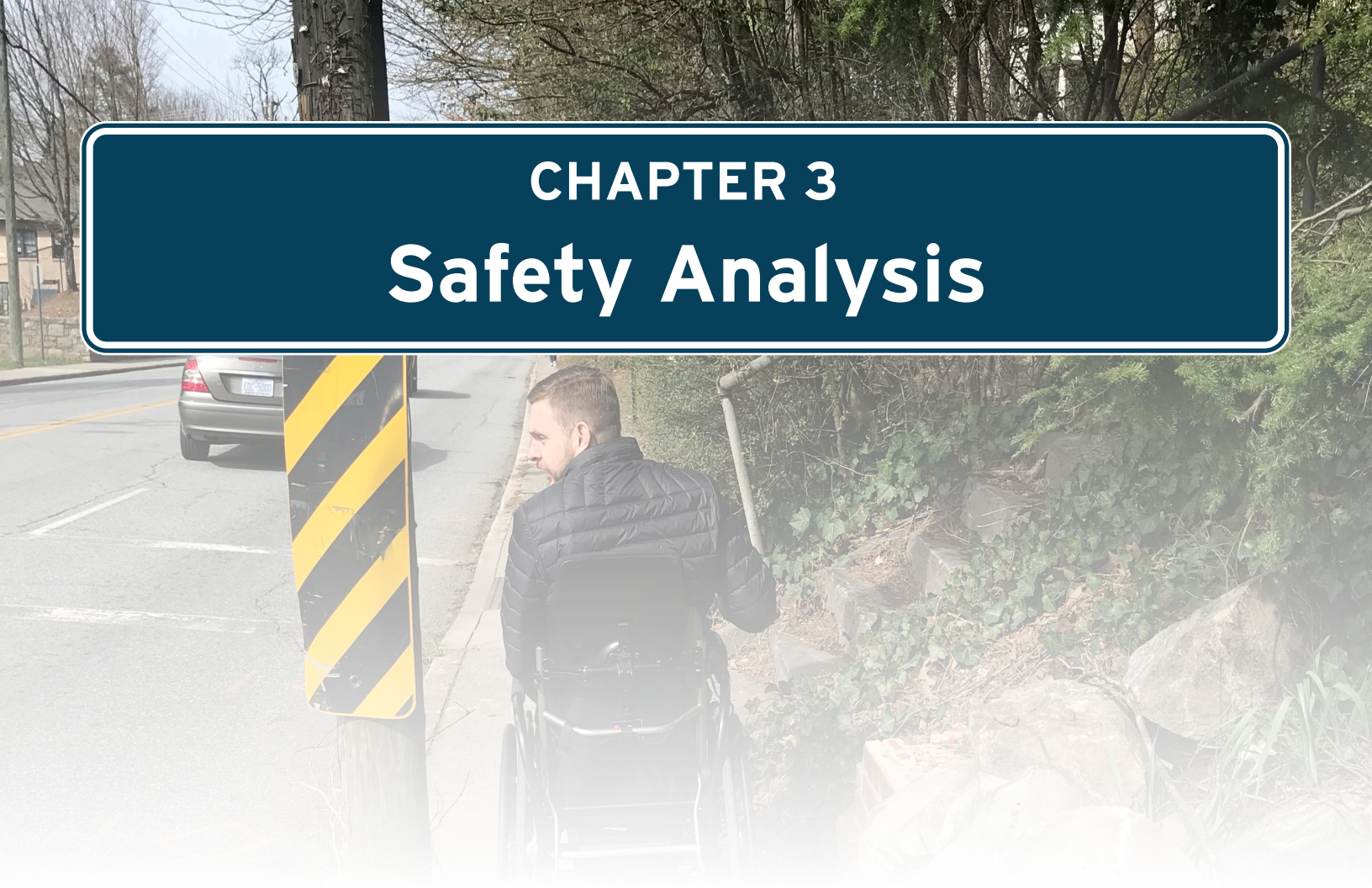
County Name	HSIP Projects	HSIP $	Spot Safety	Spot Safety $	Total Projects	Total $ Invested
Buncombe	8	$3,980,000	11	$1,695,000	19	$5,675,000
Haywood	3	$576,000	5	$2,269,000	8	$2,845,000
Henderson	7	$3,854,000	10	$755,000	17	$4,609,000
Madison	1	$565,000	1	$35,000	2	$600,000
Transylvania	4	$1,205,000	2	$527,000	6	$1,732,000
Multi-County	5	$2,205,000	0	$0	5	$2,205,000
Total	*28*	*$12,385,000*	*26*	*$5,281,000*	*54*	*$17,666,000*

Table 2.1: Highway Safety Improvement and Spot Safety Projects from 2020 to 2024

Source: Google

Image 2.1: Spot Safety Project Pedestrian Improvements on New Leicester Highway

[1] NCDOT 2024 Active HSIP Projects



CHAPTER 3
Safety Analysis

SSWNC uses a data-driven approach to plan for transportation safety improvements across the region and helps answer the following questions:

- What are the top crash types across the five-county region?
- Where are the fatal and serious injury crashes occurring?
- What are the risk factors for a fatal and serious injury crash? Where could more fatal and serious injury crashes occur?
- Which groups of people experience disproportionately high rates of fatal and serious injury crashes?

The plan answers these questions to identify current problems within the transportation network and to assess future risk for roadway-related deaths and serious injuries, enabling proactive mitigation.

The SSWNC Plan used the following data sources to conduct a safety analysis that both looks back and looks ahead:

- Crash Data: Sourced from NCDOT crash data, including years 2017- 2023 and all severities, modes, and types of crashes.
- Roadway Characteristics: Sourced from NCDOT, including physical and operational roadway attributes.
- US Census Data and Related Indices: Sourced from the 2019-2023 American Community Survey (ACS) and other national data related to poverty, housing and transportation access.

Looking Back
Understanding crash history

Looking Forward
Using data to understand future risk

CRASH ANALYSIS: ALL REPORTS

- Crash Type analysis
- Frequency by road classification & number of lanes
- Age, race, and gender

RISK-BASED ANALYSIS

- Exposure
- Likelihood
- Severity

Looking Back: Regional Safety Trends

For the purposes of trend analysis, the five most recent years of crash data was considered. From 2019-2023, total fatal and serious injury crashes increased across the counties included in the region. During this period, there were 1,181 fatal and serious injury crashes, resulting in 311 deaths and 870 serious injuries. The highest number of deaths occurred in 2023. Fatal and serious injury crashes accounted for approximately 2% of the total crashes in the region. See Figure 3.1.

During the same period, crashes of all severities occurred most frequently in the region's most populated counties, with Buncombe County reporting the highest number and proportion of fatal and serious injury crashes. However, when adjusted for population size, Haywood County had the highest rate of fatal and serious injury crashes per 100,000 residents. See Table 3.1.

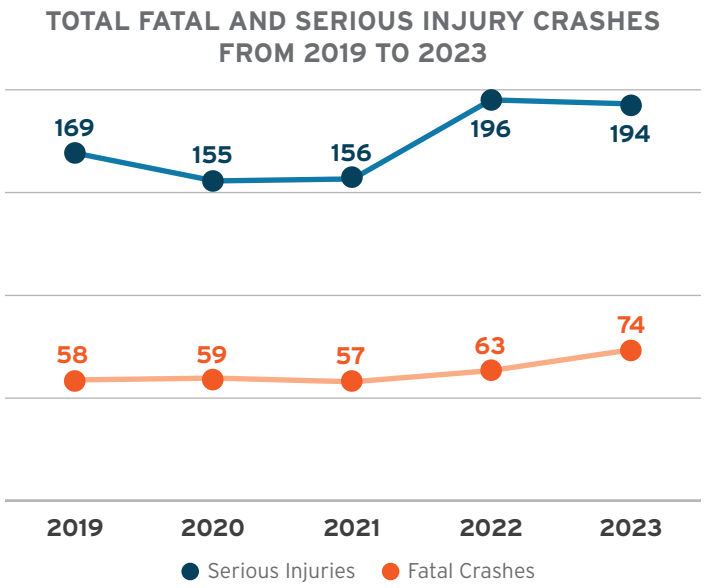


Figure 3.1: Total Fatal and Serious Injury Crashes from 2019 to 2023

County Name	Total Number of Crashes	Number of Fatal Crashes	Number of Serious Injury Crashes	Number of Fatal and Serious Injury Crashes	% Share of Regional Fatal and Serious Injury Crashes	Annual Average Fatal and Serious Injury Crashes per 100k Population
Buncombe	40,234	155	285	440	43%	37.02
Haywood	7,461	48	173	221	21%	76.10
Henderson	15,583	62	164	226	22%	45.19
Madison	1,736	16	39	55	5%	61.21
Transylvania	3,279	14	76	90	9%	65.52

Table 3.1: Total Crashes from 2019 to 2023 by County

Emphasis Areas

The SSWNC Emphasis Areas highlight key factors contributing to fatal and serious injury crashes in the region and align with those identified in the 2024 North Carolina SHSP. The SSWNC Plan considers all crash types leading to fatal and serious injury outcomes, but the plan emphasizes ten crash types for the region based on severity and magnitude.

For the purposes of identifying crash type emphasis areas, the SSWNC considered crash data from 2017-2023. The list below shows the SSWNC regional Emphasis Areas (EA) along with the percentage of fatal and serious injury crashes (KA) linked to each crash type.

- Lane Departure – (57% KA crashes)
- Seat Belts and Car Seats – (22% KA crashes)
- Intersections – (18% KA crashes)
- Impaired Driving – (19% KA crashes)
- Speed – (16% KA crashes)
- Older Drivers – (23% KA crashes)
- Motorcycles – (22% KA crashes)
- Heavy Trucks – 8% KA crashes)
- Pedestrians – (8% KA crashes)
- Bicyclists – (2% KA crashes)

Figure 3.2 shows how total crashes and combined fatal and serious injury crashes are distributed across crash Emphasis Areas (EA).

> ***"Slow the cars down, yield to pedestrians, roadway designs with the goal of zero traffic fatalities. Thank you."***
>
> - Online Survey Comment

CRASH TYPE AND DISTRIBUTION BY EMPHASIS AREA

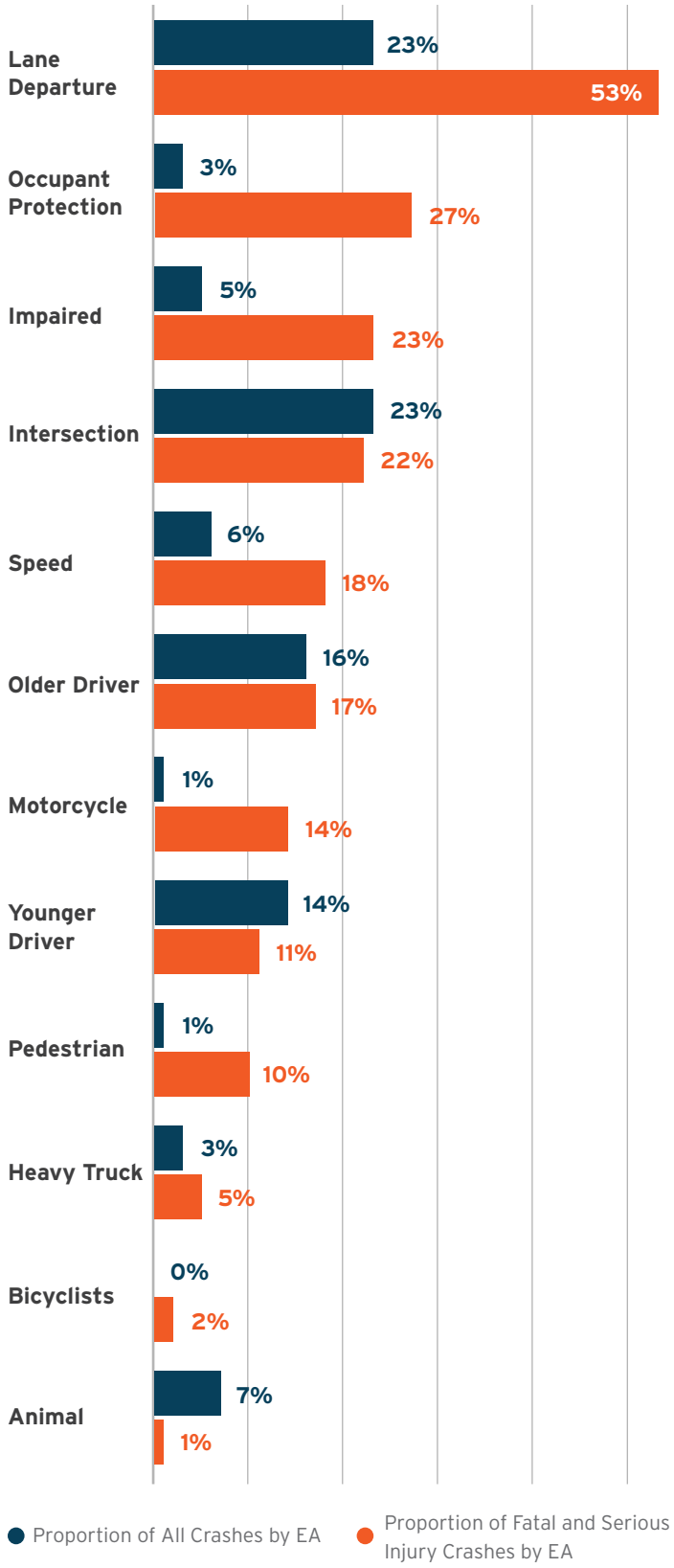


Figure 3.2: Crash Type and Distribution by Emphasis Area (EA)

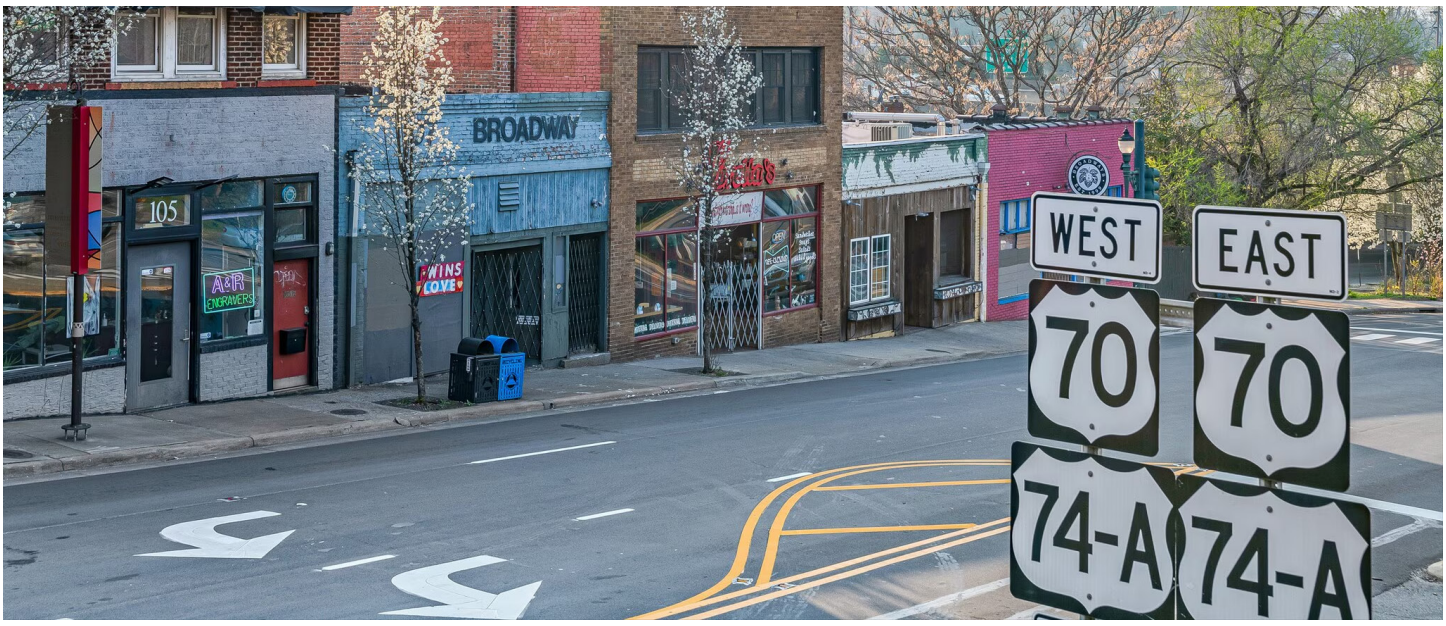
Table 3.2 illustrates how each county's proportion of fatal and serious injury crashes by Emphasis Area compares to the average statewide proportion of fatal and serious injury crash types.

Emphasis Areas	Buncombe	Haywood	Henderson	Madison	Transylvania	Statewide
Animal	0%	0%	0%	3%	0%	1%
Bicyclist	2%	1%	2%	0%	4%	2%
Heavy Truck	3%	7%	5%	5%	1%	5%
Impaired	24%	15%	23%	12%	14%	23%
Intersection	17%	13%	22%	12%	17%	22%
Lane Departure	51%	65%	56%	71%	68%	53%
Motorcycle	18%	26%	19%	29%	28%	14%
Occupant Protection	25%	20%	22%	26%	21%	27%
Older Driver	23%	27%	22%	21%	29%	17%
Pedestrian	11%	6%	9%	2%	5%	10%
Speed	14%	17%	14%	19%	13%	18%
Younger Driver	14%	7%	7%	12%	4%	11%

Below State Average Consistent with State Average Above State Average

Table 3.2: Proportion of Fatal and Serious Injury Crashes by County and Crash Type

Note: Crash type shares sum to more than 100% because one crash may be associated with multiple contributing factors, as described in the crash reports.



Source: Likewise Commercial Real Estate

Image 3.1: Intersection of Broadway/Merrimon Avenue and I-240 Ramps in Asheville

Where are the Safety Problems?

Focus Facility Types

Using NCDOT's route and functional class data, the SSWNC team compared the proportion of crashes occurring from 2017 to 2023 on each facility type (e.g., a route or functional classification) against the share of total road mileage. **This analysis revealed an overrepresentation of fatal and serious injury crashes on NC and US routes.** Although NC routes make up only 3% of the total road mileage, they account for 14% of fatal and serious injury crashes. Similarly, US routes represent 3% of road mileage but contribute to 30% of fatal and serious injury crashes. Secondary routes, which comprise the largest share of road mileage (30%), disproportionately account for 33% of fatal and serious injury crashes. Figure 3.3 illustrates these findings.

High Injury Network (HIN)

To understand the parts of the transportation system where crashes most often result in serious injuries or death, SSWNC developed a series of mapping layers:

- High Injury Networks (HIN) or segments (outside of intersections) for all crashes (Map 3..1)
- HIN or segments (outside of intersections) for bicycle and pedestrian crashes only (Map 3.2)
- High Injury Intersections (HII) for all crashes (see Technical Appendix)
- HII for bicycle and pedestrian crashes (see Technical Appendix)

The HIN uses crash data from the NCDOT enterprise crash database (2017–2023) alongside bicycle- and pedestrian-specific data from the NCDOT's Open Data Portal (2013–2022) to identify locations with a high frequency of recent fatal and serious injury crashes. The SSWNC Plan developed HINs using the equivalent property damage only (EPDO) method, which assigns higher scores to locations with more serious crashes. These identified locations undergo detailed analysis to guide potential countermeasures, projects, and policy interventions.

Table 3.3 describes how the HIN captures or represents shares of severe crashes across the region.

The HIN is a valuable tool for prioritizing locations that warrant immediate safety review. However, because crash patterns can shift over time, the HIN represents a snapshot and has a limited shelf life. To maintain its effectiveness, the FBRMPO / LOSRPO should consider reassessing the analysis every 3 to 5 years to identify emerging high-risk locations or intersections. NCDOT's HSIP review program includes network screening methods that align closely with the HIN methodology. Continued coordination between NCDOT, FBRMPO, LOSRPO, and local agencies is essential to ensure consistent prioritization and timely review of critical locations.

Figure 3.3: US Routes Share of the HIN

Type of High Injury Network	Share of Fatal and Serious Injury Crashes
High Injury Network (top 3% of segments or 7% of mileage)	76% of fatal and serious injury crashes occurring outside of intersections
High Injury Intersections (top 1% of intersections)	39% of fatal and serious injury crashes at intersections
High Injury Network - Bike Ped (non-interstate, 0.5% of mileage)	16% of fatal and injury crashes occurring outside of intersections
High Injury Intersections - Bike Ped (non-interstate, top 1% of intersections)	89% of fatal and injury crashes at intersections

Table 3.3: Share of Severe Crashes or Fatal per HIN in the Region

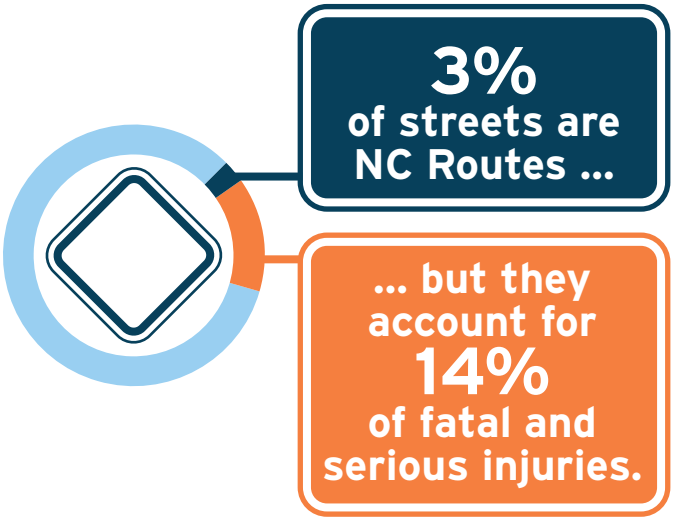


Figure 3.4: NC Routes Share of the HIN

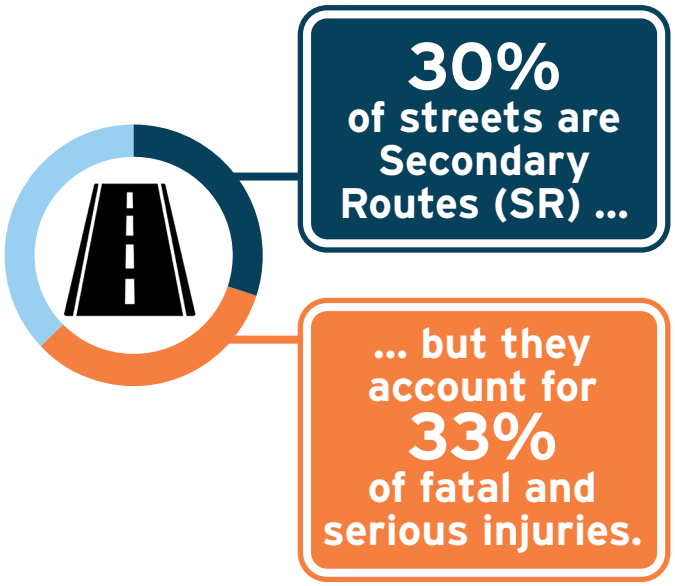


Figure 3.5: Secondary Routes Share of the HIN

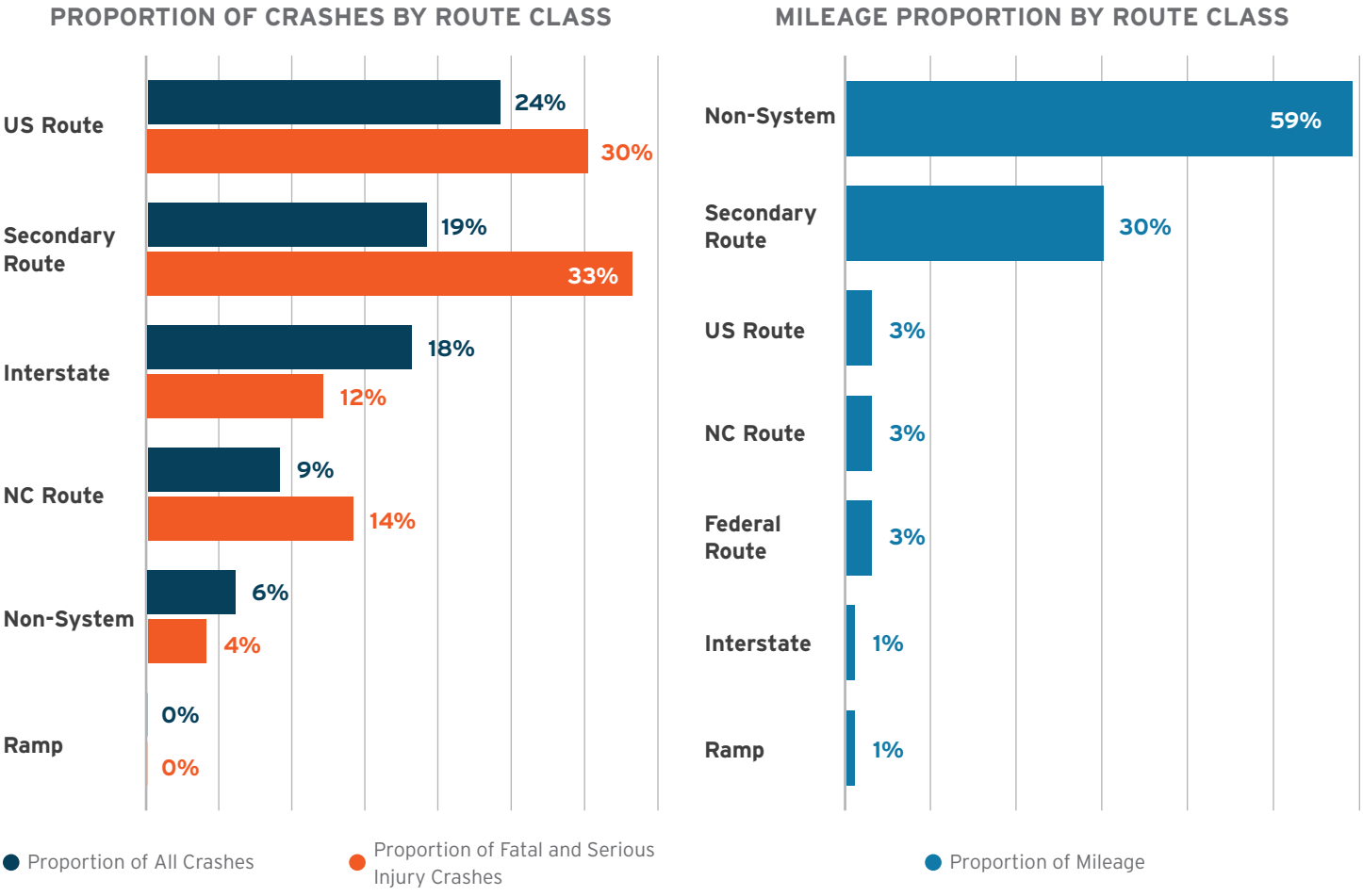
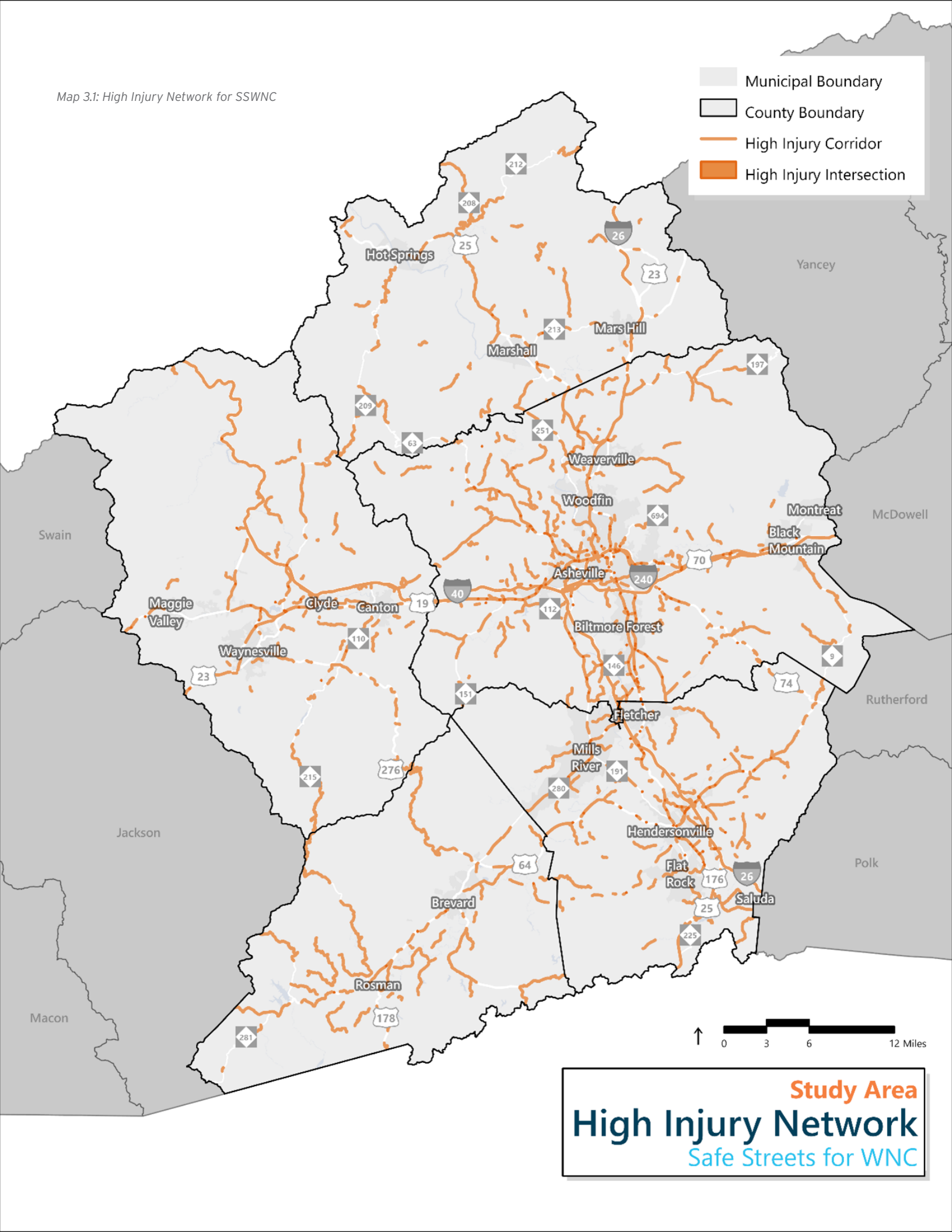


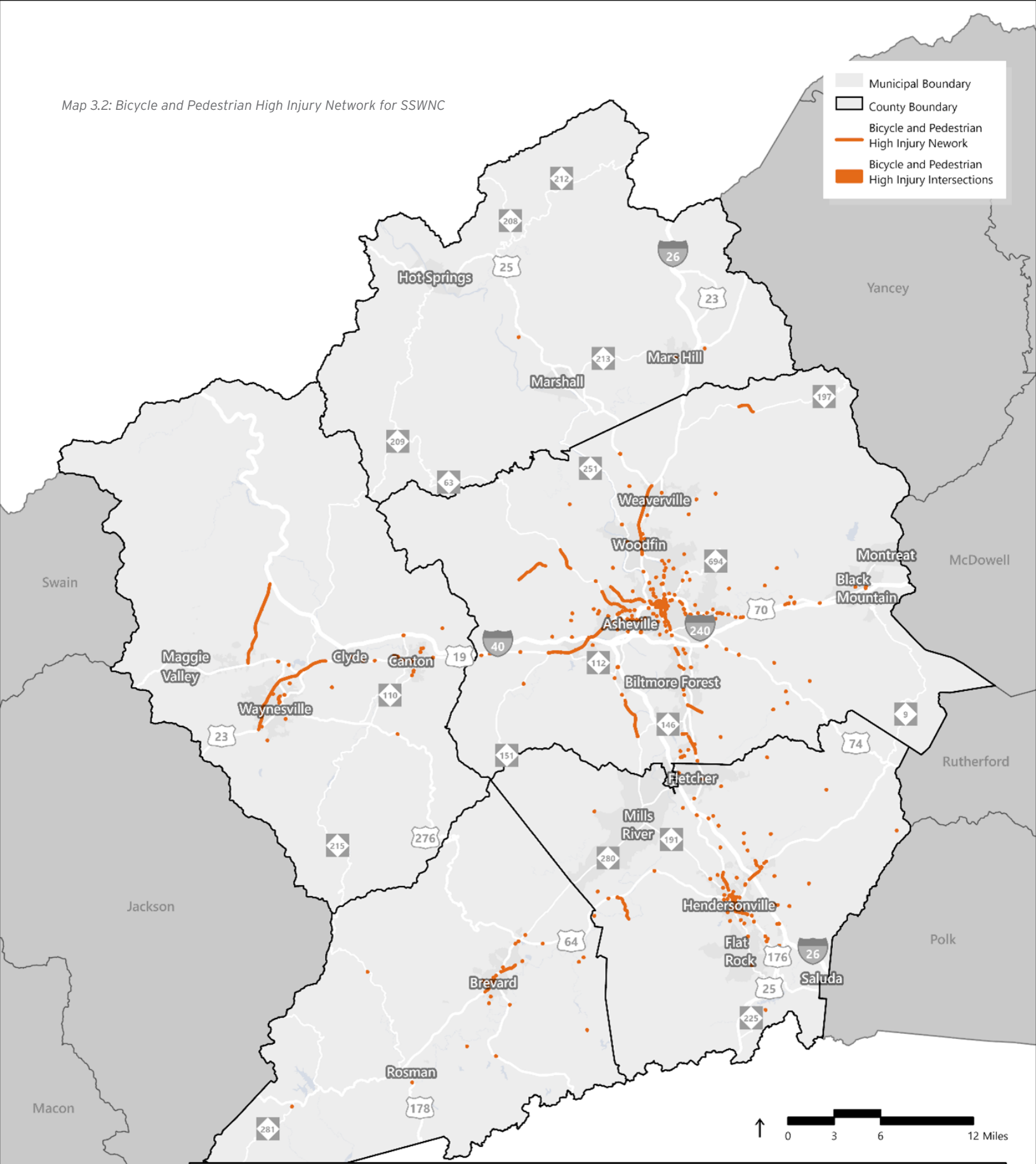
Figure 3.6: Disparity in Crash Distribution vs. Road Mileage by Route Class

Note: Route class refers to the system designation of the route. Interstates, US Routes, NC Routes, and Secondary Routes are NCDOT maintained. Non-System roads are not maintained by NCDOT.

Map 3.1: High Injury Network for SSWNC



Map 3.2: Bicycle and Pedestrian High Injury Network for SSWNC



Study Area

Bicycle and Pedestrian High Injury Network

Safe Streets for WNC

Road Design & Crash Risk

While individual driver choices contribute to crashes, the physical design of a roadway sets the stage for how drivers behave. In urbanized areas of our region, certain street types - especially four-lane undivided arterials - are consistently associated with higher crash and fatality rates.

These corridors are designed to move large volumes of vehicles quickly, but they often double as commercial main streets, creating a mismatch between speed and activity. This combination leads to more conflict points, higher crash potential, and more severe outcomes when collisions occur.

These roadway types are not unique to our region—they are common across the country and have been the subject of growing attention from transportation safety researchers, urban planners, and advocacy groups. The link between design and safety outcomes underscores the need to consider roadway form alongside user behavior in any crash analysis.

WHY THESE ROADS MATTER

- **High Speeds + Frequent Turns –** Without a median, through traffic shares space with left-turning vehicles, increasing the chance of angle and rear-end crashes.
- **Many Driveways + Side Streets –** Commercial corridors often have closely spaced access points, meaning more opportunities for conflicts between vehicles, pedestrians, and cyclists.
- **Long, Unprotected Crossings –** Four-lane undivided roads require people walking or biking to cross multiple lanes of moving traffic at once, often without pedestrian refuge.

Source: Google

Image 3.2: Spartanburg Highway in Hendersonville

Source: Google

Image 3.3: Patton Avenue in West Asheville

> ***"In urbanized areas roadways frequently lack an understanding or sensitivity to how design contributes to driver behavior."*** - Public Comment

Source: Google

Image 3.4: New Leicester Highway near Mt Carmel Road

Looking Ahead: High Risk Areas

The SSWNC Plan assessed the risk of serious or fatal crashes on regional roadways and intersections by analyzing three components: likelihood, severity, and land use context and exposure of roadway users. This comprehensive risk analysis goes beyond identifying locations where crashes have already occurred—it highlights areas where conditions suggest a higher potential for deadly or serious collisions, even in the absence of past incidents. By focusing on predictive factors such as traffic volume, road design, and surrounding land use, the analysis helps pinpoint sites with elevated crash risk. These insights are instrumental in shaping proactive transportation policies and targeted infrastructure investments, ensuring that limited resources are directed toward interventions that can most effectively save lives.

See the Technical Appendix for more information about the risk factors considered in this analysis.

Likelihood

To analyze crash likelihood, the project team obtained crash data from the NCDOT for the years 2017 to 2023. This included several characteristics such as location, roadway facility type, crash type, and crash severity. The crash likelihood analysis excluded human factor-related crash types (such as impairment or use of seat belts), focusing instead on other types:

- Lane departure
- Intersection-related (all crashes)
- Intersection-related (bicycle and pedestrian crashes)
- Bike
- Speed
- Pedestrian
- Motorcycle

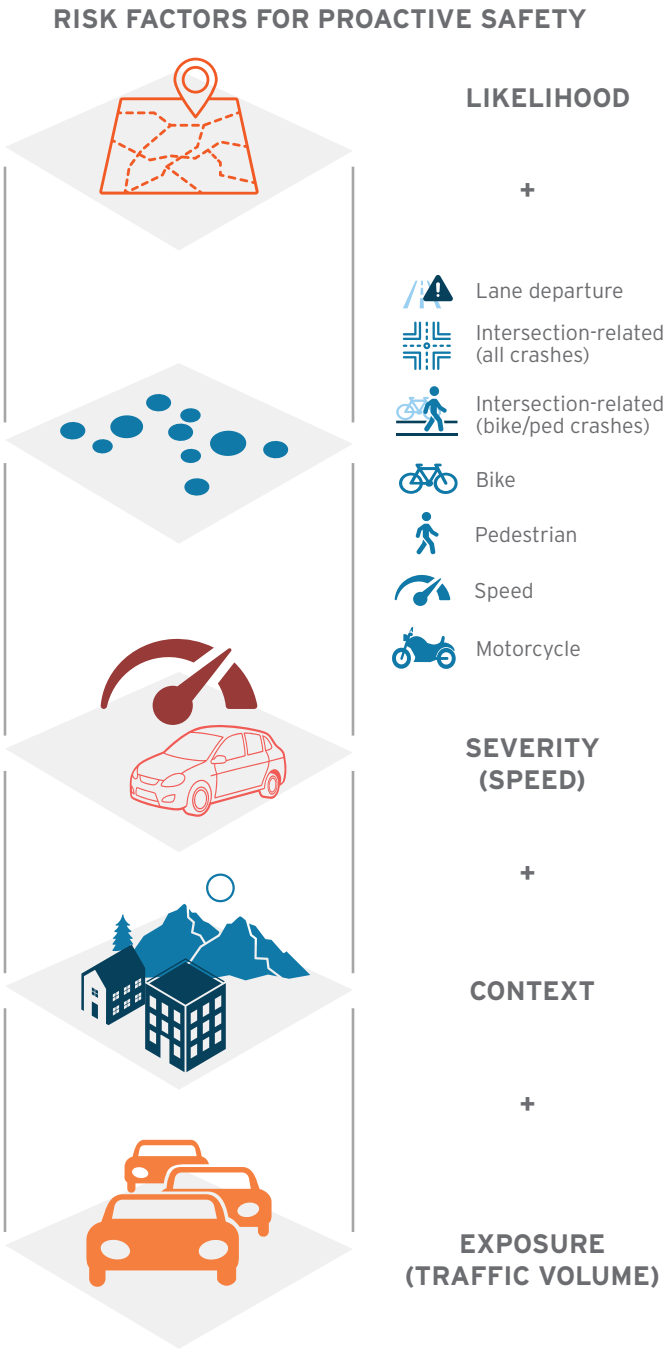


Figure 3.7: SSWNC Crash Risk Analysis: Likelihood + Severity + Context and Exposure

> ***"Many of our neighborhoods have neither sidewalks or a shoulder to walk on, leading to dangerous walking (and biking) conditions ... I would personally love to see our beautiful WNC allow for safer and accessible walkability."***
>
> - Online Survey Comment

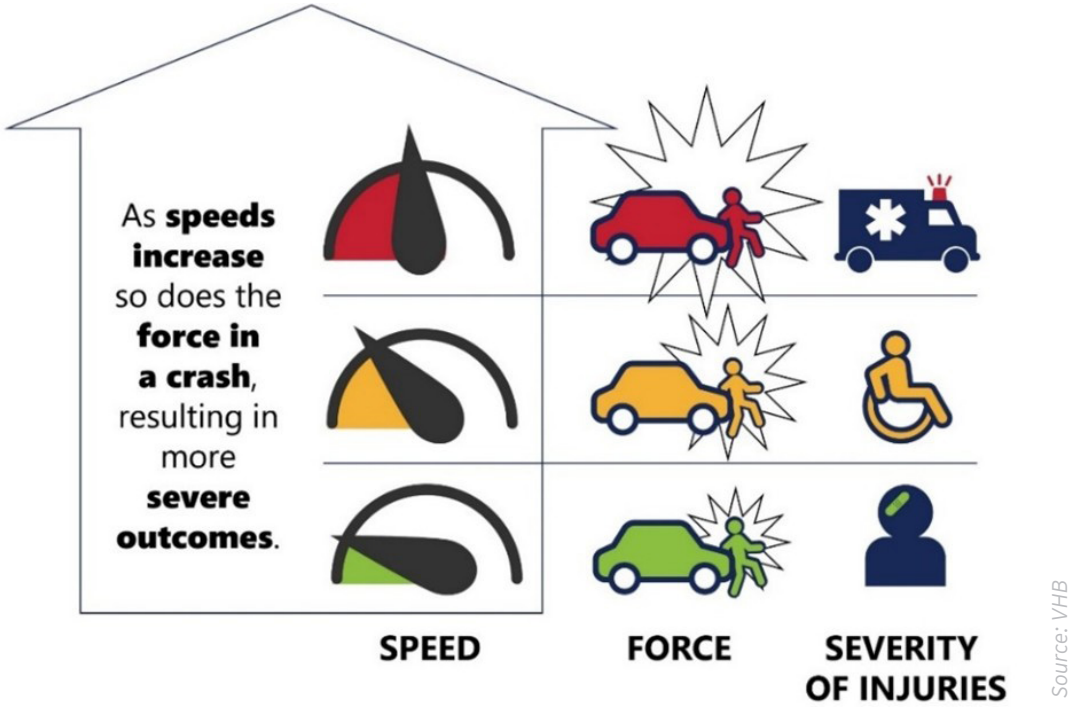
Source: Joe Flood

Image 3.5: Main Street in Downtown Waynesville

Severity

Severity looks at how higher speeds can cause more serious crashes and where speed can be better controlled depending on the area's development. The data uses average observed speeds collected through virtual, probe data platforms – presented as the 85th percentile of speeds recorded during weekdays over a 24-hour period. The severity analysis identifies roadways and intersections in the region where targeted interventions to manage speed could reduce the potential for a person being killed or seriously injured.

> ***"Please make WNC roads safer for all ... we can't wait!"***
>
> - Public Comment



Source: VHB

Figure 3.8: As Speeds Increase, So Do Force and Severity of Injuries

Context and Exposure

Context and Exposure considers where traffic volumes impact crash frequency, using annual average daily traffic (AADT) and the different roadway users in traffic-related conflicts. Contexts are identified at the U.S. Census Block Group level in one of five context classification categories based on demographic and density: Rural, Rural Town, Suburban, Urban and Urban Core. Exposure is a measure of traffic volumes, providing a general description of locations where crashes of all severity may be more likely.

This data identifies roadways and intersections in the region where the surrounding land use may generate a mix of roadway users, such as increased pedestrian or bicycle activity.

Map 3.3 illustrates the outcome of a crash risk analysis that considers likelihood, severity, context, and exposure to identify segments or intersections with very low to very high probability of serious injury or death for people biking.

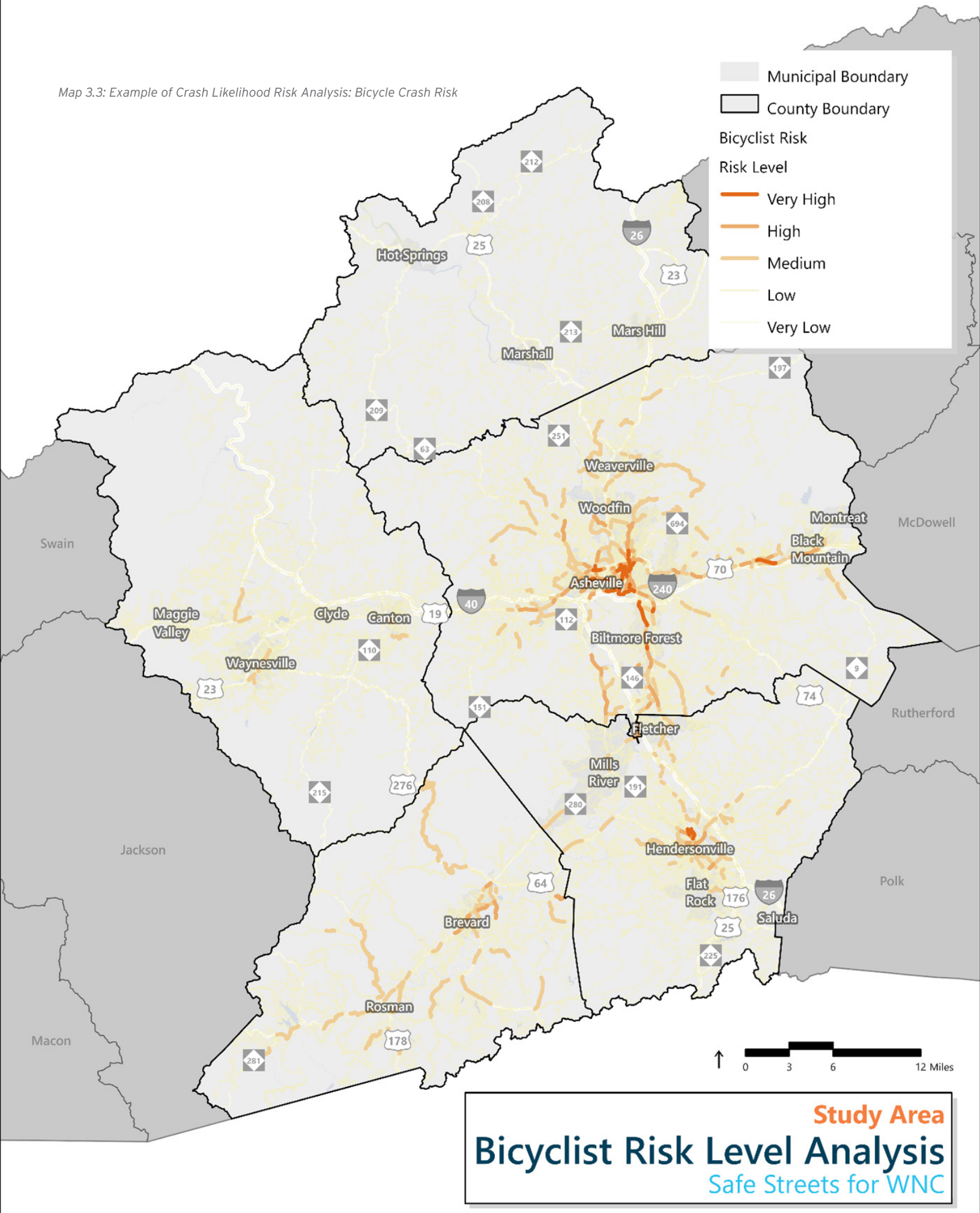
Source: VHB

Figure 3.9: As Land Use Context Changes from Rural to Urban, Traffic Volume Increases

Source: Compass Realty Group

Image 3.6: Intersection of Broad and Main Streets in Downtown Brevard

Map 3.3: Example of Crash Likelihood Risk Analysis: Bicycle Crash Risk



Who is Most Impacted?

The population analysis for the five-county region examines current conditions to understand the age, sex, race, and income of those most affected by transportation safety planning decisions. The approach compares regional population percentages with crash type percentages and statewide rates.

Age

Region-wide, individuals aged 25-64 years-old have the highest chance of being killed or seriously injured per 1,000 people compared to other age groups. This age group is also overrepresented compared with the statewide crash rate in all the counties included in the region. Persons in the 15 to 24 years age group face markedly higher death and serious injury crash rates, particularly in Haywood and Transylvania Counties. Both counties exhibit rates that are well above the statewide crash rate. Similarly, the 25 to 64 age group also shows elevated crash rates in Haywood, Madison and Transylvania Counties. In these areas, younger drivers or teens walking or bicycling on roadways may be populations to prioritize in traffic safety education and community outreach. Figure 3.10 illustrates these findings.

Source: McAdams

Image 3.7: St John Road in Fletcher

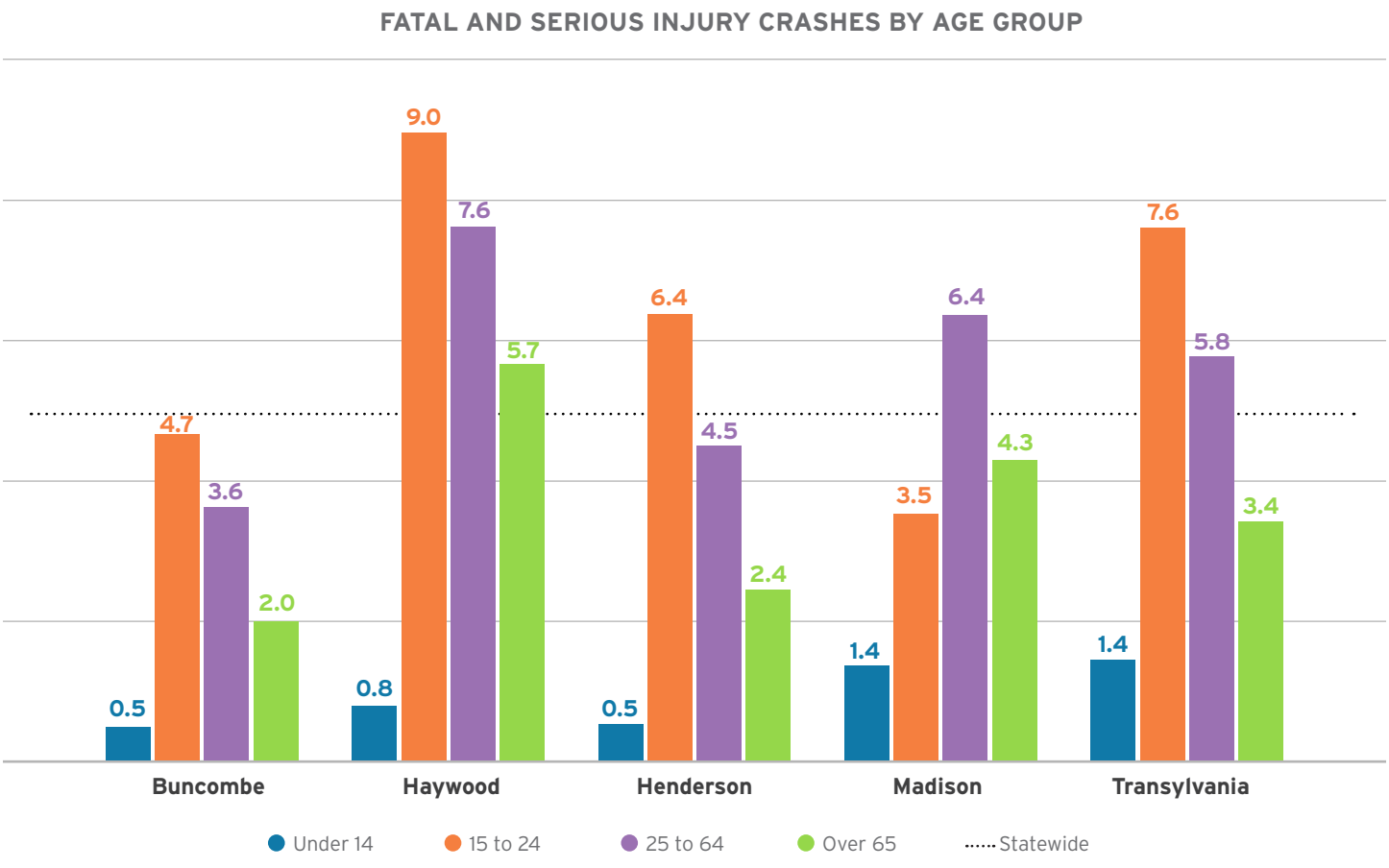


Figure 3.10: Fatal and Serious Injury Crash Rates by Age Group

Sex

Men experience fatal or serious injury crashes more often than women across all five counties. Similarly, men account for a disproportionately high share of crashes compared to statewide rates in Haywood, Madison,and Transylvania Counties.

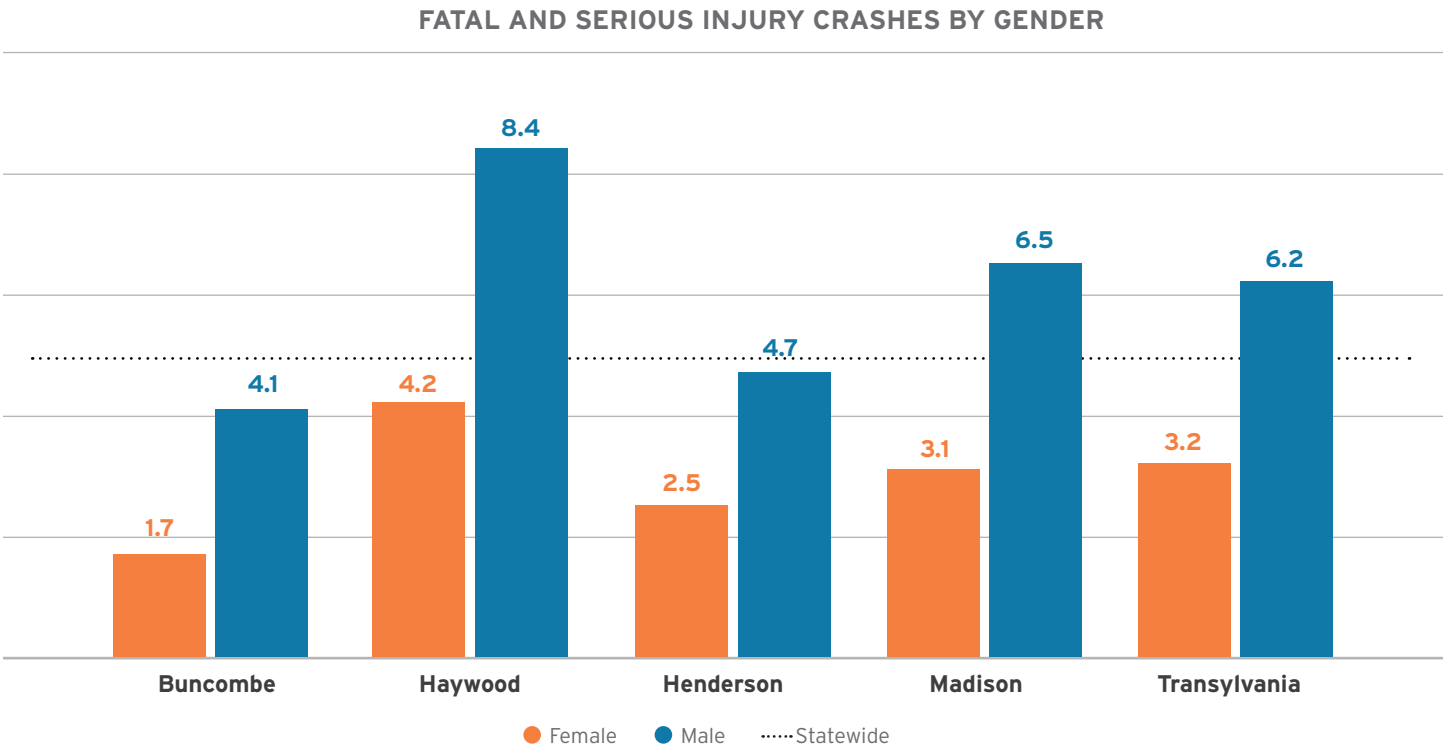


Figure 3.11: Fatal and Serious Injury Crash Rates by Gender

Source: McAdams

Image 3.8: Passenger Waiting for a Bus on Hendersonville Road

Race

Figure 3.12 shows significant disparities in crash rates among different racial groups, particularly in Haywood County. Despite being a small percentage of the County's overall population, crash rates for Black and Native American populations are higher than the statewide rate. Considering the share of the region's total population, the Black population and the Native American population are overrepresented in all crash types.

Race by Crash Type

Compared with the total share of the regional population, Black individuals are overrepresented in all crash types, except for Bicyclists. Most notable is the share of Heavy Trucks, Speed-related, Seat Belts, and Younger Driver crashes involving people of Black race. The following are additional overrepresentations in crashes by race:

- Native Americans: overrepresented in several fatal and serious crash types, most notably Seat Belts and Speed-related crashes.
- Hispanic individuals: overrepresented in Pedestrian, Seat Belt and Speed-related crashes.
- Asian individuals: overrepresented in Distracted and Heavy Truck crashes.
- White individuals are overrepresented in Bicyclists, Motorcycle, and Older Driver crashes.

Source: McAdams

Image 3.9: Bus Stop on Tunnel Road in Asheville

See Table 3.4 for these findings; highlighted rows indicate an over-representation of that crash type or race. As shown in Table 3.5, compared with the total share of the regional population, Teens and young adults (15-24) are overrepresented in all fatal and serious injury crash types, except Motorcycle and Older Driver crashes (over-representation indicated by the highlighted cells). Most notable is the regional share of Younger Driver crashes. Mid-aged adults (ages 25-64) are overrepresented in all crash types, except Younger and Older Drivers. Older adults (ages 65+) are, not surprisingly, overrepresented in Older Driver crashes.

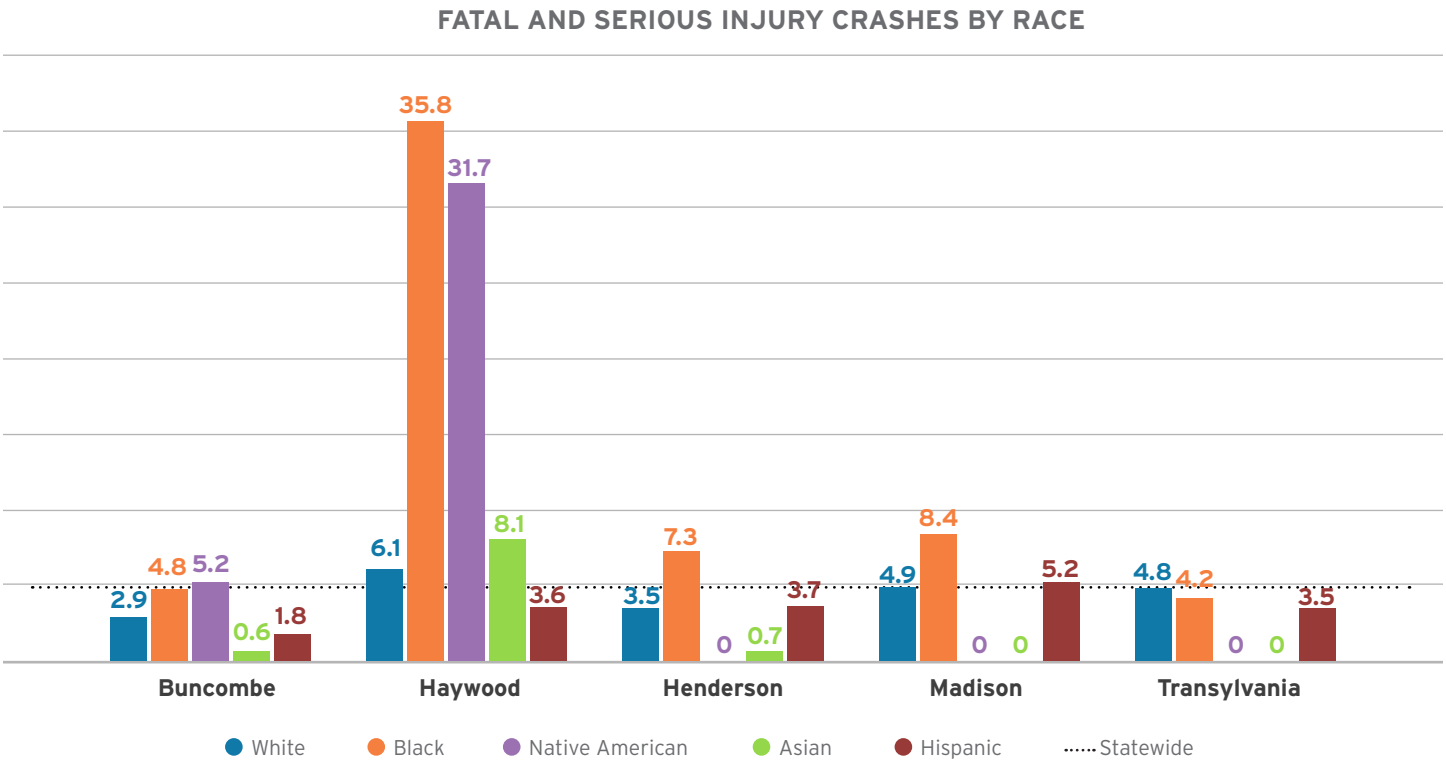


Figure 3.12: Fatal and Serious Injury Crash Rates by Race

Crash Type	Native American	Asian	Black	Hispanic	Other	Unknown	White
Animal					20.0%		80.0%
Bicyclists			2.9%		2.9%	2.9%	91.4%
Distracted	0.5%	0.5%	3.6%	5.0%	1.4%	1.4%	87.7%
Heavy Truck		2.6%	11.5%	3.9%	2.6%		79.5%
Impaired	0.6%	0.3%	7.4%	5.8%	0.6%	1.6%	83.7%
Intersection	0.2%	0.2%	5.7%	3.9%	1.1%	0.9%	87.9%
Lane Departure	0.6%	0.2%	6.7%	5.6%	0.9%	0.2%	85.9%
Motorcycle	0.3%		4.4%	2.1%	0.3%		93.0%
Older Driver	0.2%	0.2%	4.2%	1.1%	0.9%	0.7%	92.7%
Pedestrian			6.1%	6.8%	1.5%	15.2%	70.5%
Seat Belts and Car Seats	0.8%	0.3%	8.0%	6.5%	1.0%		83.4%
Speed	1.0%	0.3%	9.7%	7.9%	1.4%		79.7%
Younger Driver			7.5%	6.0%	1.5%	0.2%	84.5%
Regional Population Share	*0.0%*	*0.0%*	*3.0%*	*6.0%*	*0.0%*	*3.0%*	*88.0%*

Crash Type Disproportionate for Race/Age Group Share of Population

Table 3.4: Population Representation Among Crash Types - Race

Crash Type	Under 14	15-24	25-64	65+
Animal		20.0%	80.0%	
Bicyclists	5.7%	14.3%	71.4%	8.6%
Distracted	1.8%	11.8%	60.9%	25.5%
Heavy Truck		18.0%	66.7%	15.4%
Impaired	2.6%	19.2%	70.9%	7.4%
Intersection	2.7%	13.7%	59.2%	24.4%
Lane Departure	2.2%	18.3%	64.2%	15.3%
Motorcycle	0.3%	10.2%	76.2%	13.3%
Older Driver	0.7%	6.0%	29.3%	64.1%
Pedestrian	2.3%	14.4%	65.2%	18.2%
Seat Belts and Car Seats	1.6%	20.0%	62.4%	16.1%
Speed	0.3%	26.2%	65.5%	7.9%
Younger Driver	4.5%	63.0%	20.5%	12.0%
Regional Population Share	*14.4%*	*10.8%*	*49.0%*	*25.2%*

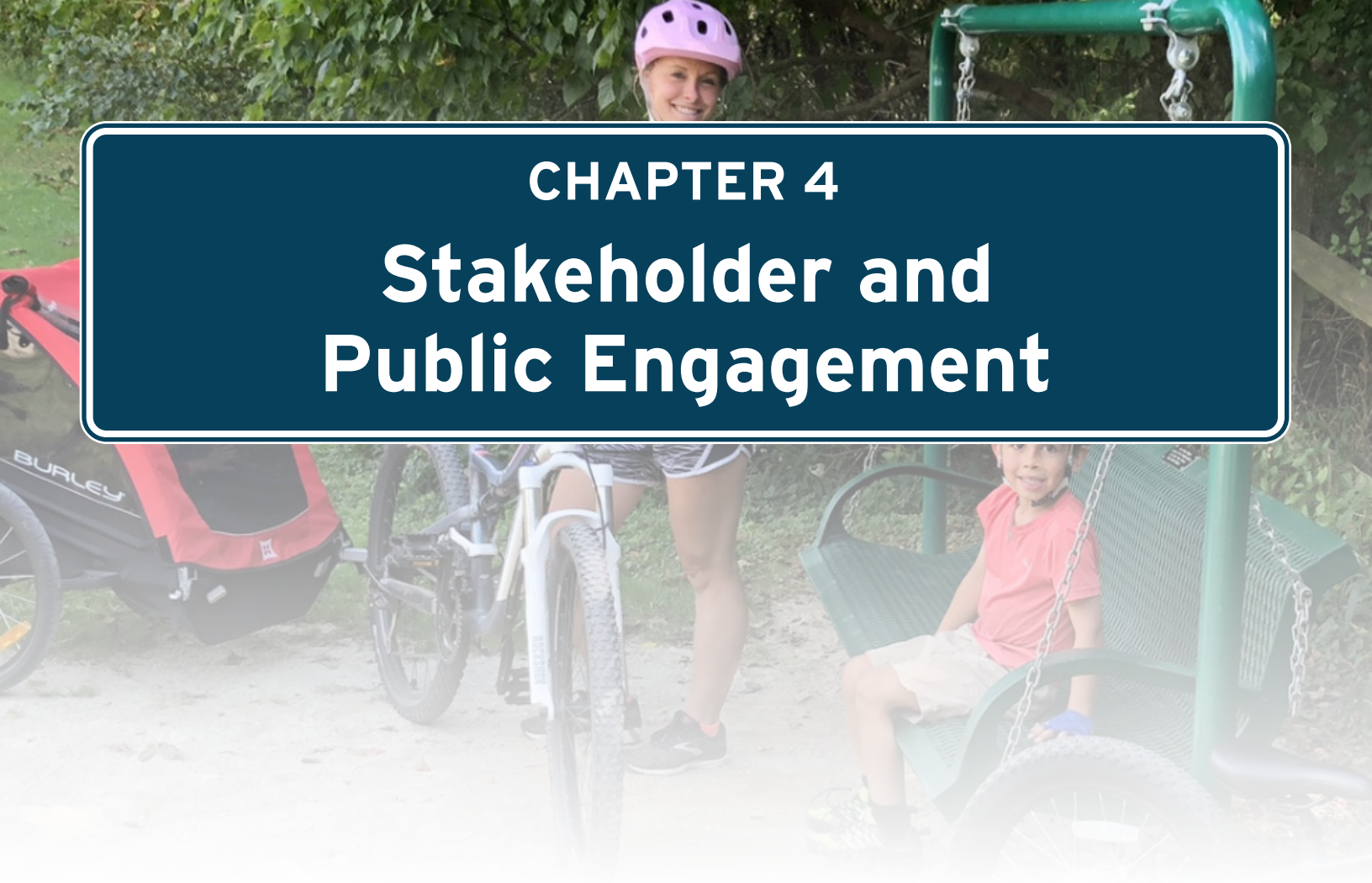
Crash Type Disproportionate for Race/Age Group Share of Population

Table 3.5: Population Representation Among Crash Types - Age

Impacted Communities

SSWNC evaluated spatial relationships between high rates of fatal and serious injury crashes and areas with socioeconomic disadvantage. The analysis assessed and mapped three measures: the NCDOT Transportation Disadvantage Index (TDI); the Social Vulnerability Index (SVI), developed by the Centers for Disease Control and Prevention (CDC); and Median Household Income.

The analysis did not reveal strong spatial correlations between crash rates and these socioeconomic indicators. The Technical Appendix contains additional analysis and mapped references.



CHAPTER 4
Stakeholder and Public Engagement

The FBRMPO / LOSRPO developed the SSWNCPlan in response to the people of WNC who seek safer streets. Community voices not only inspired this plan but also shaped it through both online and in-person engagement efforts, as detailed in this chapter. Gathering a shared vision for roadway safety across five counties required a strategy that was both broad in reach and targeted in approach. Four core goals guided outreach in this project as illustrated in Figure 4.1.

Engagement activities for SSWNC began in April 2024 and concluded in June 2025. The initial phase focused on building a strong foundation of stakeholder and leadership support for SSWNC. Once that base was established, the project team invited the public to share their experiences, concerns, and ideas related to roadway safety. Figure 4.2 outlines the key engagement activities conducted throughout the process.

Figure 4.1: Community Engagement Goals

Core Stakeholders

Building safer streets starts with the individuals and agencies leading this work—NCDOT, local governments, and regional partners. To engage these key stakeholders, the SSWNC Plan established a Technical Steering Committee (TSC) made up of subject matter experts in safety, transportation, planning, and engineering. The planning team convened the TSC three times over the course of the project. The committee included representatives from each county, several major towns and cities, and NCDOT.

In August 2024, the planning team hosted three focus group meetings with the TSC and other core stakeholders. Each meeting centered on one or more of the five objectives of the Safe System Approach, providing a framework for cross-agency collaboration and laying the groundwork for effective plan implementation. The planning team integrated key ideas from these discussions into the final action plan.

In spring 2025, core stakeholders participated in two webinars focused on sharing data, gathering feedback on proposed countermeasures and safety strategies, and identifying tools to support implementation. Stakeholder priorities included improving access to user-friendly data, building advocacy and public awareness, advancing supportive policy, and expanding training and education opportunities.

A Note About Hurricane Helene

Western North Carolina experienced unprecedented devastation and loss following Hurricane Helene, which arrived as a tropical storm to the mountains of NC on September 27, 2024. Like many that encountered Hurricane Helene, the SSWNC team was challenged to rethink its overall engagement strategy, a critical piece of the project.

Ultimately, post-Helene engagement activities for SSWNC were put on pause for five months to allow partners and members of the community to focus on response, recovery, and rebuilding. Sensitive to the new working and living realities of many, in February 2025, the Team re-launched engagement activities, adjusting the overall approach to reduce the barrier to participation and emphasize how SSWNC can help open doors to funding and implementation.

Figure 4.2: SSWNC Engagement Timeline

Leadership & Staff

Bringing core stakeholders together with elected officials and leadership is critical to success of a plan like SSWNC. To achieve this, the team hosted two Regional Safety Summits, scheduled at the beginning and end of the project (June 4, 2024 and June 5, 2025). The intention of these events was to engage partners and initiate action. The Summits helped establish SSWNC and set the project on a long-term path for success.

People of WNC

In late summer 2024, the SSWNC team designed an outreach strategy to connect with a broad and diverse range of people across the region. The goal was to attend four existing community events—meeting residents where they are—and spark conversations with questions like, "What's your traffic safety story?" However, the first of these events was scheduled for September 27, 2024—the day Hurricane Helene struck Western North Carolina as a devastating tropical storm. In response to the widespread damage and ongoing recovery efforts, the team paused all engagement activities for five months.

By early April 2025, SSWNC resumed outreach by partnering with the Elevate 2050 team (the active FBRMPO Metropolitan Transportation Plan (MTP) planning effort) at three public meetings, where they connected with 47 community members from across the region. To complement the in-person outreach, FBRMPO and LOSRPO also launched an online survey and interactive StoryMap to share data findings and gather public input on safety perceptions and priorities.

Source: McAdams

Figure 4.3: Invitation to the Second Summit for SSWNC

A total of 162 people took the survey, resulting in the following key takeaways:

- Those driving an automobile are most concerned about safety due to narrow roads and lanes, sudden drop-offs, and lack of space on the side of the road.
- For those riding a motorcycle, similar concerns relate to the edge of the road, lack of shoulders, and road hazards.
- Lack of sidewalks is of most concern to people walking.
- In terms of behavior, respondents are most concerned about distraction, speeding, and sharing the road with others.
- There is a strong sentiment for improved sidewalks and off-road greenways and bike lanes.

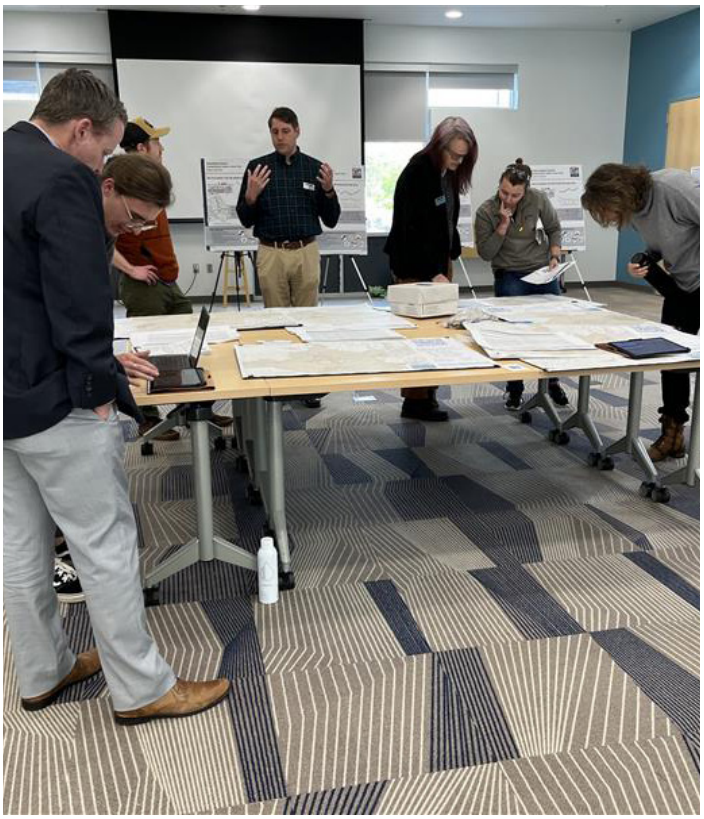
Safe Streets for WNC Stakeholders

The work of roadway safety is complex. Solutions are multi-faceted and often require collaboration across diverse subject matter. The work is successful when partners share values and commitment to safe systems. To build this coalition for SSWNC, the following people were asked to participate:

- Planners
- Elected officials
- School representatives
- Emergency responders
- Local managers
- Regional planners
- Public health representatives
- Public safety representatives
- Engineers
- Maintenance officials
- Transportation providers

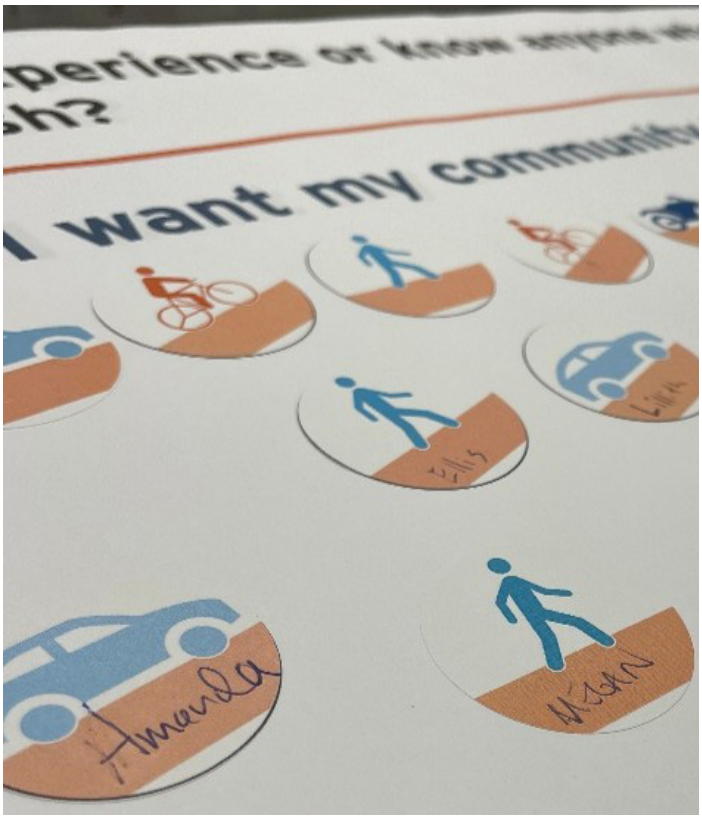
Source: McAdams

Image 4.1: SSWNC Summit on June 4, 2024



Source: McAdams

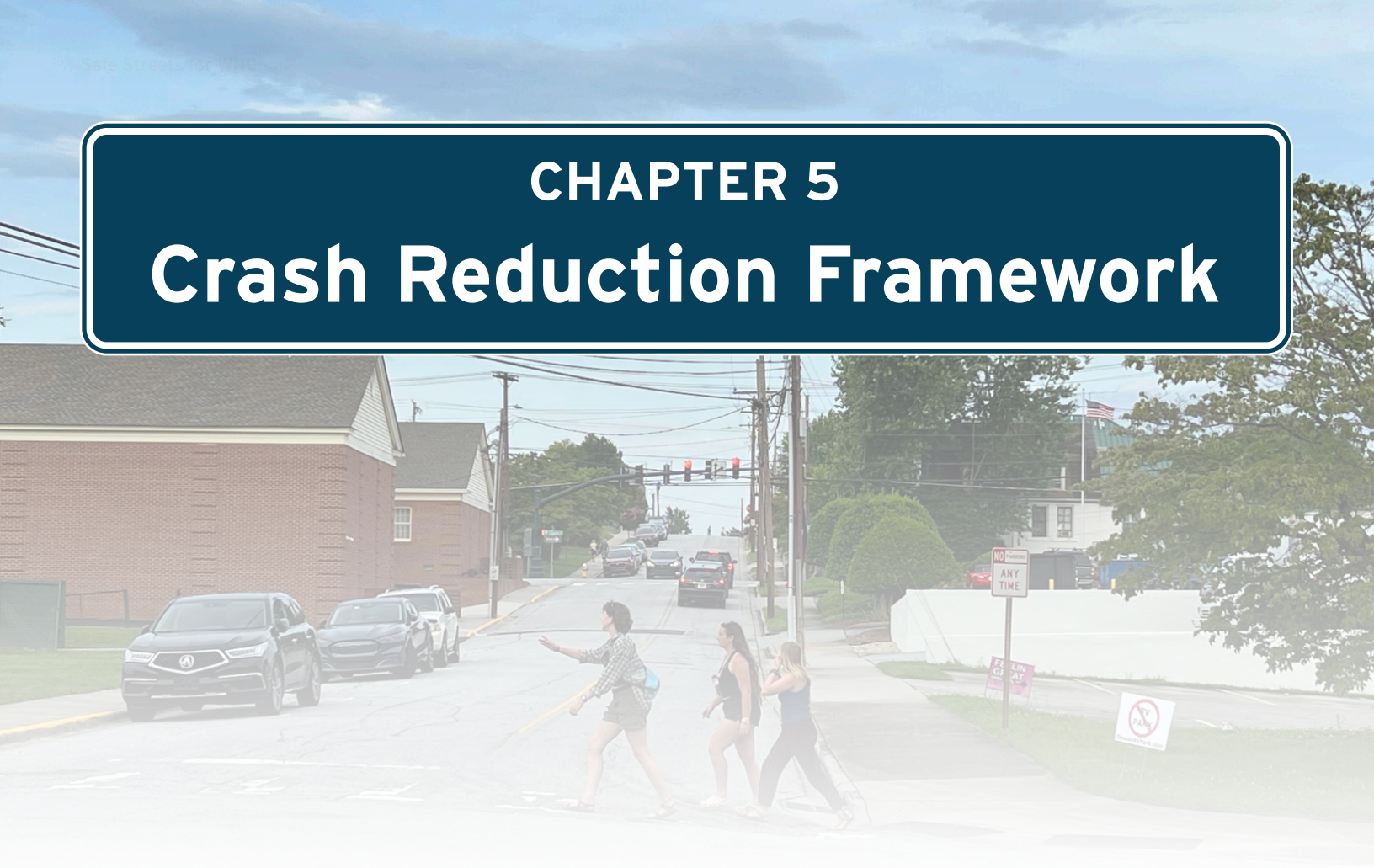
Image 4.2: Attendees at the April 10, 2025 Public Meeting



Source: McAdams

Image 4.3: "I want my community to improve safety for ..."

CHAPTER 5
Crash Reduction Framework



Goals

A key principle of the Safe System Approach is that ***death and serious injuries are unacceptable***. Proactively addressing safety can prevent these crash types. States and MPOs must coordinate and set targets annually for five safety performance measures as part of the Federal Highway Administration's (FHWA) Safety Performance Management (Safety PM) implementation [23 CFR Part 490.207]. Historically, FBRMPO adopted annual safety targets based on the longer term NCDOT goal, as described in the SHSP: to reduce deaths and serious injuries by half by 2035, moving towards zero by 2050.

Safe Streets for WNC Goal:

This region will achieve a 10% reduction in fatal and serious injury crashes by 2035, an additional 45% reduction by 2045, and move toward zero fatalities and serious injuries by 2050.

After researching different approaches to target setting and considering these recent trends, in 2025 the FBRMPO decided to set a different goal of a steady reduction in fatal and serious injuries in the short term, moving towards zero by 2050. This is consistent with the timeline for the 2050 MTP. The goal was further revised to reflect comments made by the FBRMPO advisory committee.

The SSWNC Plan includes other technical goals and strategies for the region. The SSWNC team worked with the TSC to develop such strategies that support each of the overarching goals for the plan. These goals purposely reflect the Safe System Approach, are comprehensive, and were developed by reflecting on safety data trends and stakeholder input.

Prioritization

All the strategies developed support the goals for the SSWNC Plan, but it is important to identify priorities for near-term implementation. Attendees at the Regional Safety Summit held in June 2025 categorized strategies into near-term and long-term actions based on their feedback, as shown in Table 5.1.

Near-Term

In the first ten years (2025-2035) of implementing SSWNC, partners will increase the installation of low-cost countermeasures, launch education programs addressing key crash types, and continue to develop safety projects through the NCDOT HSIP. The focus will include systemic improvements for lane departure, intersection, pedestrian, and bicyclist-related crashes along the HIN, informed by crash risks and safety needs.

Long-Term

Between 2036 and 2050, NCDOT, FBRMPO / LOSRPO, and its member agencies will continue implementing systemic improvements; larger-scale State Transportation Improvement Program (STIP) projects; and newly developed safety projects identified for the FBRMPO MTP update and as part of corridor studies, sub-area plans, local plans, and new (SPOT) projects. All plans and projects will use crash risk data and field reviews to proactively identify appropriate typical road sections, design speeds, and crash countermeasures.

> *"I think we need safer roads that are in good repair and the shoulders in safe working order with drainage ditches."*
>
> - Public Comment

Source: Greybeard Realty

Image 5.1: Charlotte Highway (Alt 74) in Fairview

Goal	Strategy	Implementation Timeline
Integrate the Safe System Approach into all policies and programs for a more consistent application of safety into plans and projects.	Create guidance focusing on countermeasures and typical sections appropriate to specific road types.	Near-term
	Increase on-site trauma care resources for EMS, including access to whole blood.	Long-term
	Create a tracking system for reporting safety-focused policy development and project implementation. Promote goals which align with short-term, medium-term, and long-term targets.	Near-term
	Monitor response times to severe crashes at outdoor recreation areas and other remote locations. Improve pre-emption and detection at signals as appropriate.	Long-term
Incorporate safety into development and disaster recovery projects to mitigate effects of rapid growth on traffic safety.	Review and develop land development practices for opportunities to incorporate safety. Address driveway access policies, flexibility for different contexts and economic conditions, and the traffic impact analysis to include safety and multimodal needs.	Near-term
	Collect more seasonal and weekend traffic data on high-risk roads to gauge impacts of tourism on road safety in recreational areas.	Long-term
	Integrate results of safety data analysis into local and regional long-range plans (i.e., MTP and CTP updates, comprehensive plans, multimodal transportation plans).	Near-term
Address severe speed related crashes through context-based speed management and traffic calming.	Participate in workgroups or discussions with NCDOT to inform state-level speed management plan and host local workshops on speed management.	Long-term
	Create an inventory of roadway elements, risks, design features, signs and markings along high-risk roads for lane departure and speed.	Long-term
	Prepare a regional model traffic calming guide that local governments, particularly smaller municipalities, can implement.	Near-term
	Perform speed studies, review posted speed limits and consider speed management strategies for a variety of contexts.	Long-term
Commit to a regional culture of safety by partnering with the media, educating elected officials, and improving communication with NCDOT.	Develop a safety-focused Communications Guide for local media, local governments and community organizations.	Long-term
	Improve the process for coordinating with NCDOT to discuss safety needs and communicate decisions to implement safety improvements.	Near-term
	Conduct annual gatherings to discuss current safety culture and provide education sessions for local staff and elected leaders.	Near-term
Leverage the capacity of funds for implementing safety projects through staff training, corridor safety assessments, and enhanced project delivery.	Offer training and guidance to local agencies for countermeasure selection and project development. Focus on increasing capacity to leverage funding for safety projects.	Near-term
	Provide technical support for conducting Road Safety Assessments (RSAs) or other safety studies.	Long-term
	Pursue and assist with grant writing to increase local law enforcement capacity and safety project funding.	Near-term
Increase awareness of risks and potential strategies to improve safety for focus populations and vulnerable road users.	Develop and launch comprehensive community education programs, similar to and potentially led by the FBRMPO and LOSRPO Safe Routes to School (SRTS) program "Generational Driving for a Culture of Safety" focusing on all roadway safety.	Long-term
	Increase training for local law enforcement agencies and compliance for reporting crashes, following state standards.	Long-term
	Develop bicycle and pedestrian safety plans at the community level.	Near-term
	Expand transit to underserved and older populations in areas with significant trends or risks for fatal and serious injury crashes.	Long-term

Table 5.1: SSWNC Goals and Strategies

Priority Strategy Action Plan

Ten strategies were identified as near-term priorities for the region. The following section outlines more specific performance measures, implementation leads, and initial actions to be considered as the region and local partners initiate implementation of the SSWNC Plan.

Performance Measures

All MPOs, including the FBRMPO, are required to track and report the following safety performance measures to FHWA:

- Number of fatalities
- Fatality rate, per 100 million Vehicle Miles Traveled (VMT)
- Number of serious injuries
- Serious injury rate, per 100 million VMT
- Number of non-motorized fatalities and serious injuries

The SSWNC Plan identified additional performance measures for near term priority strategies to monitor how the region will track and evaluate implementation progress. Performance measures include measures of outputs (e.g., levels of activity with stakeholders) and measures of outcomes (e.g., quantities of programs or projects implemented). The FBRMPO / LOSRPO should consider the performance measures described in this plan when reporting on progress to implement the SSWNC Plan.

Implementation Leads and Partners

The plan identified one or more types of agencies or partners who may lead a specific strategy for priority strategies. The FBRMPO / LOSRPO will lead strategies that involve regional coordination, include regional transportation planning activities, or affect discretionary funding programs that FBRMPO administers.

Local Agencies

Local agencies, including municipalities and counties in the region, will lead strategies within their jurisdiction such as including safety in local Capital Improvement Programs (CIPs), maintenance projects, local plans and studies; pursuing competitive grants for increased capacity to deliver safety projects; and enforcing violations of traffic laws.

NCDOT

NCDOT will lead strategies that require coordination with the Traffic Safety Unit (Regional Traffic Engineer), such as performing Road Safety Audits (RSAs) on state-system roads, pairing funds with the HSIP for project implementation, and setting annual safety targets.

Emergency Medical Services and Law Enforcement

Emergency Medical Services (EMS) and law enforcement officials will continue to play a vital role in treating crash victims on the scene and transporting them to medical services in a timely manner. Law enforcement will continue to intervene when people using the transportation system are operating in an unsafe manner and potentially causing crashes that seriously injure or kill themselves, passengers or others on the roadway. These interventions can include traditional enforcement campaigns in high-crash areas and community outreach.

Other Partners

Other partners, such as the business community, the news media, health and social service agencies, and advocacy organizations will lead strategies that focus on the larger population. These strategies will emphasize private-sector policies that promote safer vehicle operations, advocate for engineering countermeasures, and support education programs tailored to target populations.

The university research community is another partner in implementing actions identified in the SSWNC Plan. The University of North Carolina (UNC) Highway Safety Research Center (HSRC) and the North Carolina State University (NCSU) Institute for Transportation Research and Education (ITRE) research the benefits of safety improvements in North Carolina. These university organizations also work with members of the NC Vision Zero Statewide Task Force and the NC Vision Zero Initiative to convene local agencies across the state to share best practices for traffic safety. Traffic safety is a critical part of training the next generation of planners and engineers.

Source: McAdams

Image 5.2: Spot Safety RRFBs on Overlook Road in Asheville

The 10 Initial Actions

The following are intended to be a starting point for near-term actions. Local and regional partners should discuss and create detailed implementation activities prior to initiating work.

1 Create guidance focusing on countermeasures and typical sections appropriate to specific road types.

PERFORMANCE MEASURE:
Guidance document(s) developed.

IMPLEMENTATION LEAD AGENCY(S):
LOSRPO / FBRMPO

INITIAL ACTIONS:
The LOSRPO / FBRMPO will work with local governments in the region to identify types of roadway contexts (focusing on multi-lane arterials) and gaps in countermeasure selection guidance; the regional organizations will convene a workgroup including local governments and NCDOT to develop an approach or scope of work for the guidance.

2 Create a tracking system for reporting safety-focused policy development and project implementation. Promote goals which align with short-term, medium-term, and long-term targets.

PERFORMANCE MEASURE:
Tracking system established.

IMPLEMENTATION LEAD AGENCY(S):
LOSRPO / FBRMPO

INITIAL ACTIONS:
The LOSRPO / FBRMPO will develop a process and schedule for reviewing goals and strategies identified in the plan, and the regional organizations will create a method for tracking implementation across the region with local and state partners. The LOSRPO / FBRMPO will coordinate with local governments and NCDOT to document progress per performance measures outlined in the safety plan.

3 Review land development practices for opportunities to incorporate safety. Address driveway access policies, flexibility for different contexts, and traffic impact analysis to include safety and multimodal needs.

PERFORMANCE MEASURE:
Number of development policies reviewed or updated.

IMPLEMENTATION LEAD AGENCY(S):
Local governments

INITIAL ACTIONS:
Local governments in the region will review current development ordinances and traffic analysis guidelines—particularly in urban and developed areas—to evaluate safety data at specific sites and determine how engineering countermeasures can be incorporated into design standards. Training for local governments will provide best practices for including safety in development policy.

4 Integrate results of safety data analysis into local and regional long-range plans (e.g., MTP and CTP updates, comprehensive plans, multimodal transportation plans).

PERFORMANCE MEASURE:
Number of plans or proposed projects developed using safety data tools.

IMPLEMENTATION LEAD AGENCY(S):
LOSRPO / FBRMPO

INITIAL ACTIONS:
The FBRMPO will consider safety data in the 2050 MTP as a criterion for project prioritization; the LOSRPO will work with NCDOT to include safety data and analysis in future county-level CTP updates; the FBRMPO will revise guidelines for local governments to follow when developing plans and locally administered projects (financially supported by the MPO) to consider safety data and focus crash types identified for the region.

5 Prepare a regional model traffic calming guide that local governments, particularly smaller municipalities, can implement.

PERFORMANCE MEASURE:
Guidance document(s) developed.

IMPLEMENTATION LEAD AGENCY(S):
LOSRPO / FBRMPO

INITIAL ACTIONS:
The LOSRPO / FBRMPO will work with local governments in the region to develop an approach or scope of work for model or example guidance for implementing traffic calming measures on local streets.

6 Improve the process for coordinating with NCDOT to discuss safety needs and communicating decisions to implement safety improvements.

PERFORMANCE MEASURE:
Meetings between NCDOT and local agencies focusing on safety needs and projects.

IMPLEMENTATION LEAD AGENCY(S):
LOSRPO / FBRMPO, NCDOT, and Local governments

INITIAL ACTIONS:
Local governments and NCDOT (including representatives from the Division and the Regional Traffic Engineer) will meet on a regular basis (frequency determined by each agency) to discuss local safety needs and locations to be reviewed for potential safety projects.

7 Conduct annual gathering to discuss current safety culture and provide education sessions for local staff and elected leaders.

PERFORMANCE MEASURE:
Annual workshop or event.

IMPLEMENTATION LEAD AGENCY(S):
LOSRPO / FBRMPO

INITIAL ACTIONS:
The LOSRPO / FBRMPO will coordinate with local governments, NCDOT and elected officials in the region to organize a regional safety workshop to share promising practices for improving safety culture and developing a larger pipeline of safety projects.

8 Offer training and guidance to local agencies for countermeasure selection and project development. Focus on increasing capacity to leverage funding for safety projects.

PERFORMANCE MEASURE:
Number of training events offered.

IMPLEMENTATION LEAD AGENCY(S):
NCDOT

INITIAL ACTIONS:
NCDOT will meet with local governments in the region to discuss knowledge and technical gaps in scoping projects and selecting countermeasures within local projects or proposed STIP projects; NCDOT will develop and provide training to local agencies and discuss opportunities to pair funding to deliver safety projects.

9 Pursue and assist with grant writing to increase local law enforcement capacity and safety project funding.

PERFORMANCE MEASURE:
Number of grant applications developed.

IMPLEMENTATION LEAD AGENCY(S):
Local governments

INITIAL ACTIONS:
Local governments (including local law enforcement officials) will identify potential projects or programs that may be eligible for discretionary grants or competitive funding, such as grants managed by the NC Governors Highway Safety Program or the USDOT; local governments will coordinate with NCDOT as needed to develop grant applications or secure letters of support.

10 Develop bicycle and pedestrian safety plans at the community level.

PERFORMANCE MEASURE:
Number of local safety plans developed.

IMPLEMENTATION LEAD AGENCY(S):
NCDOT and Local governments

INITIAL ACTIONS:
NCDOT will identify communities in the region that are over-represented for severe bicycle and pedestrian crashes and will collaborate with local governments to discuss opportunities for local safety planning.

Source: OurState

Image 5.3: Highway 276 in Transylvania County

Project and Site Review Priorities

The SSWNC team identified and prioritized potential project locations using the plan's analytical methods. These locations represent early opportunities to align planned and funded efforts with key safety priorities, while also serving as a foundation for future planning. Priority Locations include segments of the High-Injury Networks (HINs) within urban areas and on non-access-controlled highways, as well as areas extending beyond municipal boundaries. Local agencies will further refine these priorities based on contextual factors such as land development patterns, community needs, and planning constraints.

Additional selection criteria included sites within Traffic Analysis Zones (TAZs) projected to see the highest relative increases in fatal and serious injury crashes, based on the Crash Prediction Model (see Technical Appendix). While Priority Locations help guide local planning, NCDOT's Highway Safety Improvement Program (HSIP) will continue to develop and implement safety projects independently of HIN or Priority Location designation. Broad implementation of safety strategies across all FBRMPO and LOSRPO projects is expected to accelerate reductions in severe crashes.

Refer to the Technical Appendix for the list and corresponding map showing these priorities for review.

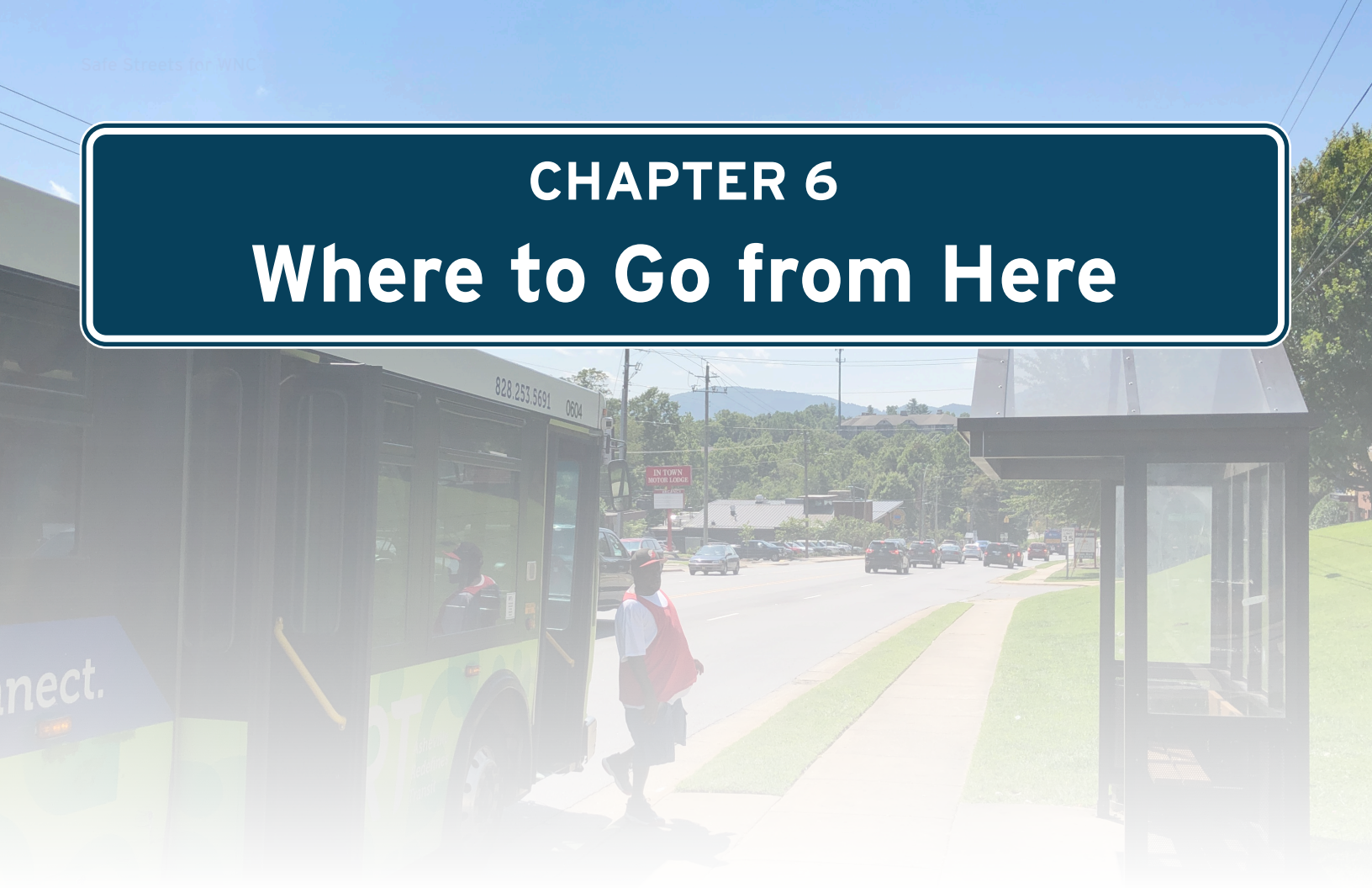
WHERE TO BEGIN: CRITERIA FOR SAFETY REVIEW

When deciding where to focus first, consider whether the location meets one or more of these criteria:

- High-Injury Network (HIN) – Is it on one or more identified HIN corridors?
- Not Along an Access-Controlled Highway – Does it occur along a freeway or expressway?
- Municipal or Developed Area – Is it within a town, city, or urbanized area with concentrated activity?
- Growth Pressure – Is the area expected to grow rapidly, increasing travel and crash risk?
- Existing Safety Review – Is the site already being evaluated through the Highway Safety Improvement Program (HSIP) or similar initiatives?

The Elevate 2050 FBRMPO MTP was being updated concurrent to the development of the SSWNC Plan. The FBRMPO included information such as whether the proposed MTP project was on a SSWNC HIN or in a TAZ predicted for high increases in fatal and serious injuries over the next 25 years to prioritize MTP projects. The FBRMPO is also using the SSWNC Priority Locations to rank projects for potential funding in the 2028-2037 North Carolina Statewide Transportation Improvement Program (STIP).

CHAPTER 6
Where to Go from Here



Local governments in Western North Carolina are navigating increasing road safety challenges amid rapid growth, limited roadway authority, and constrained financial and staffing resources. The arrival of Hurricane Helene further strained these conditions—devastating communities, disrupting routine operations, and requiring local leaders and staff to shift focus toward disaster response and recovery. In light of these pressures, the SSWNC Plan is designed to be a practical resource for local partners. The following section outlines how partners in traffic safety can use this plan to support safer streets and save lives.

How to Use this Plan

This section describes three primary steps that partners will want to pursue once they have identified a location with a safety issue.

All locations identified using the SSWNC process on NCDOT roads should be discussed with the NCDOT Regional Traffic Safety Engineer (RTE) prior to considering potential countermeasures. This coordination may provide valuable information or insights—such as detailed crash analyses or findings from a recent NCDOT HSIP review.

Step 1: Scope the Project Using Data

Data produced as part of the SSWNC Plan should be used to advance all proposed transportation projects, including large scale projects managed by NCDOT as identified in the STIP, or smaller scale locally administered projects. When reviewing a potential project site, answer the following questions:

- Is the project on the HIN? Determine project presence on the HIN or whether it was previously flagged by the NCDOT HSIP for review.
- What is the safety problem or crash risk? Describe the current safety issues and use data produced by this plan to review the location (intersection, segment, or corridor).
- What are the existing conditions? Document the site characteristics, including the existing facilities for pedestrians and bicyclists, and determine whether the location is managed for access.

The scoping process should consider the additional data and questions provided by Table 6.1.

Source: McAdams

Image 6.1: North Mills River Road

Location Characteristics	Existing Conditions
High Injury Network	Type of HIN (see HIN maps)
Lane or Intersection Configuration	Number of lanes at segment or by approach to intersection (review aerial imagery or site visit)
Traffic Volumes	AADT (see exposure maps)
Speeds (Observed or Posted)	Posted or observed speeds as Miles Per Hour (see severity maps for observed 8th weekday speeds)
Pedestrian Facilities	Sidewalk present?
Bicycle Facilities	Designated bike lanes or separated path present?
Transit Facilities	Bus stops or shelters present?
Land Use Context	Urban Core, Urban, Suburban, Rural Town or Rural (see Block Group Classifications - Context maps)
Access Management	Center median or restricted turning movements?
High Crash Risk Types	Intersection Intersection: Bike/Ped Bicycle Pedestrian Lane Departure Motorcycle Speed-Related

Table 6.1: Example of Information Recorded in the Safety Scoping Process

Step 2: Identify Countermeasures

When reviewing a location, potential countermeasures (roadway or transportation features designed to address specific safety issues) may be identified. The SSWNC Safety Countermeasure Library, included in the Technical Appendix, helps regional agencies match safety problems with effective solutions. Countermeasures are organized by crash type—such as bicycle, intersection, lane departure, motorcycle, pedestrian, speed, and others—and are selected based on their proven effectiveness in reducing the severity and frequency of crashes at specific sites.

The library includes a "How to Use This Document" guide, explaining each countermeasure's application context (urban or rural), expected crash reduction benefits, implementation costs, and links to additional resources. It also highlights key fatal and serious injury crash data, such as the percentage of crashes occurring during daytime versus nighttime and the distribution across route classifications for each countermeasure type.

Source: McAdams

Image 6.2: Crosswalk at Weaverville Town Hall

Crash Type
PEDESTRIAN

COUNTERMEASURE TYPE:

CROSSING IMPROVEMENTS

Pedestrian crossings account for 30-40% of fatal and serious injury crashes involving pedestrians. The distance between safe crossings, visibility and yielding compliance at the crossing, length of the roadway crossing, and speed of oncoming traffic are all factors affecting the risk of a severe pedestrian crash.

KEY SELECTION FACTORS:

Traffic volume, number of lanes and speed are critical considerations for selecting crossing treatments at uncontrolled or midblock locations. Additional traffic controls or visibility improvements should be considered at crossings where traffic volume exceeds 10,000 vehicles per day or traffic speeds over 40 miles per hour. High visibility crosswalks and lighting should be present at all uncontrolled crossings.

Specific Countermeasures	Urban or Rural	CRF%	Impact	Cost
Pedestrian Fencing	Urban	12	All	$
School Zone Improvements	Urban	13	K,A,B,C	$$
Relocated or Improved Crossings at Bus Stops	Urban	81.9	All	$$$
Crosswalk with Multiple Improvements	Urban	50	All	$$$
Rectangular Rapid Flashing Beacon (RRFB)	Urban	47	All	$$$
Curb Extensions/Bulb Outs	Urban	N/A	N/A	$$
Parking Restrictions/Daylighting	Urban	N/A	N/A	$$
Pedestrian Hybrid Beacon (HAWK)	Urban	55	All	$$
Raised Pedestrian Crosswalk	Urban	46	A,B,C	$$
Raised Median with Marked Crosswalk (Uncontrolled)	Urban	32	All	$$
Crosswalk	Urban	25	All	$$

Figure 6.1: Example from the SSWNC Countermeasure Library

Step 3: Seek Partners

We are all in this together. To save lives and reduce serious injuries on our roads, collaboration is essential.

After the safety problem and possible solutions are identified, partners will want to come together to work towards safer streets in WNC. A safer future starts with a commitment from everyone in the region to prioritize safety in their values, actions, and behaviors. Leaders and partners for improving safety in WNC include the entities and roles described in Table 6.2.

Source: McAdams

Image 6.3: Bench and Crossing of Old Charlotte Highway in Asheville

Partner	Roles
Local Elected Officials	Adopt policies and fund projects that align with SSWNC and the Safe System Approach. Prioritize safety in conversations with their constituents and other key stakeholders in our community, relying on data to guide discussions and decisions. Advocate for improving transportation safety through innovative approaches within their engineering, planning, and enforcement departments.
Planners, Designers, and Engineers	Develop plans and policies that emphasize roadway safety. Create standards to reduce risk. Design streets and public spaces with safety at the forefront.
NCDOT, FBRMPO, and LOSRPO	Adopt policies that increase safety and access. Prioritize projects that show the greatest safety benefit for all users. Partner with school communities through the Land of Sky Safe Routes to School Program.
Law Enforcement	Share experiences. Lead conversations on safety behavior. Thoughtfully document crashes to support reporting and analysis.
Emergency Response Services	Identify opportunities to improve post-crash care. Share stories and experiences. Speak to the importance of safer streets and roads.
Major Institutions, Business Community, and Private Developers	Emphasize roadway safety. Design sites and campuses for safer speeds and access. Educate staff, employees and visitors on safety practices.
Community Members and Advocates	Leverage connections to advance projects, increase visibility, and build momentum. Participate in public outreach and advisory committees. Assist with community events and education efforts. Help secure community and philanthropic support. Promote safer streets for community good.

Table 6.2: Partners and Roles in the Work of Building Safe Streets

What We're Currently Doing

Even before the adoption of the SSWNC Plan, the project was impacting other planning efforts and prioritization in the region.

FBRMPO

The Elevate 2050 Metropolitan Transportation Plan (MTP) was developed concurrently with the SSWNC Plan. To ensure consistency, FBRMPO aligned Elevate 2050's goals with the priorities established by SSWNC, and project prioritization within Elevate 2050 relied on the High-Injury Network (HIN) and crash risk analyses from SSWNC. As the region's 25-year transportation vision, Elevate 2050 is grounded in the Safe System Approach—a strategy designed to save lives and reduce serious injuries across the region.

Local Government

Many local government partners in the region are using the tools and data from SSWNC to inform decision making, guide long-range planning, and inform funding decisions.

The City of Asheville is:

- Using data to prioritize transportation-related maintenance projects
- Using the countermeasure glossary to identify the best approach to safety problems in urban settings
- Using data to elevate the need for transportation safety projects

The City of Hendersonville is using data to:

- Inform bond referenda and local resurfacing programs
- Identify corridors where developers should include safety or multimodal considerations in their TIA process
- Advocate to NCDOT for corridor studies and where to include safety in the scope of the project

Transylvania County is also using data:

- In their 2050 Comprehensive Plan Update
- To understand risks link to their aging population and tourism pressures

Source: McAdams

Image 6.4: City of Asheville Annual Bicycle and Pedestrian Survey 2024

NCDOT

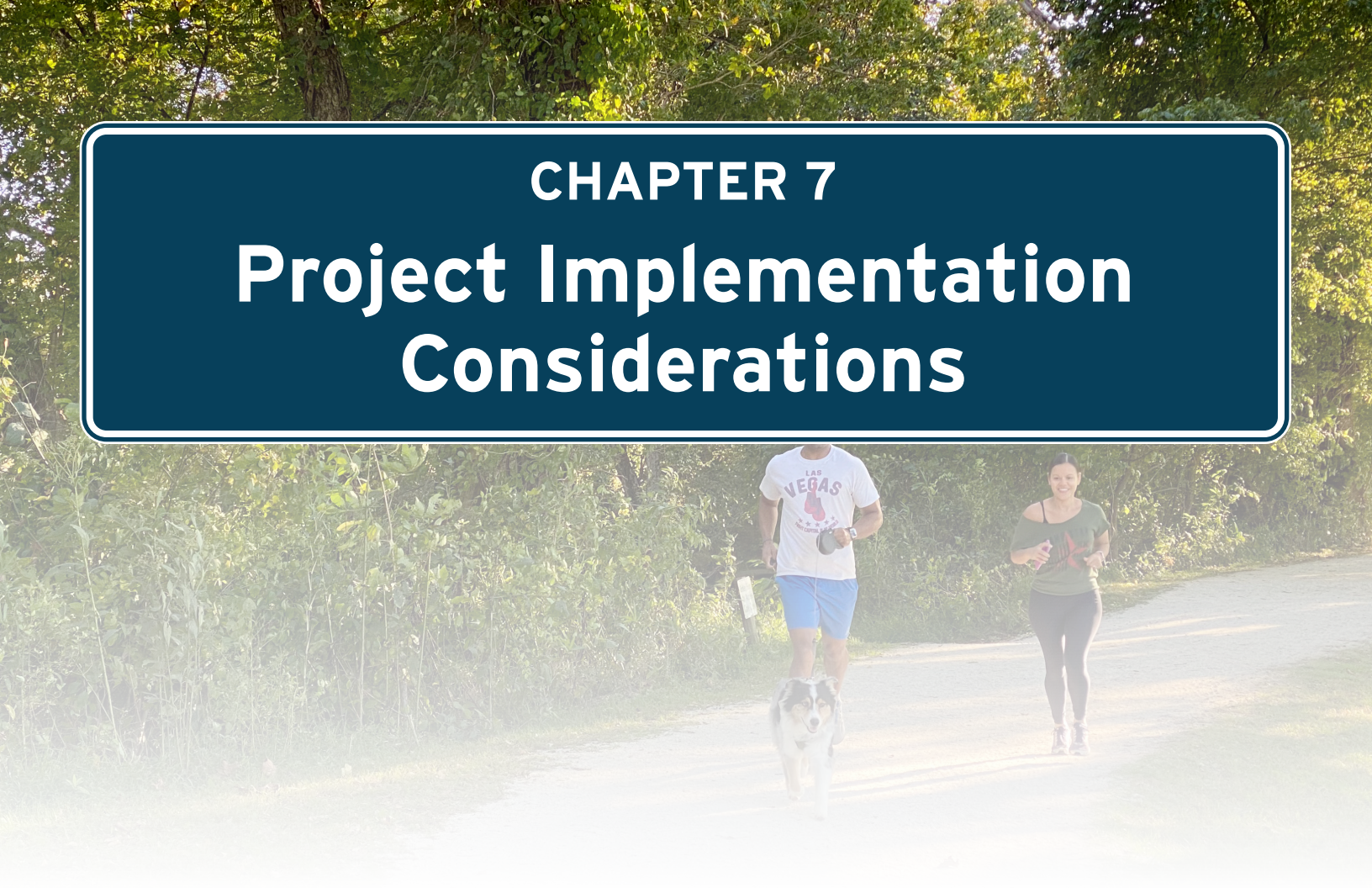
Each year, the NCDOT safety program identifies and initiates several new projects across the region, which are designed and constructed by the local NCDOT Division. Current projects under the Highway Safety Improvement Program (HSIP) include sidewalk and pedestrian signal installations on US 19/25 Smokey Park Highway in Asheville and US 19 in Lake Junaluska; Rectangular Rapid Flashing Beacons (RRFBs) on US 64 and NC 191 in Hendersonville; and a Pedestrian Hybrid Beacon (PHB) on US 64 at the Estatoe Trail Crossing in Brevard. Current projects underway through the Spot Safety Program include all-way stop installations at rural intersections in Buncombe County, wildlife crossings, a PHB on US 19-23 in Clyde, and rumble stripes along roads in Flat Rock.

Source: Google

Image 6.5: RRFB on the Ecusta Bypass Roundabout in Brevard

Source: VHB

Image 6.6: West State Street in Black Mountain



CHAPTER 7
Project Implementation Considerations

Safer Roads Design

The roads in the SSWNC region have various purposes and safety needs. Local system roads (not maintained by NCDOT) connect people to neighborhoods and small commercial centers, comprising most (58%) of the regional roadway network miles. NCDOT maintains approximately 29% of the roadway network miles as Secondary Routes that primarily connect rural communities to major state routes. The state designates 7% of the roadway network mileage as US or NC routes, which serve as regional collectors and arterial highways connecting to major urban centers in the region and beyond. Interstates and Federal routes (such as the Blue Ridge Parkway) comprise the smallest share of roadway mileage in the region (less than 6%).

Roadways designated as NC and US Routes are most overrepresented for fatal and serious injury crashes relative to mileage of these roadway route types – with 43% of severe crashes occurring on US and NC Routes. The share of fatal and serious injury crashes on US Routes is especially noteworthy – representing 30% of these crashes on only 3% of regional roadway mileage. More than half of fatal and serious injury crashes on US Routes occurred on multi-lane roads, with most of these along undivided highways. Two-lane, undivided roadways in rural areas – primarily NCDOT-owned Secondary Routes – accounted for over 50% of all fatalities and serious injuries in the region. Improving the design of two roadway types in the region – multi-lane, undivided arterials and US Routes, as well as two-lane, undivided rural Secondary Routes – significantly reduces fatalities and serious injuries.

The NCDOT Transportation Mobility and Safety Division analyzes crash rates for these and all route types in all contexts in the state, calculating a Fatal Crash Rate for categories based on frequency of fatal crashes per 100 million vehicle miles of travel. As a point of comparison, the statewide Fatal Crash Rate for all route types and contexts is 1.25. The best performing route class is interstates in urban contexts (Fatal Crash Rate of 0.44); the poorest performing route class is Secondary Routes in rural contexts (Fatal Crash Rate of 2.47). More specifically, two-lane, undivided rural Secondary Routes have a Fatal Crash Rate of 2.50. Multi-lane, undivided US Routes (in urban and rural contexts) have a fatal crash rate of 1.66. When these same roadways are under full control of access, the Fatal Crash Rate is dramatically lower (0.59). **Simply put, fatal crashes on multi-lane US Routes without raised medians or access control occur 2.8 times more often than on multi-lane US Routes roads with these features.**

Between 2017 and 2024, collisions with fixed objects, left-turn crashes, and vulnerable road user crashes accounted for over 50% of all fatal and serious injury crashes in the region. Features like rumble stripes, raised medians, roundabouts, sidewalks, and protected crossings enhance driver awareness and reduce left turn options, thereby mitigating crash types. The SSWNC Safety Countermeasure Library presents multiple safety treatment alternatives for review during project development. Partner agencies should prioritize countermeasures that have demonstrated a higher success rate in reducing severe crashes. Table 7.1 highlights examples of these highly effective strategies.

Source: Greybeard Realty

Image 7.1: Charlotte Highway (Alt 74) in Fairview

Countermeasure	How Does This Improve Safety?	Crash Reduction Factor
All Way Stop improvement	Increases safety at low volume and rural intersections.	72-87%
Curve warning signage	Minimizes lane departure crashes at curves.	33%
Lighting along segments	Improves visibility for all roadway users between intersections.	28-69%
Single-lane roundabouts	Reduces conflict points and speeds while improving safety at intersections.	55-78%
Sidewalks	Provides separated space for people walking while walking along the roadway.	74%
Raised medians	Minimizes frontal impact and turning-movement crashes.	22-39%
Pedestrian signal or crossing improvements	Provides more visible or protected crossings.	25-55%
Rumble stripes	Increases driver awareness of potential lane departure crashes.	22-40%
Bike lanes	Provides dedicated travel space for people biking.	41-63%

Table 7.1: Safety Countermeasures and Their Effectiveness

Deploying these countermeasures system-wide amplifies the resulting safety benefits. Partners in the SSWNC region will be most successful if they review all projects, note safety data and crash patterns in project scopes, and document and celebrate project decisions for addressing safety. Safety elements identified early in project scoping process should be preserved throughout implementation to prevent compromising safety outcomes. The following are principles to follow when scoping roadway projects within the SSWNC region:

- **Establish safety objectives and performance measures** during project scoping for all projects reviewed for STIP funding in the region.
- **Review all relevant safety performance measures and data** – including documented safety studies, crash patterns, and risk analyses – for every project carried out by NCDOT Divisions in the region, including routine maintenance efforts under the HMIP program.
- **Prioritize implementation of Complete Streets** where crash history, risk, or context indicate pedestrian and bicycle activity. Address separation of roadway users by incorporating guidance for bikeway and pedestrian network facility selection in all multimodal corridor studies.
- **Include first responders (EMS, police) during plan development** to consider crash response needs.
- Include specific tasks or deliverables in area plans and corridor studies to **include safety-specific analyses and field investigations** to develop countermeasure proposals (such as Road Safety Assessments).
- Anticipate and proactively **educate the community early in project development about the safety benefits of certain proposed countermeasures** (such as raised medians, roundabouts, and road diets) for how they can address severe crash types such as lane departure and intersection-related crashes.
- **Document decisions and report on how all projects selected and designed in the region will address safety problems** based on proven countermeasures and applicable safety performance measures.

Developing Projects per the Safe System Approach

The FBRMPO, LOSRPO, and local agencies will explore multiple approaches to implement the strategies outlined in the Crash Reduction Framework for the SSWNC plan. These approaches serve as pathways for developing engineering projects and are selected based on the complexity of the safety issue and the depth of analysis required to identify effective countermeasures or engineering solutions.

Each approach focuses on improving the design of existing roadways to reduce the risk of future crashes or to mitigate the severity of potential crashes:

- Corridor Analysis
- Intersection Improvement
- Modernization Study
- RSA
- Systemic Application
- Speed Management and Traffic Calming

The Safe System Approach calls for a tiered approach when improving the design of an existing road, as shown in Figure 7.1. FHWA ranks these tiers based on their effectiveness in reducing severe crashes. The first tier focuses on eliminating severe conflicts between roadway users. Agencies typically achieve this by adding vertical separation features—such as raised medians and sidewalks—or by redesigning intersections to remove turning movement conflicts, like with roundabouts.

Source: Federal Highway Administration (FHWA)

Figure 7.1: Tiered Approach to Safe System Roadway Design

These improvements tend to be more costly and require detailed study and analysis. Implementation methods such as Corridor Analysis and Intersection Improvements prioritize removing these severe conflicts along the roadway or at intersections.

The second tier focuses on reducing vehicle speeds. Roadway context plays a critical role in determining preferred speeds for drivers. Speed Management and Traffic Calming sometimes require significant changes to the design of the roadway, but the typical approach is to apply lower-cost features (such as pavement markings, driver speed feedback signs, or adjustments to signal timing) to change the driver's expectation of an acceptable speed.

The third tier calls for decision-makers to manage conflicts in time, primarily by adjusting the phasing or timing of signalized intersections. These typically low-cost improvements complement efforts to reduce traffic speeds and enhance the visibility of roadway users. Road Safety Assessments (RSAs) help identify opportunities to optimize signal phasing or timing, and Systemic Application allows these changes to be implemented broadly across locations with similar crash risks and deficiencies.

The fourth tier calls for decision-makers to boost driver attentiveness and awareness at locations with known safety problems or high crash risks. Agencies can improve driver attentiveness and awareness by enhancing the visibility of pavement markings, adding signage to warn drivers of crash risks, installing traffic control devices to increase conspicuity at crossings, and alerting the roadway user of lane departures. Modernization Studies and RSAs prioritize these types of improvements to the roadway to correct safety problems in the near term.

Source: McAdams

Image 7.2: Merrimon Avenue near Lake Louise in Weaverville

Source: Greybeard Realty

Image 7.3: Charlotte Highway in Fairview

Project Funding

Federal Programs

The USDOT and NCDOT manage several funding programs to support local and regional transportation safety projects. The USDOT FHWA provides core federal aid funding to NCDOT specifically for safety and other transportation improvements. FHWA also allocates direct, discretionary funds to larger MPOs, which then distribute funding to local agencies for locally administered projects. Additionally, USDOT offers the SS4A grant program to help local, regional, and Tribal transportation agencies develop and construct infrastructure safety projects. Partners should consider all these federal funding sources as valuable resources to implement projects developed through SSWNC.

NCDOT Programmed Federal Funding

NCDOT programs core federal funds through its Strategic Transportation Investments (STI) process, known as SPOT. The SPOT ranking system evaluates safety alongside other scoring criteria. All projects programmed and implemented in the region should include SSWNC safety data, local input points, and any other issues noted through field review.

FBRMPO Federal Funding

FHWA also allocates direct, discretionary funds to larger MPOs such as FBRMPO, which then distribute funding to local agencies for locally administered projects. The FBRMPO receives approximately $5.5M in various federal funds that the MPO programs towards projects. These funds can play an important role for safety in the region by funding studies and projects that have a clear purpose for improving roadway safety. For example, FBRMPO can allocate a portion of the Unified Planning Work Program (UPWP) for studies or plans that help facilitate Road Safety Assessments. The FBRMPO can also allocate a portion of the UPWP to support staff time for internally focused activities to help implement the SSWNC.

The FBRMPO also distributes federal funding for locally administered projects, offering local governments an opportunity to address safety problems in local projects, but also requiring a non-federal match. The FBRMPO can require that local governments use SSWNC data to identify the types of crashes that have a high probability of occurring along the location of the locally administered project proposal. Local governments can scope projects to tackle a wide range of safety concerns by integrating targeted countermeasures.

FBRMPO can also pair federal funds managed for local projects with other safety program federal funds managed by NCDOT to maximize the likelihood of funding and implementing safety projects. Coupling these funding sources allows for a higher benefit-cost score for HSIP ranking and may allow for NCDOT Divisions to oversee construction of the project. The FBRMPO and NCDOT should continue to coordinate and identify opportunities to pair HSIP with other federal funding intended for locally administered projects, such as sidewalk projects including pedestrian crossings.

NCDOT Highway Safety Improvement Program (HSIP)

NCDOT manages the HSIP to identify and address specific traffic safety concerns statewide. North Carolina's HSIP focuses on reducing traffic crashes, injuries, and fatalities by targeting potentially hazardous (PH) locations. Using a comprehensive, data-driven methodology, NCDOT systematically identifies and addresses traffic safety issues across the state with targeted interventions. The HSIP categorizes PH locations into five types: intersections, roadway sections, bicycle/pedestrian intersections, bicycle/pedestrian mid-block crossings, and bridges. Rather than simply listing the most crash-prone spots, the program flags locations with identifiable crash patterns that warrant safety interventions.

Funding for HSIP projects comes through the State Transportation Improvement Program (STIP) and STI allocations. However, the SPOT process does not program HSIP projects. Each year, NCDOT identifies hundreds of locations for review and potential project development. Regional Traffic Safety Engineers (RTEs) within NCDOT's Traffic Safety Unit (TSU) analyze these sites and submit projects for quarterly funding consideration. HSIP and Spot Safety (state-funded) programs fund the selected projects. Additionally, TSU provides technical support and may assist with funding for safety reviews, such as Road Safety Assessments (RSAs).

NC Governor's Highway Safety Program (GHSP)

The GHSP issues a call for grant applications and selects recipients to provide financial support for law enforcement and public awareness campaigns. GHSP grants prioritize programs that aim to increase driver and passenger restraint use, reduce impaired driving, enhance motorcyclist safety, address bicycle and pedestrian safety, and improve data systems—though priorities may evolve annually based on state and federal guidance and funding. GHSP grants primarily receive funding from National Highway Traffic Safety Administration (NHTSA) apportionments to NCDOT, supplemented by state or local matching funds, and operate on a reimbursement basis.

Eligible grant recipients include law enforcement agencies, state departments, universities, nonprofit organizations, medical institutions, and local governments. The application period typically opens each January, with selections finalized by summer. Grantees usually begin their projects in October and must submit at least quarterly progress reports throughout the one-year grant cycle.

Local Funding

Local agencies can use funds for maintenance projects, capital projects, and departmental operations to implement priority actions in SSWNC. Local agencies should consider conducting a Road Safety Assessment or similar safety study prior to developing the final scope for routine roadway resurfacing projects and other maintenance activities, to consider including low-cost safety improvements such as revised pavement markings, rumble strips, warning signage, and temporary median islands. When developing capital improvement projects, local governments and officials should coordinate with NCDOT to discuss potential safety improvements and funding options. In annual budgets, local agencies should consider appropriating funds to match state and federal grants for sustained law enforcement campaigns, safety education programs, and larger scale capital projects.

Source: Greybeard Realty

Image 7.4: Haywood Road in Asheville

Role of Technology in Traffic Safety

Safety projects and transportation systems are beginning to take advantage of new technologies to prevent severe crashes, measure safety outcomes and adapt to real-time safety problems. Automated and connected vehicles use advanced sensors, communication systems, and algorithms to navigate and operate with little human interaction. Connected and automated vehicles, along with technology improvements have the potential to reduce fatal and serious injury crashes.

The USDOT's Saving Lives with Connectivity: A Plan to Accelerate V2X Deployment, highlights how vehicle-to-everything (V2X) can reduce fatalities through enabling wireless communications among vehicles, roadside infrastructure, and mobile devices. V2X systems are an evolution of Intelligent Transportation Systems (ITS) and can allow traffic managers to quickly identify problem areas on the network.

The FBRMPO region is beginning to explore new ITS strategies for managing traffic and safety problems. V2X technology can also be deployed at signalized intersections and within communication systems.

NCDOT is quickly incorporating new software and technology systems in NCDOT-maintained traffic signals to allow NCDOT to quickly adapt signal operations to real-time conditions. Emerging data sources such as connected vehicle data, mobile and GPS probe data, and crowdsourced data are quickly becoming data sources on potential safety problems such as excessive speeding and near-miss incidents. Automated systems (e.g., red-light cameras and speed safety cameras) are a tool that can assist with enforcing compliance of traffic laws. These tools are not easily deployed in North Carolina per current statutory provisions, but changes to state laws could increase access to automated enforcement tools.

Evaluating and Updating SSWNC

To make significant progress toward zero fatalities and serious injuries on roadways, the FBRMPO and LOSRPO region must coordinate closely with federal, state, and local partners to implement SSWNC. Upon completing the safety planning process, FBRMPO adopted the plan and encouraged member agencies to show their commitment through letters of support or formal resolutions. Local commitments referenced specific strategies and included additional approaches to help the region achieve its overarching safety goal.

Annual Reporting

Partners will develop specific action plans for the strategies outlined in the plan. FBRMPO, LOSRPO, and member agencies will drive the plan forward by meeting regularly to discuss and track implementation progress. FBRMPO and LOSRPO will report on progress annually. These reports will align with the goals, strategies, and performance measures in the Crash Reduction Framework for the five-county region and highlight key accomplishments from the previous year. An Annual Report Template is available in the Technical Appendix.

Statewide Coordination

NCDOT and its divisions are key partners in developing and implementing SSWNC. They administer Federal HSIP funds and state grants, and support the prioritization and implementation of strategies outlined in the plan. Selecting projects from the Metropolitan Transportation Plan (MTP) can help advance goals for safety, mobility, and community investment. In addition to funding and prioritization support, FBRMPO, LOSRPO, and member agencies can advocate to state lawmakers for greater access to safety resources, improved transportation laws, and regional safety policies.

SSWNC complements NCDOT's Strategic Highway Safety Plan (SHSP) and does not replace the work of the NCDOT Transportation Safety Unit (TSU). TSU staff provide safety data analysis, engineering expertise, and field review to guide project development. FBRMPO, LOSRPO, and local agencies will continue coordinating with RTE and central office staff to identify, fund, and implement safety projects. NCDOT also offers guidance on HSIP processes and TSU's approach to identifying and selecting safety improvements.

Source: Whitney Commercial Real Estate

Image 7.5: At Grade Railroad Crossing on Oriole Drive in Hendersonville

Local and Regional Leadership

At the conclusion of the SSWNC development process, FBRMPO and LOSRPO adopted the plan and encouraged member agencies to demonstrate commitment through letters of support or formal resolutions. During the Safety Summit in June 2025, many local agency and organization representatives volunteered to participate in implementing the SSWNC Plan. These partners will develop specific action plans for the strategies outlined in the plan. The LOSRPO and FBRMPO will consider avenues to providing a forum for local practitioners to share successes, data, and resources to prioritize and advance safety efforts in the region. This forum may be a new technical committee or working group that will include representatives from county agencies and municipalities across the five-county region, including Buncombe, Haywood, Henderson, Transylvania, and Madison counties.

Nothing is more valuable than a human life – protecting lives is our highest priority.

Source: McAdams

Image 7.7: Midblock Crossing on Broadway Street in Asheville

Source: McAdams

Image 7.6: Bike Lane on Haywood Road in Asheville

Source: McAdams

Image 7.8: Crosswalk in Downtown Weaverville


Ingles