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Morrisville *in Motion*

A Safety Action Plan

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Acknowledments

The leadership and active partnership of the Town of Morrisville staff and the Central Pines Regional Council (CPRC) during the development of the Morrisville in Motion safety action plan is evidence of local and regional commitment to roadway safety. CPRC secured a U.S. Department of Transportation (USDOT) Safe Streets and Roads for All (SS4A) grant to develop a model comprehensive safety action plan for an urban community in the planning region – with the Town of Morrisville serving as the model. CPRC and the Town of Morrisville Planning Department staff led all public engagement events and coordinated technical review throughout the planning process. VHB served as planning consultants for the plan; conducted data analysis, created public engagement materials, facilitated staff and project team discussions, and developed final plan documents. The Morrisville in Motion: A Safety Action Plan was adopted by the Morrisville Town Council in October 2025.

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What is Morrisville in Motion: A Safety Action Plan?

Morrisville in Motion (herein: "the Action Plan") is a comprehensive safety action plan developed by the Town of Morrisville and the Central Pines Regional Council (CPRC) to address transportation safety concerns in Morrisville. This safety action plan addresses urgent safety problems and develops strategies and projects aimed at reducing serious injury and fatal crashes on roadways in the short term and long term. The plan is designed in alignment with regional, state, and national plans and initiatives, including the Capital Area Metropolitan Planning Organization (CAMPO)'s Blueprint for Safety regional safety action plan, the North Carolina Department of Transportation (NCDOT)'s Strategic Highway Safety Plan (SHSP) and Highway Safety Improvement Program (HSIP), and the US Department of Transportation (USDOT)'s Safe Streets and Roads for All (SS4A) program.

4,569

# of crashes on local and state roadways from 2016 to 2023

7 Resulted in a Fatality

9 Resulted in Serious Injury

In the Town of Morrisville, between 2016 and 2023, there were 4,569 crashes on local and state roadways. Of these crashes, seven resulted in fatalities and nine resulted in serious injuries. During this period, fatal and serious injury crashes peaked in 2019, with a total of three fatalities and serious injuries on Morrisville roadways. In 2023, zero crashes that occurred on roads in Morrisville (with the exception of I-40 or NC 540) resulted in death or serious injury. The goal of this Action Plan is to **reach and sustain zero fatal and serious injury crashes on streets and roads serving residents and visitors through 2035**.

Local Context

The Town of Morrisville sits in the northwestern corner of Wake County, a populous county in the central Piedmont region of North Carolina. Wake County is one of the fastest-growing counties in the country. Between 2016 and 2023, Morrisville's population grew by 4.4 percent annually, with approximately three new residents per day[1]. Amid this rapid local and regional population growth, Morrisville continues to invest in transportation to accommodate increasing travel demands.

Pictured: Slater Rd and Carrington Mill Blvd. Intersection

[1]U.S. Census Bureau. "ACS DEMOGRAPHIC AND HOUSING ESTIMATES." American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP05

2 Safety Action Plan Development

Process

The safety planning process follows five main steps: **establishing partners and stakeholders, analyzing safety data and stakeholder inputs, determining safety problems, identifying crash reduction strategies,** and **implementing the action plan.**

The first step involves establishing partners and stakeholders who participate in the process. For the Action Plan, these relationships are created with CPRC, NCDOT, local government officials, roadway safety partners, and residents. By providing input on trends and sharing safety concerns, partners help guide the planning process.

The next step involves analyzing safety data and stakeholder inputs. For the Action Plan, data analysis identifies crash types and trends as well as areas and populations most at risk of fatal and serious injury crashes. Areas are then spatially located where safety can be addressed for greater impact within the High Injury Network (HIN). To ensure meaningful impacts on the local community, local and regional plans, policies, and public input are incorporated into decision making processes.

The analysis of safety conditions determines safety problems, focus crash types, and systemic safety risks. For the Action Plan, strategies are identified that help to mitigate crashes. Safety analysis and strategy development focus on priority crash risks, locations, and policy measures.

Through the adoption of this Action Plan, the Town of Morrisville and CPRC commence the fifth step in the safety planning process: implementing the plan. The Action Plan outlines a Crash Reduction Framework with strategies, actions, project examples, and potential policies to reduce fatalities and serious injuries across the region. The identified actions align with potential

funding opportunities through the HSIP, federal grants, and other funding sources. The Town of Morrisville and NCDOT will work together to regularly evaluate the Action Plan with a focused review of adopted safety targets and performance measures and will update the Action Plan accordingly.

The Safe System Approach

An emerging initiative in transportation planning is the adoption and implementation of Safe System Approach (SSA) principles. The SSA is a holistic, proven methodology adopted by the USDOT as a guiding model to improve roadway safety. The SSA provides a comprehensive framework to address and mitigate safety risks in transportation systems.

The SSA principles introduce a paradigm shift in roadway safety, transitioning from a reactive approach—implementing improvements after crashes occur—to a proactive approach that anticipates human error. This approach is designed to minimize opportunities for mistakes resulting in a fatality or serious injury. The SSA acknowledges that responsibility is shared among stakeholders and includes five elements of a Safe System: Safer People, Safer Vehicles, Safer Speeds, Safer Roads, and Post-Crash Care.

Figure 1: The Safe System Approach (Source: USDOT)

- **Safer People:** Promote safe and responsible driving habits among road users while prioritizing conditions that ensure their safe arrival at destinations.
- **Safer Vehicles:** Increase the number of vehicle systems and features that prevent crashes and reduce the impact on people inside and outside the vehicle.
- **Safer Speeds:** Encourage safer driving speeds on all roadways by using a combination of smart road design, setting speed limits, educating drivers, spreading awareness, and enforcing rules.
- **Safer Roads:** Design roads that help reduce human errors and consider injury tolerances. This encourages safer behavior and facilitates easier travel for the most vulnerable people.
- **Post-Crash Care:** Enhance crash survivability through access to medical care, keep first responders safe, and prevent secondary crashes through traffic incident management practices.

Pictured: Bike lanes and sidewalk on Slater Rd.

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Plan, Program, and Policy Review

In safety planning, a plan, program, and policy review identifies opportunities for consistency and collaboration in improving transportation safety at the statewide, regional, and local level.

HSIP

State and Federal Programs

The Highway Safety Improvement Program (HSIP) is a federal-aid program aimed at significantly reducing traffic fatalities and serious injuries on all public roads, including non-state-owned roads and roads on Tribal land. In North Carolina, NCDOT's Traffic Safety Unit (TSU) administers the HSIP to improve highway safety on all public roads using a data-driven, strategic approach. There are three core programs within the HSIP: the SHSP, the state HSIP which includes lists of highway safety improvement projects, and the Railway-Highway Crossing Program (RHCP).

NCDOT has implemented several safety projects in Morrisville through the HSIP, including signal improvements at Davis Drive and McCrimmon Parkway (2018) and overhead lighting and improved pavement markings at NC 54 and Aviation Parkway (2018).

SHSP

The Strategic Highway Safety Plan (SHSP) is part of the HSIP. NCDOT receives HSIP funding from the Federal Highway Administration (FHWA) to develop programs and projects to improve safety on its roadways and is required to submit an annual report summarizing the state DOT's implementation and effectiveness of its HSIP. NCDOT's HSIP emphasizes three programs: Roadway Departure, Intersections, and Pedestrian and Bicycle Safety. NCDOT updated the SHSP in 2024 with active participation and contributions from stakeholders representing diverse safety needs, populations, and geographies across North Carolina. The SHSP serves as a linkage between local and federal planning through safety plans, such as the Morrisville in Motion Action Plan. Morrisville in Motion aligns its efforts with the goals, visions, safety priorities, and solutions outlined in the SHSP:

Vision

Through our partnerships, we foster safety awareness and provide safe access throughout North Carolina for all users and modes of travel such that everyone arrives safely at their destination.

Mission

Establish a collaborative, strategic approach to the identification and implementation of safety improvement programs and policies to achieve the statewide goals to reduce fatalities and serious injuries related to crashes on North Carolina's transportation system. destination.

Goal

Reduce fatalities and serious injuries by half by 2035, moving towards zero by 2050.

2024 NCDOT Strategic Highway Safety Plan

The 2024-2026 HSP priorities include the following:

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

HSP

The Governor's Highway Safety Program (GHSP) and the National Highway Traffic Safety Administration (NHTSA) develop the Highway Safety Program (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 three-year cycle. Each three year HSP identifies priority crash types and behaviors to address.

Morrisville Traffic Safety Programs and Outreach

One example of a GHSP supported initiative in Morrisville includes overtime funding for the Town of Morrisville Police Department. The Town received a grant in 2024 to allow local officers to conduct high visibility enforcement, focusing on seatbelt utilization and speeding enforcement. Morrisville Police, like many agencies in the region, participate in campaigns such as Click It or Ticket and Watch for Me NC to increase visibility and actively enforce seat belt and child restraint laws and multimodal safety. The Morrisville Police Department (MPD) also hosts a National Night Out event most years in October to build relationships with the community and discuss various issues related to community safety. MPD leads efforts or partners with the community to improve traffic safety and educate residents about safe travel on roadways in various ways.

Source: Town of Morrisville

In June 2025, MPD hosted a Bike Rodeo to teach local youth about safe bicycle riding. MPD has an active social media presence, routinely sharing educational posts about using seat belts, distracted driving, pedestrian crossing safety and upcoming safety events.

The Town of Morrisville has also implemented programs focused on reporting and reducing aggressive driving, reminding residents that driver behavior concerns can be reported to 9-1-1.

Local Plans and Programs

Local Plan and Policy Review considered the extent to which plans and studies addressed the elements of a Safe System and included references to safety countermeasures.

Safe System Review

The Safe System Approach is integral to Morrisville in Motion and needs to be considered when reviewing existing plans, studies, projects, policies, and programs. The project team developed the following framework to evaluate local plans through a Safe System lens:

Criteria

- To what extent does the plan address the safety of multimodal road users (e.g., pedestrians, bicyclists, transit users, micromobility users, or users of mobility assistance devices)?
- To what extent does the plan address road user behavior?
- To what extent does the plan address the safety effects of vehicle design?
- To what extent does the plan address heavy vehicles?
- To what extent does the plan address the safety effects of vehicle operating speed?
- To what extent does the plan address the safety effects of roadway design?
- To what extent does the plan address strategies for separating different road users?
- To what extent does the plan address intersection design?
- To what extent does the plan address how land use context affects roadway design?
- To what extent does the plan address post-crash care or emergency response?
- To what extent does the plan focus on crash severity?
- To what extent does the plan promote proactive safety solutions (e.g., risk-based or systemic approaches as opposed to reactive or crash hot-spot approaches)

Policy and Program Assessment

Morrisville Comprehensive Transportation Plan (2019)

The Morrisville Comprehensive Transportation Plan (CTP) addresses **Safer People** effectively. The vision of the plan focuses on multimodality, including transit, pedestrians, bicycles, and motor vehicles, and briefly mentions safety. Additionally, one of the six guiding statements for the plan is “safety and security.” It mentions location-specific strategies and improvement recommendations—such as constructing side paths, turn lanes, driveway consolidation, etc.—to help increase safety among all road users.

The plan addresses **Safer Roads**, though not extensively. The CTP lists standard intersection

improvement countermeasures—such as signalization, realignment, and roundabouts—and recommends specific locations within the Town that warrant further study or implementation of these improvements. The plan also discusses roadway design elements—such as bicycle paths, sidewalks, roadway widening, and access management—as well as the separation of different types of roadway users. However, the safety aspects of these designs are implied rather than explicitly addressed, and they are not thoroughly integrated into the implementation recommendations.

The plan does not address **Safer Vehicles, Safer Speeds,** or **Post-Crash Care**. While the CTP includes crash analysis, it does not include specific fatality reduction strategies or proactive safety approaches as a method for identifying improvement locations.

Morrisville Intersection Improvements Study (2021)

The Morrisville Intersection Improvements Study effectively addresses **Safer People**, emphasizing multimodal safety through location-specific strategies such as roundabouts, high-visibility crosswalks, curb ramps, and leading pedestrian intervals (LPIs), all of which support safer travel for all users.

The study effectively addresses **Safer Roads**, integrating safety-focused roadway redesigns and sidewalk infill to separate users in space and enhance protection for vulnerable road users. The safety context of these treatments is emphasized throughout the study, particularly in Section 4 on Intersection Improvement Concepts.

The study addresses **Safer Speeds**, acknowledging the safety impacts of speed and recommending strategies to reduce speeds. However, the discussion could be strengthened by directly linking specific speed management measures to safety performance.

The study does not significantly address **Safer Vehicles**. While vehicle design is mentioned in some sections, it is not discussed within the context of safety.

Morrisville TOD Subarea Plan (2024)

The Morrisville TOD Subarea Plan addresses **Safer Roads.** The vision of the plan focuses on multimodality, including transit, pedestrians, bicycles, and motor vehicles, and briefly mentions safety. While the plan mentions that pedestrian safety should be prioritized in streetscape features, safety is not significantly addressed in the plan. The plan does not address road user behavior or consider vehicle or roadway design.

The plan briefly mentions general and proactive SSA treatments but not to a significant extent. Furthermore, it does not address crash severity or incorporate it into the discussion of recommended improvements.

Review of Local Design Guidelines and Development Standards

The assessment included a review of local plans, studies, and policies for references to proven safety countermeasures, as listed in the NCDOT Crash Reduction Factors for Project Development workbook and Countermeasure Glossary. The review assessed the following:

» Engineering Design and Construction Manual

» Morrisville Parkway Access Management Study (From Davis Dr to NC 54)

» Morrisville CTP (2019)

» Morrisville UDO

» Morrisville Land Use Plan 2021

What is Addressed

» Local plans and policies include references and guidance for installation of roundabouts.

» Local plans include specific mention of adding raised medians to divide multilane roads.

» CTP and Engineering guidance include specific details for trail-roadway crossings.

» Local plans include details about raised crossings and decorative features.

What is Not Addressed

» Engineering manual does not include specific guidance for widened shoulders.

» No evidence of All Way Stop (AWS) policy for local streets.

» Lack of specific engineering standards and CTP guidance for pedestrian crossings at signalized intersections (e.g., Leading Pedestrian Interval, countdown signal heads).

» Limited guidance for overhead lighting; improve Engineering manual to include lighting for intersection and roadway.

» CTP and Engineering manual should be updated to more consistently set guidelines for signalization and refuge islands on midblock crossings on roads with 3 or more lanes, volumes exceeding 9,000 vehicles per day (vpd), and/or speed limits 35 MPH or higher.

» No evidence of Road Diet (e.g. lane reallocation) guidelines or project proposals in CTP.

» Limited guidance on traffic calming and speed management treatments.

» Limited bikeway selection guidance. Typical sections do not include buffered bike lanes, separated bikeways, protected intersections, or consideration in NCDOT projects. CTP does include a typical section for a 10-foot Multi-Use Path (MUP), designed to serve pedestrians and bicyclists.

» The engineering manual does not include specific guidance for bicycle intersection improvements (e.g., bike box, protected intersection).

Recent and Proposed Near Term Safety Projects

In response to identified safety problems and projects proposed in former planning studies, the Town has implemented several safety countermeasures. Examples include the installation of a Pedestrian Hybrid Beacon (PHB) on Morrisville Carpenter Road at the Grace Park Greenway trail crossing, a PHB on Morrisville Parkway, a Rectangular Rapid Flashing Beacon (RRFB) installed near Cedar Fork Elementary School, and a roundabout incorporated into the Town Center development. These projects are examples of improvements that can be made at other similar locations identified in the Morrisville in Motion safety plan.

Several major road projects are expected to be finished or to begin construction over the next five years in Morrisville. Many of these projects include safety measures, such as raised medians dividing multi-lane roads, additional sidewalks and MUPs, or intersection improvements. The Town of Morrisville reports progress on projects being led or managed by the NCDOT and Town staff.

The following is a summary of projects under design or construction in the Town that may improve safety along existing roads in Morrisville:

Widening Projects including Medians, Sidewalk and Bicycle Paths or Lanes

McCrimmon Parkway (U-5747) - West of Davis Drive to Perimeter Park Drive
Widen from two lanes to four lanes, with median. Includes a wider sidewalk and bike lanes, a flyover at the railroad tracks and NC 54, and continuous flow/displaced left-hand turn lanes on Davis Drive. Construction is anticipated to begin in 2027 and last approximately three years.

NC 54 (U-5750) - Shiloh Glen Drive to Perimeter Park Drive
Widen from two lanes to four lanes, with median. Includes additional lanes near NC 540 interchange, a 10-foot multi-use path, and some changes to access along NC 54. Utility relocation is expected to occur in 2025. Construction is anticipated to begin in 2027 and last approximately three years.

Aviation Parkway (U-5811) - NC 54 to I-40
Widen from two lanes to four lanes, with median. Proposed quadrant roadway intersection

at NC 54 to improve traffic flow. Right of way is scheduled for 2026 and constuction has been delayed to 2030, at the earliest. Design plans will be reviewed for consideration for all roadway users, including focus on crosswalk design.

Morrisville Parkway Improvements

Various intersection improvements along Morrisville Parkway from Davis Drive to NC54 as identified in the Access Management plan. Project scope includes new traffic signals, turn lanes, median modifications, striping and pedestrian safety improvements. Project is currently authorized for design phase only. The Town plans to pursue funding through the CAMPO Locally Administered Projects Program (LAPP) call for projects to implement improvements.

Intersection Improvements

Installing new traffic signals at intersections can reduce crashes by 34-67% and installing roundabouts can reduce crashes by 61-84%, according to the NCDOT Safety Countermeasure Glossary. The intersections of NC-54 at Keybridge Drive and Slater Road at Sorrell Grove Church Road were identified in the Morrisville Intersection Improvement Study. These intersections were proposed to be signalized, but NCDOT has not approved the signals.

Multiple Sidewalk Gap Projects

Sidewalks provide dedicated and separated space from traffic for pedestrians to travel along roadways; sidewalks can reduce pedestrian crashes by up to 74%. The Town is in the process of designing or acquiring right-of-way for new sidewalk gap projects. Locations where these improvements are proposed include Sorrell Grove Church Road, Church Street, International Drive, and Louis Stephens Drive.

Pictured: Bicyclist at McCrimmon Pkwy. and NC-54 Intersection

4 Building a Culture of Safety

Building a culture of safety begins with a commitment from everyone in the region to prioritize safety in their values, actions, and behaviors. There are two types of safety culture in the transportation community: **organizational safety culture** and **public safety culture.**

To reach Morrisville's goal, local government and stakeholder agencies need to elevate roadway safety as a priority within their agencies. Local government officials must advocate for improved transportation safety through innovative approaches within their engineering, planning, public health, and public safety departments. These leaders must also communicate to residents the importance of driving, walking, biking, and rolling safely. This includes sharing important safety messages and educating Morrisville residents about how they can contribute to the goal of sustaining zero fatalities.

Ultimately, the responsibility to build and foster a culture is collective. This requires a routine review of what works, including relationships between new and experienced partners, continuously informing decision-makers about progress, and emphasizing the community value of preventing fatal and serious injury crashes.

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Data Driven Safety Analysis

What are the Safety Problems

What are the Safety Problems?

In the Town of Morrisville, between 2016 and 2023, there were 4,569 crashes on local and state roadways. Of these crashes, seven resulted in fatalities and nine resulted in serious injuries. Figure 2 shows the historical trends of fatal and serious injury crashes in Morrisville during the study period.

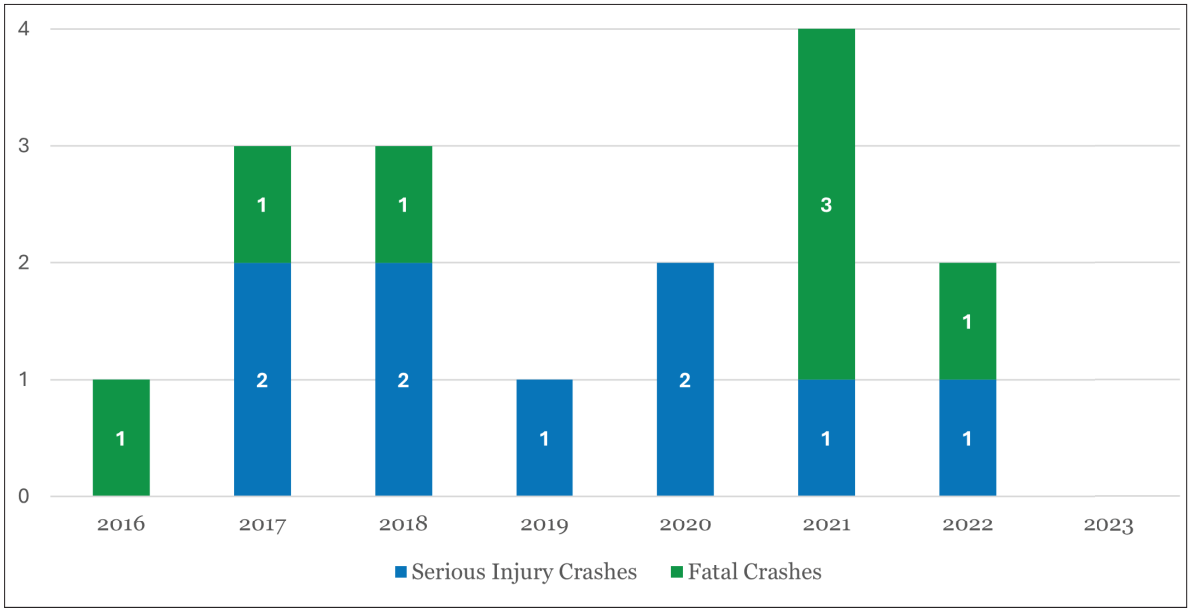

Figure 2: Fatal and Serious Injury Crashes (2016 - 2023)

Table 1 displays fatal and serious injury crashes by crash type. Crash types are grouped into categories with similar circumstances . Four categories of crashes account for all fatal and serious injury crashes and 89 percent of all crashes in Morrisville. Lane Departure and Frontal Impact crashes account for 65 percent of fatal and serious injury crashes and 47 percent of all crashes.

	Fatal/Serious Injury Crashes	Total Crashes	Percentage of Fatal/ Serious Injury Crashes	Percentage of All Crashes
Lane Departure	6	874	38%	19%
Frontal Impact	6	1272	27%	28%
Rear End	3	1911	19%	42%
Vulnerable Road User (Pedestrian and Bicylist)	1	28	6%	1%

Table 1: Crash Types and Categories

The CAMPO Blueprint for Safety plan assessed crash types differently at the regional scale, including a county-by-county analysis. Crashes were summarized based on the share of fatal and serious injury crashes occurring by crash emphasis areas. These emphasis areas are also outlined in the 2024 North Carolina SHSP:

1. Lane Departure
2. Seat Belts and Car Seats
3. Impaired
4. Intersection
5. Older Driver
6. Speed
7. Younger Driver
8. Motorcycle
9. Pedestrian
10. Heavy Truck
11. Animal
12. Bicyclists

Wake County has a unique profile of emphasis area crash types within the larger CAMPO region. The emphasis areas for Wake County (and Morrisville) include crashes involving bicyclists, impaired driving, intersection-related incidents, motorcyclists, and pedestrians. Pedestrian- and bicyclist-related crashes are particularly over-represented in Wake County, with approximately 20 percent of all crashes involving bicyclists or pedestrians resulting in death or serious injury (as reported for 2016-2023).

Wake County Crash Emphasis Areas			
Focus Crash Type	Crash Total	Fatal and Serious Injury Crash Total	Fatal and Serious Injury as Percent of Total Crashes
Lane Departure	752	69	9%
Frontal Impact	10,109	729	7%
Rear End	64,543	780	1%
Motorcycle	2,303	412	18%
Vulnerable Road User (Pedestrian and Bicylist)	1,933	453	23%

Table 2: Wake County Crash Emphasis Areas

Where are the Safety Problems?

After identifying which crash types account for the most significant safety problems for Morrisville, it is important to understand where safety issues occur. This process involves analyzing roadway data associated with crashes and analyzing crash locations to create High Injury Networks.

Road Classification

Figure 3 and Figure 4 show the proportion of crashes occurring on roads by Route Classification (e.g., US 64, NC 54) and Functional Classification. Functional class is a federally mandated classification for public roads. Functional class includes expectations about roadway design, including speed, capacity, and relationship to existing and future land use development[1].

Figure 3 highlights an overrepresentation of fatal and serious injury crashes on **NC routes** and **Secondary routes** compared to all crashes and roadway mileage. NC routes compose seven percent of the total road mileage; however, they account for 38 percent of fatal and serious injury crashes. Secondary routes make up 19 percent of road mileage and account for 63 percent of fatal and serious injury crashes. While **non-system routes** make up the majority of road mileage (71 percent), there were no fatal or serious injury crashes during the study period on these routes.

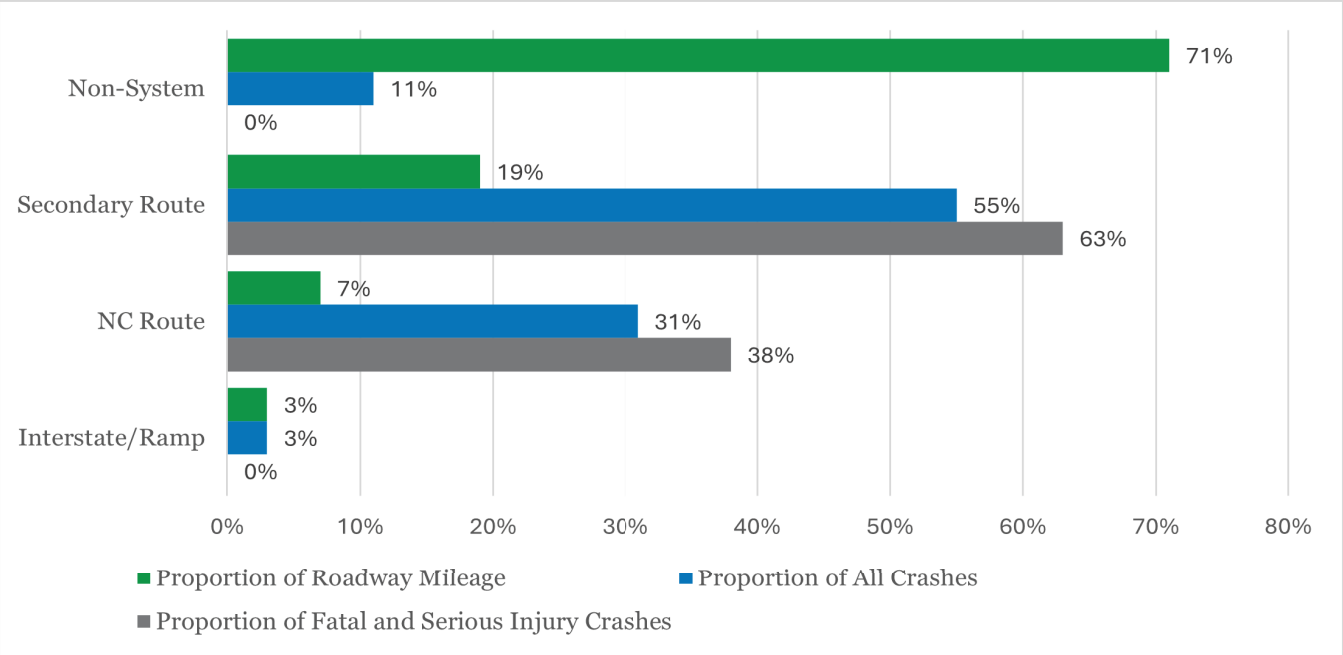

Figure 3: Crashes by Route Classification

Figure 4 highlights the overrepresentation of fatal and serious injury crashes compared to road mileage on all functional classes except Local and Interstate. Note that ramps are combined with Interstates in Figure 3 but are incorporated into other functional classes in Figure 4. Fatal and serious injury crashes are overrepresented compared to all crashes on **Major Collectors.**

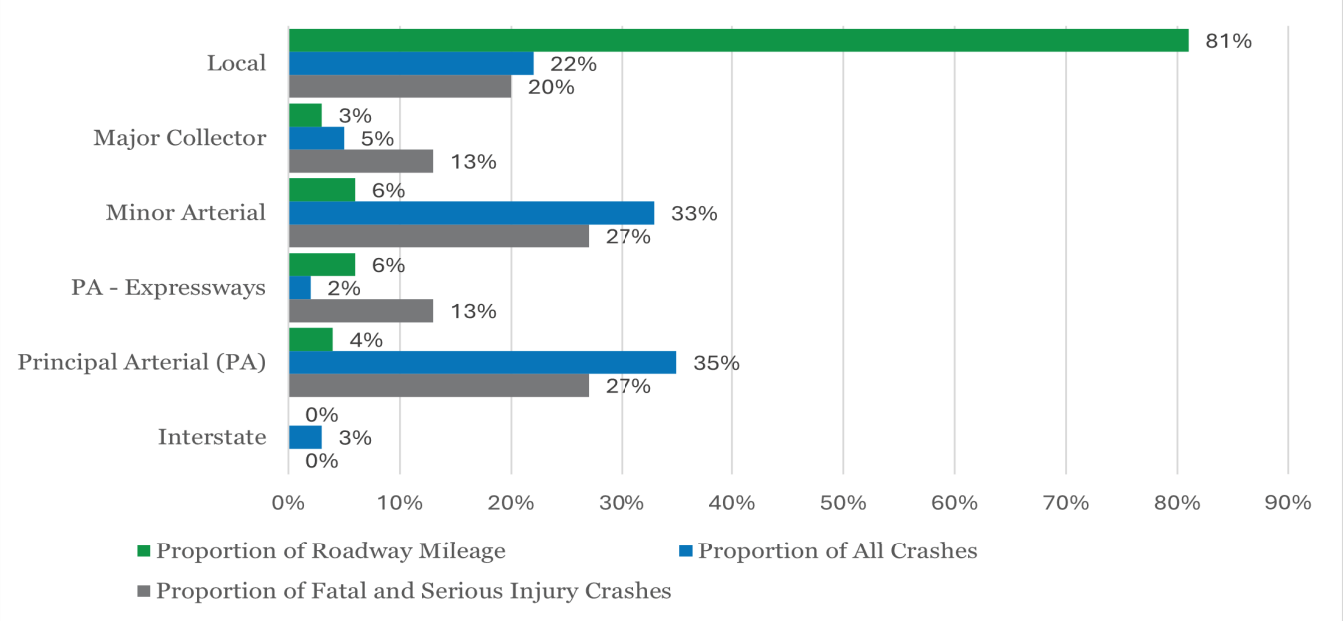

Figure 4: Crashes by Functional Classification

Road Configuration

Crashes by the number of lanes and road configuration help us visualize risk based on road type. Two-way undivided roads often experience higher crash rates due to the lack of separation between opposing traffic and the increased likelihood of lane departure. Multi-lane roads may experience more rear-end and side-impact crashes at intersections or where drivers are merging or maneuvering for a left turn. Depending on the road configuration, crash types vary, and countermeasures can be evaluated for best fit according to the roadway to prevent crashes. Figure 5 highlights the overrepresentation of fatal and serious injury crashes on **four to five lane roads.**

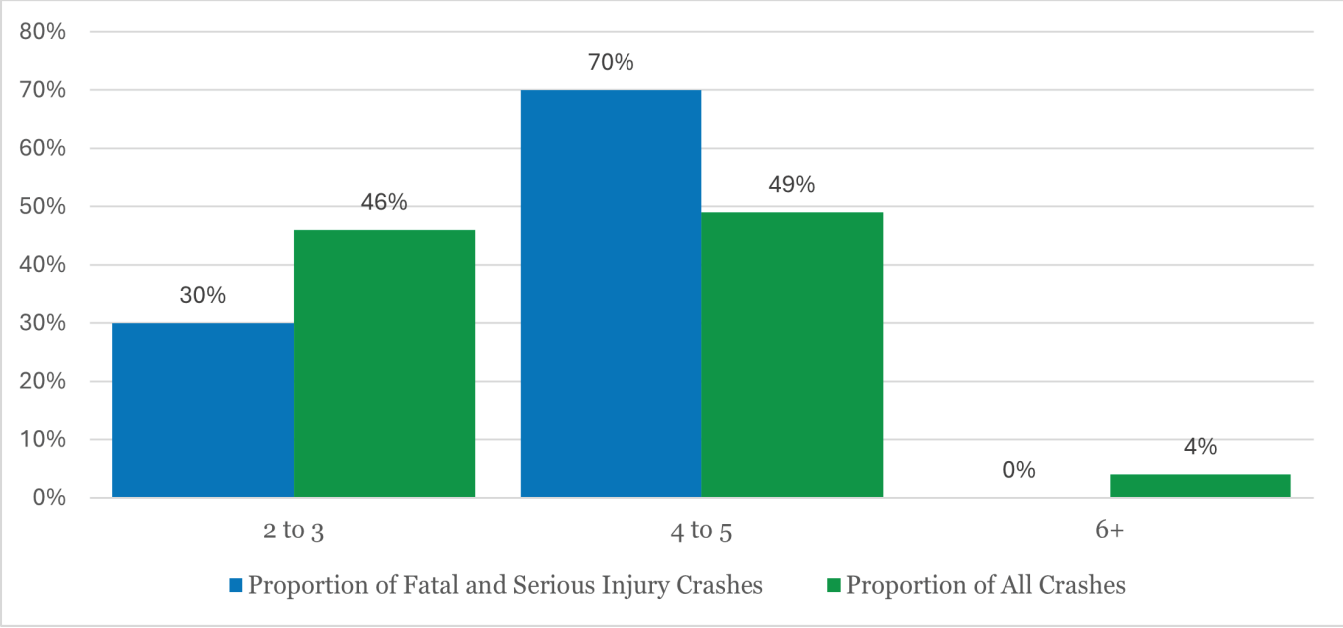

Figure 5: Crashes by Number of Lanes

Figure 6 highlights the overrepresentation of fatal and serious crashes on **undivided roadways.**

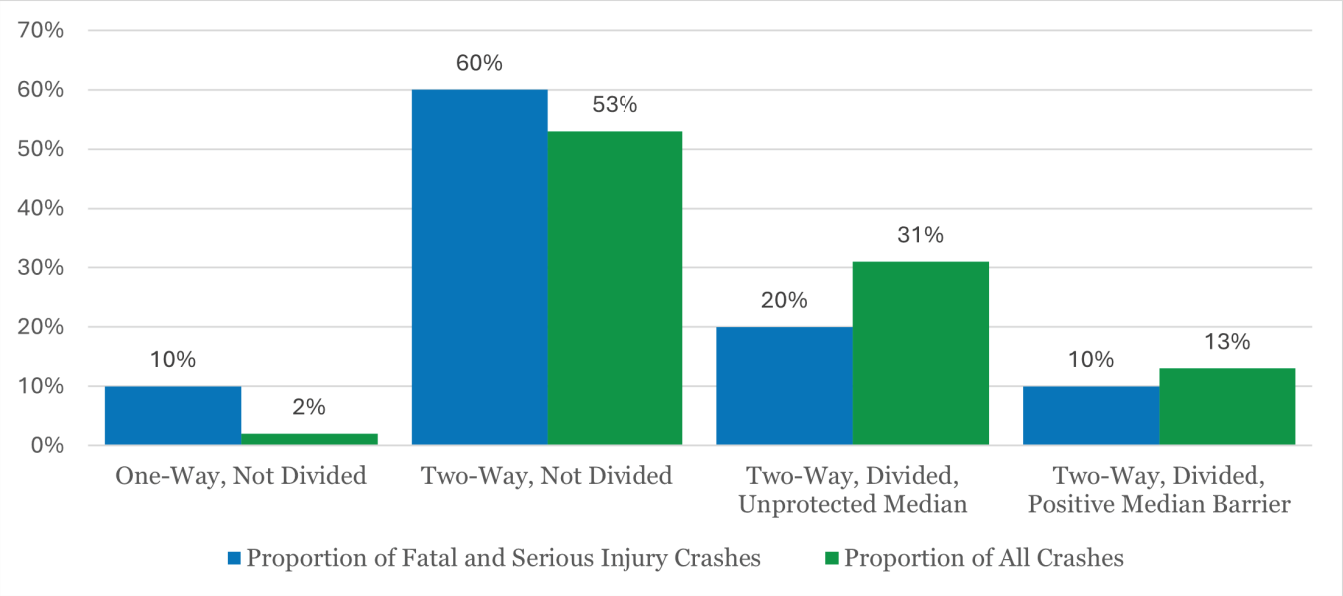

Figure 6: Crashes by Roadway Configuration

In Morrisville, 70 percent of fatal and serious injury crashes occurred on four- and five-lane roads. More than half of the mileage of multi-lane roads in Morrisville is divided by a raised median. Approximately two-thirds of the mileage of multi-lane roads in Morrisville are Secondary Routes (SR), including Morrisville Carpenter Road and McCrimmon Parkway.

Statewide, undivided, multi-lane Secondary Routes in urban contexts have a Fatal Crash Rate of 1.48 fatalities per 100 million vehicle miles travelled. Divided, multi-lane Secondary Routes in urban contexts with partial access control have a Fatal Crash Rate of 0.68. **With appropriate design and access management, the fatal crash rates on multi-lane roads in Morrisville can be reduced by more than half.**

High Injury Network

A High-Injury Network (HIN) uses historic crash data to identify the roadways or corridors with the highest frequency of crashes resulting in a fatality or serious injury. The Morrisville in Motion plan includes a HIN map to visualize the roadways and intersections in Morrisville with the highest concentrations of fatal and serious injury crashes. This Action Plan includes four HINs, as shown in the following figures, including High Injury Network (all crashes), High Injury Intersections (all crashes), Bicycle and Pedestrian High Injury Network (bicycle and pedestrian crashes only) and Bicycle and Pedestrian High Injury Intersections (bicycle and pedestrian crashes only).

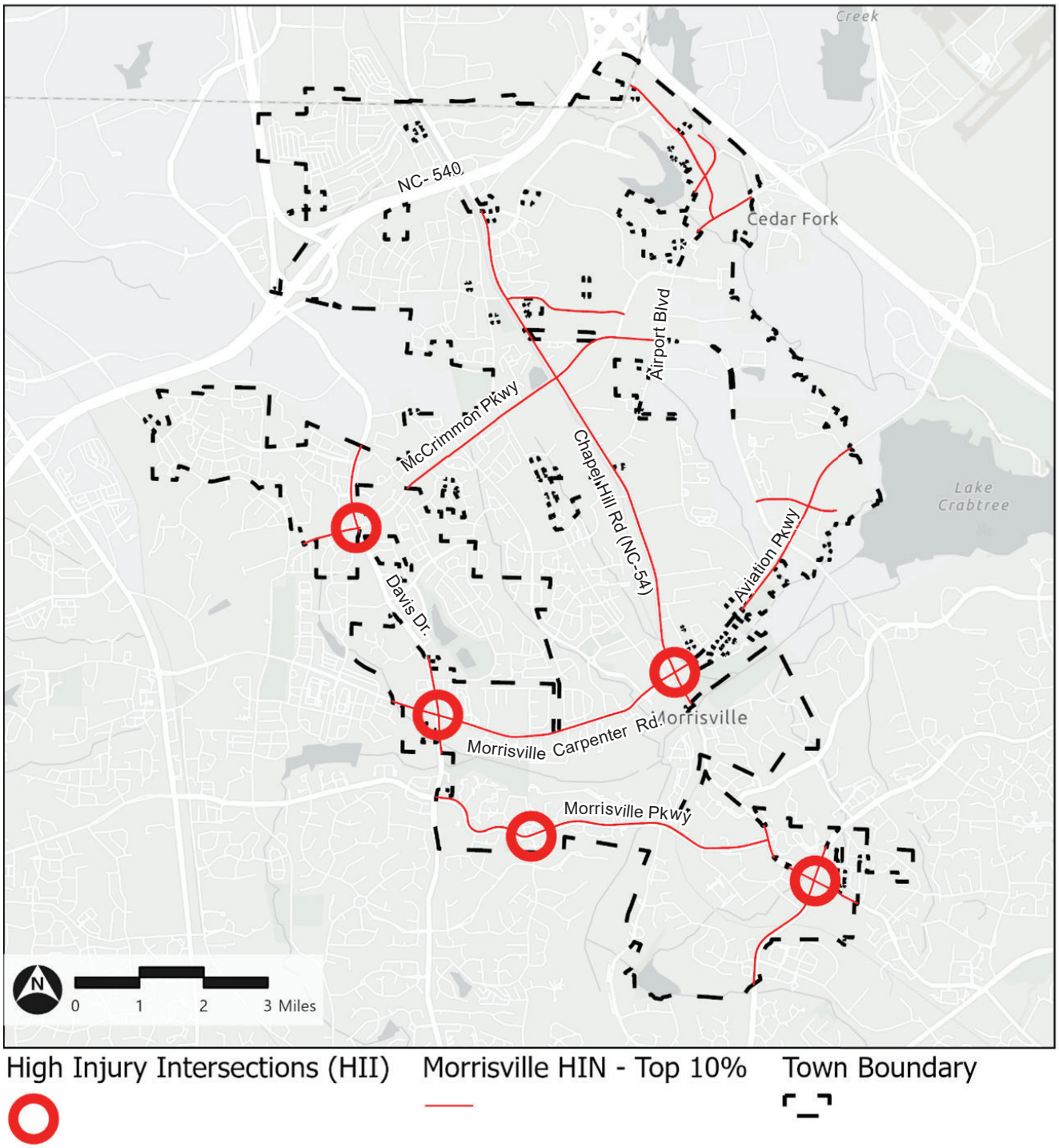

Figure 7: All Mode High Injury Network (HIN) and High Injury Intersections (HII)

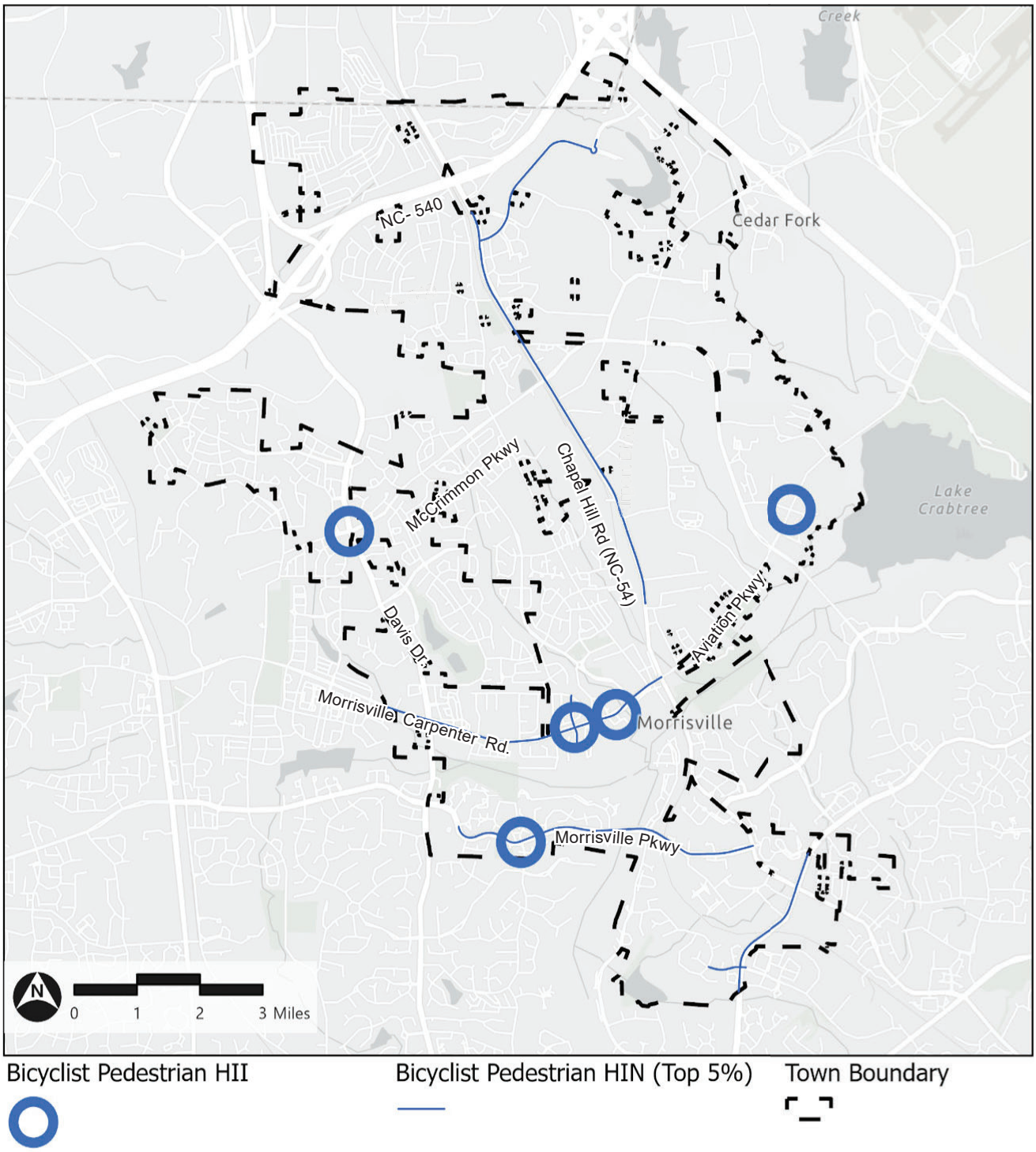

Figure 8: Bicyclist and Pedestrian High Injury Network (BP HIN) and High Injury Intersections (BP HII)

Risk Analysis

In addition to historical crash analysis, risk analysis addresses likelihood, severity, and exposure to determine the risk of serious or fatal crashes on roadways and intersections. The Action Plan references the regional risk analysis conducted and adopted in the CAMPO Blueprint for Safety Plan. Crash history and crash risk should be equally considered in planning, policymaking, and project development in Morrisville to meet the safety goals established in the Action Plan.

Who is most impacted?

The Action Plan uses NCDOT's Transportation Disadvantage Index (TDI) to measure who is impacted by safety concerns by overlaying the High Injury Network with TDI demographic data. NCDOT created the TDI to measure the concentration of populations facing barriers to transportation access. TDI uses data from the 2020 American Community Survey five-year estimates to identify heavily impacted communities within a block group using the following indicators:

- Race
- Personal vehicle access (zero-vehicle households)
- Older people (seniors (65+))
- Populations with Limited English Proficiency (LEP)
- People with low income
- People with mobility impairments
- Youth (aged 15 and under, unable to drive)

TDI uses scored intervals for the relationship between fatal and serious injury crashes and the total population: 0-20%, 20-40%, 40-60%, 60-80%, and 80-100%. A low TDI score (0-20%, 20-40%) indicates areas with better access to transportation options. A high TDI score (60-80%, 80-100%) indicates areas with limited access to reliable transportation options. Figure 9 illustrates Census Block Group TDI scores calculated at the MPO planning area level, highlighting the areas of Morrisville with higher levels of transportation disadvantage compared to its regional neighbors.

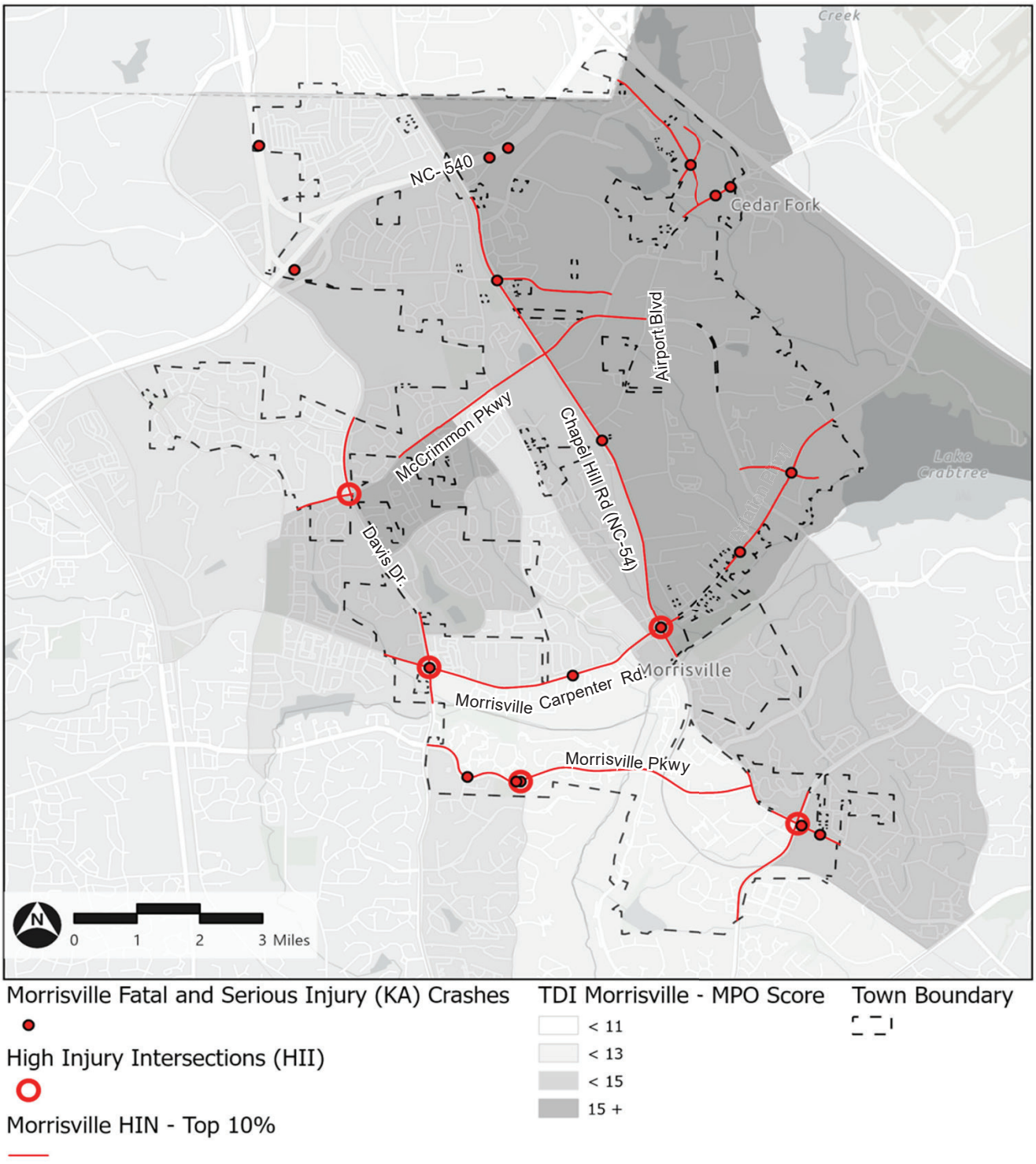

Figure 9: NCDOT TDI CAMPO Averages and Morrsiville HIN

6 Engagement

The Town of Morrisville's project team divided the engagement process into two phases of engagement. The first phase focused on safety concerns, and the second phase focused on prioritization. Each phase created an opportunity for the public and local stakeholders to provide contextual feedback to inform the development of the Action Plan.

Phase 1: In the first phase, the project team initiated conversations with Morrisville roadway users to understand where road users feel unsafe when traveling in or through Morrisville and the contributing factors to their perceptions of safety. This was primarily conducted through in-person engagement events and an online public survey.

Phase 2: The project team reviewed the results of the safety data analysis and phase 1 inputs to develop goal-setting and commitment frameworks. Phase 2 invited local stakeholders and the public to collaborate on these frameworks, shaping the prioritization of goals and focusing on individual, agency, and leadership commitments to safety.

Outreach Events

Morrisville's project team employed engagement activities in the public engagement process of the safety action plan development:

During both phases, Morrisville's project team conducted community outreach at established community events.

Phase 1:

- June 6, 2025 – Music in the Park Event, Morrisville, NC
- June 14, 2025 – Western Wake Farmers Market, Morrisville, NC

Phase 2:

- August 9, 2025 – S'Morrisville, Morrisville, NC
- August 16, 2025 – Western Wake Farmers Market, Morrisville NC

The project team used engagement boards to initiate conversations with Morrisville community members regarding safety concerns during phase 1 and prioritization and commitment during phase 2.

Survey

From May 2025 to June 2025, the Town of Morrisville hosted an online survey on the ArcGIS Survey123 platform to assess safety concerns, safety interests, and familiarity with safety countermeasures of road users in Morrisville. The project team broadcasted the online survey on the CPRC website, using website links through the Town's social media channels, and at community outreach events with QR codes on the project's engagement materials. A detailed account of the survey results is available in the public engagement framework document. Survey takers responded to questions about their safety concerns, safety interests, familiarity with safety countermeasures, and their personal experiences with roadway safety. Their responses have contributed to the foundational strategies and actions in the Action Plan.

Local Government Leadership

In Phase 1, the project team presented to the Morrisville Town Council on January 9, 2025, and on July 22, 2025, to share the progress of the project, safety analysis results, and potential goal-setting frameworks.

In Phase 2, the project team met with Town staff on August 11, 2025 to review the safety plan findings and discuss proposed goals and strategies. Town staff and department leaders from planning, engineering, police, fire, public works, and communications ranked strategies in terms of importantance and feasibility. This input, combined with public input, helped refine the final plan, which was presented to Town Council for adoption in September 2025.

Engagement Results

At the community outreach events, attendees identified as adults of various ages and more often residents of the Town of Morrisville than visitors. After answering the safety-related survey questions, survey takers could provide demographic information. They identified most often as "25-64" years of age (22 out of 30 respondents), "White" (23 out of 30 respondents), and

"Female" (16 of 30 respondents), with "$100,000+" as their approximate household income (10 of 30 respondents). Participants identified an average of two people in a household and two vehicles per household.

The following themes arose from Phase 1 of the engagement process:

» There is a mixed public perception of traffic-calming countermeasures such as rumble strips and roadway narrowing.

» Morrisville residents and travelers are interested in pedestrian and bicyclist facility improvements for better route connectivity for non-motorists.

» Morrisville residents and travelers are most concerned with motorists' limited knowledge of roadway norms such as yielding and speeding on Morrisville roadways.

During Phase 2, two community events and one online questionnaire, hosted in August, provided an opportunity for the public to weigh in on which plan goals were most important to them.

A total of 64 participants shared their insights during the Phase 2 online survey or in person activities:

» The goals to "Promote the benefits of a safer transportation system to Morrisville residents" and "Implement safety improvements across the High Injury Network by 2035" were top priorities.

» Additional comments included a desire for increased traffic law enforcement, community education, and updated roadway signs and markings.

Inputs from local government leadership, community events, and online engagement contributed to the development of the vision, goals, strategies, and recommended actions of the Action Plan.

Engagement boards used for Morrisville in Motion

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7 Crash Reduction Framework

The cornerstone of the Action Plan is the Crash Reduction Framework. The framework includes overarching safety goals for the Town and supporting strategies that address safety problems identified through data analysis, engagement, and unique local characteristics. The strategies are consistent with the SSA, including project types, programs, and policy recommendations that engage all disciplines and community partners: education, enforcement, engineering, emergency services and evaluation. Each strategy is paired with a relevant performance measure and assigned a priority for implementation. The Crash Reduction Framework is the roadmap for the Town's goal to ultimately eliminate serious injuries and fatalities from roadway crashes.

Goals

The Action Plan has several overarching goals that create a vision for how aggressively Town leaders and partners expect to reduce fatalities and serious injuries on the roadways. The overarching safety goal is guided by a vision of sustaining zero deaths and serious injuries on local roads through 2035.

Overarching Safety Goal: The Town of Morrisville aspires to sustain zero fatal and serious injury crashes on streets and roads serving residents and visitors through 2035. The Town and NCDOT will collaborate to provide safer travel options for all by focusing on prevention, education, and response to severe crashes.

The Safe System Approach is driven by the principle that fatalities and serious injuries on roadways are unacceptable. Historically, the Town of Morrisville experiences single-digit fatality and serious injury crashes annually—in 2023, there were zero fatal or serious injuries in Morrisville. The plan's goal is to sustain zero traffic-related fatalities and serious injuries as Morrisville continues to grow and develop. The goals of the Morrisville in Motion Plan support the Crash Reduction Framework by identifying strategies and performance measures that drive progress toward the Town of Morrisville's safety goal.

» **Goals:** Represent a category of work to support the Town's safety aspirations and development.

» **Strategies:** Outline the work the Town of Morrisville, CPRC, NCDOT, and additional partners will collaborate on to implement the safety action plan. Strategies are divided into two priority levels to define implementation immediacy: near-term and long-term.

» **Priority:** Represents the timeline for strategy implementing.

Performance Measures

Performance measures serve as indicators of progress for each of the strategies identified in the Action Plan. Performance Measures–or Key Performance Indicators (KPIs)–are required in comprehensive safety action plans and include measures of outputs (e.g., levels of activity) and outcomes (e.g., levels of effectiveness). KPI outputs encompass specific safety projects or improvements, while KPI outcomes include reductions in crashes or proportions of the population impacted by severe crashes. Refer to the Crash Reduction Framework Matrix for specific performance measures applied to each strategy in the Action Plan.

Implementation Partners

The Action Plan identifies types of agencies and local partners to lead the implementation of specific strategies identified in the Crash Reduction Framework:

» **Town of Morrisville** will lead actions involving local coordination, including transportation planning activities or affecting discretionary funding programs the Town administers, such as the Capital Improvement Programs (CIPs), maintenance projects, local plans and studies. The Town will pursue competitive grants to deliver safety projects and enforce traffic laws.

» **NCDOT** will lead actions requiring coordination with the Traffic Safety Unit (TSU), such as conducting Road Safety Audits on state-system roads, pairing funds with the HSIP for project implementation, and setting annual safety targets.

» **CPRC and CAMPO** will serve as resources for the Town of Morrisville to coordinate transportation safety strategies with adjacent local agencies.

» **Other partners** may be identified to lead certain actions.

- **Business community agencies** may provide insights into employee policies regarding vehicle operations.
- **Not-for-profit organizations** may be strategically aligned to advocate for new countermeasures.
- **Community organizations** may be valuable partners when developing safety education programs.

Timelines for Implementation

Strategies are assigned near-term and long-term horizons based on feasibility to implement and those anticipated to have the highest impact on priority safety challenges for the town.

Criteria for developing and prioritizing strategies include:

» Relative cost to implement

» Impact on reducing fatal and serious injury crashes

» Ease for quick or systemic application (wide-spread, near-term)

» Association with focus crash types and key safety problems

The near-term horizon is the first six years (2025-2031) following the completion of the action plan, focusing on lower-cost strategies that are consistent with current policy and programs. The long-term horizon will include complex projects and strategies over the next 12 years. The following provides more detail about the implementation horizons:

Near-term: During this horizon, the Action Plan calls for systemic improvements across the town to be implemented, focusing on lane departure, intersections, pedestrians, and bicyclist-related crashes. These improvements will be implemented along the HIN and at locations with identified crash risks and safety needs. The Town continues to implement systemic improvements for lane departure, pedestrians, and intersections at high-risk locations and within maintenance programs. Additionally, the Town reviews and includes additional safety improvements in all programmed STIP projects based on site analysis and coordination with NCDOT.

Long-term: During this horizon, NCDOT and the Town will implement newly developed safety projects identified as part of corridor studies, local plans, and new CTP projects. All plans and projects will use the Safety Screening Approach to proactively identify appropriate typical road sections, design speeds and crash countermeasures. Decisions will be guided by Town policies and coordination with NCDOT for developing Complete Streets and setting appropriate design speeds or posted limits along local and state system roads.

Strategies

Strategies in the Action Plan are high-level approaches based on safety goals and desired outcomes for local safety. The strategies are supported by performance measures and described per expected timelines for implementation. These strategies are examples of programs and policies that the Town can implement. These strategies should be re-evaluated, modified, and adjusted when the Action Plan is updated.

Goal	Strategies	Priority
Implement a "Safety in All Plans and Projects" approach	Work with NCDOT and CAMPO to consider crash risk and crash history in all proposed STIP and maintenance projects.	Long Term
	Coordinate with NCDOT traffic safety unit to identify and prioritize transportation safety needs for near-term implementation.	Near Term
	Integrate speed management treatments into local projects in urban contexts.	Long Term
	Perform speed studies along roads with identified speed problems to identify potential safety improvements.	Near Term
	Set budget targets for and increase capital spending on safety projects.	Near Term
	Revisit multimodal network plans (bike, pedestrian, greenways, transit) with safety coordination as a primary objective	Near Term
Implement systemic safety throughout town, prioritizing high risk locations in support of "sustaining zero"	Create an inventory of and implement systemic improvement projects for pedestrian crossings and intersection safety.	Near Term
	Inventory and assess needs for all warning and regulatory signage for pedestrian and bicycle networks and crossings.	Near Term
	Develop recommendations for safer crossings at or near transit service passenger access points and trail crossings.	Long Term
	Plan and design improvements that minimize pedestrian and bicyclist exposure at existing high-injury intersections and for planned and programmed intersection designs.	Near Term
	Construct improvements that minimize pedestrian and bicyclist exposure at existing high-injury intersections and for planned and programmed intersection designs.	Long Term
	Assess distance between crossings on multilane arterials and install PHB-controlled midblock crossings on high-speed, high-volume routes.	Long Term
Implement safety improvements across the High Injury Network by 2035	Perform Road Safety Assessments (RSAs) or similar safety studies along all Priority HIN Locations.	Near Term
	Create town-wide Access Management Plan.	Long Term

Table 3: Morrisville in Motion Goals, Strategies, and Actions

Goal	Strategies	Priority
Integrate safety countermeasures in all development and community-led projects (contingent on state enabling legislation)	Update traffic impact analysis methods to identify and incorporate multimodal safety strategies.	Near Term
	Develop or update development standards to proactively include safety improvements or countermeasures for all roadway users.	Near Term
	Develop a traffic calming program and guidance.	Near Term
	Begin implementation of traffic calming program and associated guidance.	Long Term
Promote the benefits of a safer transportation system to Morrisville residents	Evaluate and communicate the performance of safety projects and experimental treatments to increase understanding of the effectiveness of countermeasures.	Near Term
	Continue and expand collaboration with healthcare, education, and community organizations to promote the benefits of improving transportation safety.	Near Term
	Establish a Local Safety Task Force to discuss safety project needs, strategies, and plan implementation.	Near Term
	Hold “open streets” events or create pop-up “traffic gardens” to engage with the public and educate the community about local safety initiatives.	Long Term
	Survey the community on a routine basis about safety problems and understanding of proven countermeasures.	Near Term
	Partner with Morrisville schools to develop an educational campaign for young drivers to understand the importance of driving safety.	Long Term
	Meet with regional and state partners to explore options for incorporating traffic safety into adult education programs.	Long Term
	Provide additional support for sustained enforcement and community education about impaired driving.	Long Term

Table 3: Morrisville in Motion Goals, Strategies, and Actions

Priority Locations for Safety Review

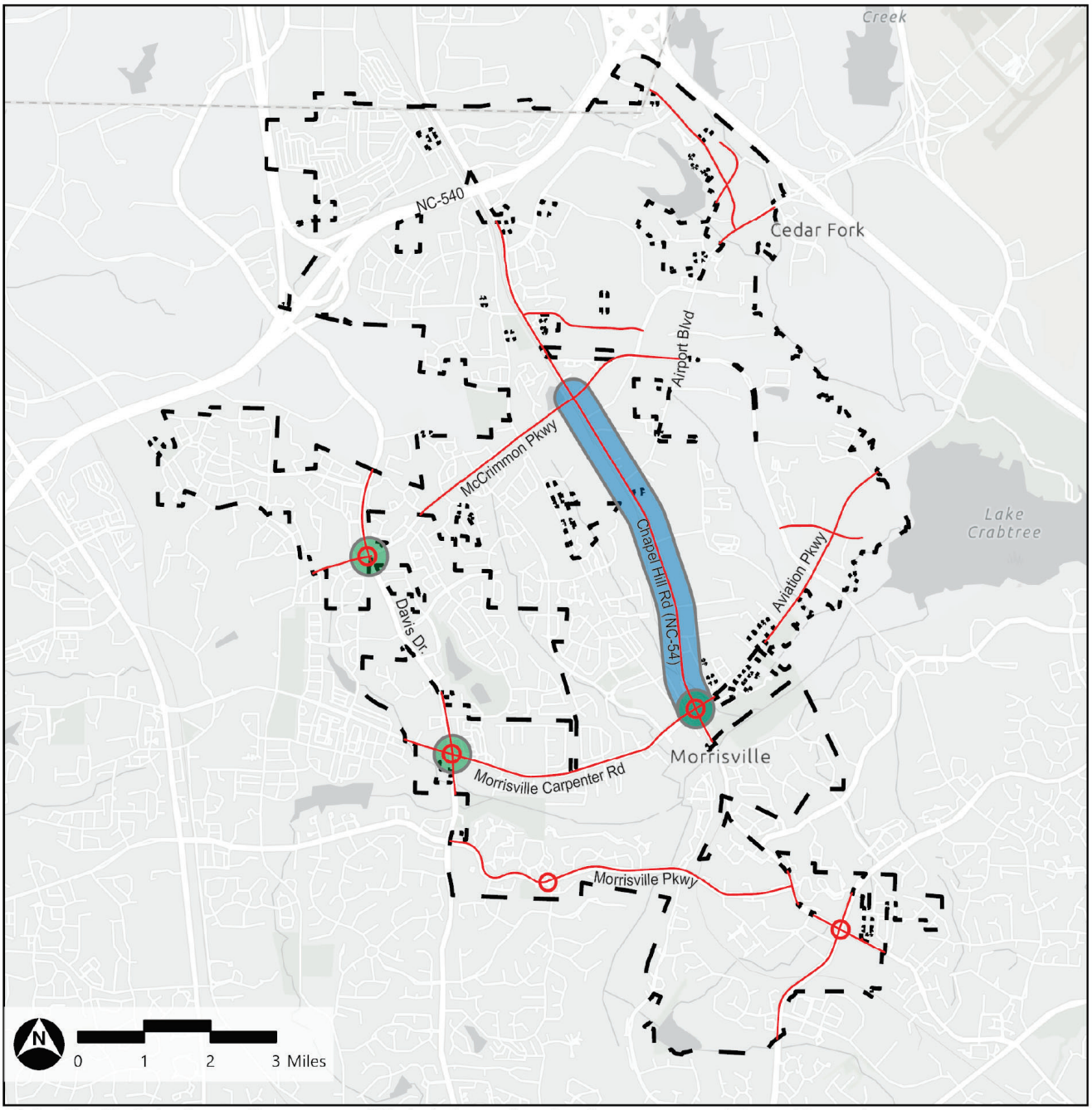


Figure 10: Priority Locations for Safety Review

Priority locations for safety review focus on geographic locations within the town along the HIN and High Injury Intersections (HII). These locations are filtered through crash risk, public and stakeholder input, and program review to prioritize corridors and intersections not scheduled for improvement by STIP or safety projects in the 2025-2030 horizon. HIN corridors such as Aviation Parkway and McCrimmon Parkway are excluded from the priority locations due to the near term roadway changes from committed STIP projects. Similarly, Morrisville Carpenter Road was excluded due to the roadway improvements made to the corridor during the study period. The priority locations focus on high injury, high risk locations that should be further examined for near term improvements to address safety concerns in the near term. Committed projects in the STIP should be examined for safety in their final designs, and as such are not a priority focus for the Action Plan.

These priority locations should be targeted for safety review and programming within the first five years of the Action Plan adoption. The Action Plan includes cut sheets for each priority location. These cut sheets summarize key data and potential safety countermeasures for each location. All locations should be further assessed for development in future safety projects. Priority locations are:

» The NC-54 Corridor from McCrimmon Parkway to Morrisville Carpenter Road

» The NC-54/Aviation Parkway Intersection

» The Morrisville Carpenter Road/Davis Drive Intersection

» The McCrimmon Parkway/Davis Drive Intersection

CORRIDOR:

NC 54/Chapel Hill Road

ROADWAY PROFILE

NC 54/Chapel Hill Road

Classification: Principal Arterial

Number of Lanes: 2-3

Median: N/A

AADT: 12,500-22,500

Posted Speed Limit: 45 mph

85th Percentile Speed: 43 mph

ROW: 100’

Crosswalks: N/A

Refuge: N

Sidewalks: Y, Intermittent, 5’ Width

Bike Facilities: N

Transit Facilities: N

Land Use Context: Industrial, Commercial, Transit Oriented Development, Rail

NC 54/Chapel Hill Road

CRASH TYPE PROFILE

CRASH TYPE

K (Fatal Injury): 1

A (Serious Injury): 0

B (Minor Injury): 23

C (Possible Injury): 60

O (No Injury): 285

U (Unknown): 2

TOTAL NUMBER OF CRASHES:

371

CRASH RISKS:

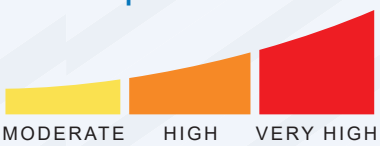
Crash risks are highest north of Airport Boulevard and south of Green Drive; the following crash types are moderate to very high crash risk in these segments: **pedestrian**, **bike**, **speeding**, and **lane departure**.

Rear End makes up 45% of injury crashes.

INTERSECTION

NC-54/McCrimmon Parkway

NC-54/Airport Boulevard



NC-54/Aviation Parkway

PLANNED

The NC 54 corridor has multiple projects planned in the 1-10 year horizon. U-5811, a widening project for Aviation Pkwy, will make intersection improvements at the intersection with NC-54, including adding a quadrant loop and realigning the intersection further east. U-5811 is anticipated to begin construction in 2029. U-5750, a widening project on the northern extent of the corridor, will add a median from McCrimmon Pkwy to just south of Perimeter Park Dr, bike lanes in both directions from McCrimmon Pkwy to Perimeter Park Dr, and sidewalks on the east of NC-54 from McCrimmon Pkwy to Perimeter Park Dr. U-5750 is anticipated to begin construction in 2027. U-5747 will construct a “flyover” on McCrimmon Pkwy at the intersection with NC-54 and will close the roadway and rail crossing at NC-54 and McCrimmon Pkwy. A predominant pattern of rear end crashes is likely due to peak hour congestion. Congestion management strategies can reduce rear end crashes but should be evaluated for safety impacts.

PROPOSED SAFETY COUNTERMEASURES

- **Implement signal, signage, and visibility improvements**, including optimized phasing, advanced warning beacons, and vegetation clearance.
- **Add sidewalk or MUP** along at east side of NC-54 from Sunset Ave to Johnnie Robertson Dr.
- **Add pedestrian crossing** of NC-54 at Johnnie Robertson Dr, controlled by PHB or RRFB. Explore feasibility of adding a traffic signal and pedestrian refuge islands at Johnnie Robertson Dr, coordinated with the designs for U-5811.
- **Add sidewalk or MUP** along east side of NC-54 from Johnnie Robertson Dr to Aviation Pkwy, coordinated with U-5811 designs.
- **Evaluate access management strategies** including reducing driveway density and restricting left-in movements along corridor.
- **Evaluate lighting** along corridor.
- **Install advisory speed signage** along corridor.

INTERSECTION:

Morrisville Carpenter Road/Davis Drive

ROADWAY PROFILE

Morrisville Carpenter Road

Classification: Minor Arterial

Number of Lanes: 3-4

Median: 4-6’

AADT: 17,500

Posted Speed Limit: 35 mph

85th Percentile Speed: 38 mph

ROW: 100’

Crosswalks: 125-130’; Skewed

Refuge: N/A

Sidewalks: Y, 5’

Bike Facilities: N

Transit Facilities: N/A

Land Use Context: High Density residential and commercial

Davis Drive

Classification: Minor Arterial

Number of Lanes: 4

Median: 4’

AADT: 28,500

Posted Speed Limit: 45 mph

85th Percentile Speed: 45 mph

ROW: 100’

Crosswalks: 100-140’; Skewed

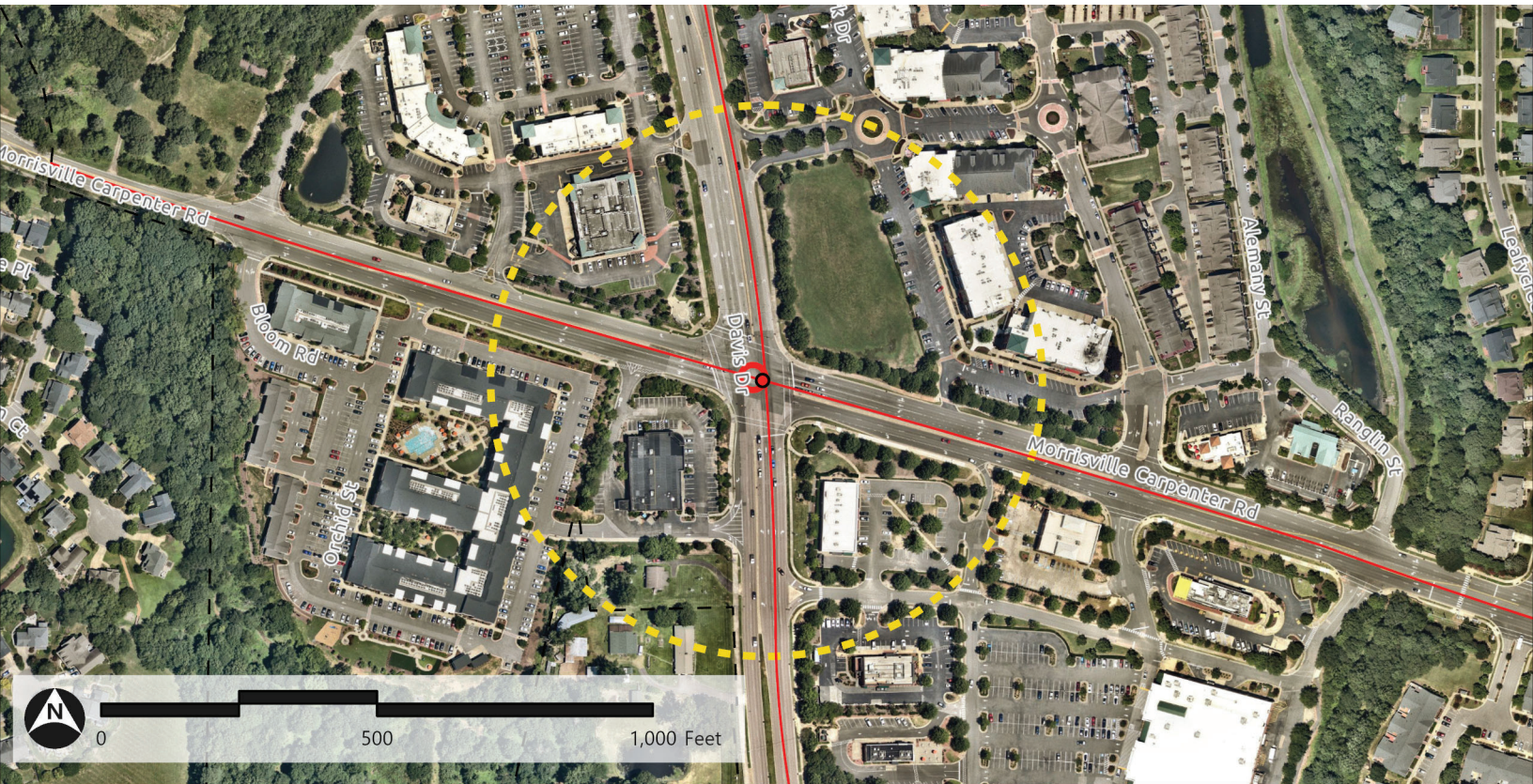
Refuge: N/A

Sidewalks: Y, 5’

Bike Facilities: N

Transit Facilities: N

Land Use Context: High Density residential and commercial



INTERSECTION:

Morrisville Carpenter Road/Davis Drive

Morrisville in Motion
A Safety Action Plan

CRASH TYPE PROFILE

CRASH TYPE

K (Fatal Injury): 0
A (Serious Injury): 1
B (Minor Injury): 10
C (Possible Injury): 26
O (No Injury): 147
U (Unknown): 4

TOTAL NUMBER OF CRASHES:

188

CRASH RISKS:

All Mode Crashes

Bike/Pedestrian Crashes

Angle & Left Turn make up 73% of injury crashes, 37% of all crashes

PLANNED

There are no planned projects for this intersection in the 10 year horizon. In 2023, the Morrisville Carpenter Rd Corridor, including this intersection, finished construction on a widening project that included the addition of sidewalks and pedestrian crossing traffic signals.

PROPOSED SAFETY COUNTERMEASURES

- **Evaluate U-Turn and Right Turn on Red Restrictions**; Optimize signal phasing to reduce turning conflicts.
- **Realign crosswalks** so crossing distance is at or below 100'.
- **Install curb ramps for perpendicular crossings**, replacing 45 degree curb ramps serving two crossings.
- **Install pedestrian refuge islands** on Morrisville Carpenter Rd and the northern approach of Davis Dr for realigned crosswalks.
- **Extend median** on southern approach of Davis Dr through the crosswalk to provide pedestrian refuge and slow turning movements.
- **Review all corner radii and create tighter turning movements** as feasible.
- **Evaluate intersection improvements** like Reduced Conflict Intersection or Multilane Roundabout.
- **Evaluate signage and wayfinding** for multimodal network connectivity and safety at intersection.
- **Evaluate intersection** as part of a multimodal/greenways network. Upgrade sidewalks to MUPs and crosswalks to trail crossings as applicable to multimodal network connectivity and safety, particularly on the western and northern approaches.

INTERSECTION:

Chapel Hill Road/Morrisville Carpenter Road

ROADWAY PROFILE

Morrisville Carpenter Road

Classification: Minor Arterial

Number of Lanes: 3

Median: N, 'Porkchop Islands'

AADT: 17,500

Posted Speed Limit: 35 mph

85th Percentile Speed: 40 mph

ROW: 40-60'

Crosswalks: N

Refuge: N

Sidewalks: N

Bike Facilities: N

Transit Facilities: N

Land Use Context: Mid-density residential, industrial, undeveloped

Chapel Hill Road

Classification: Principal Arterial

Number of Lanes: 3

Median: N

AADT: 19,000

Posted Speed Limit: 45 mph

85th Percentile Speed: 44 mph

ROW: 100'

Crosswalks: N

Refuge: N

Sidewalks: N

Bike Facilities: N

Transit Facilities: N

Land Use Context: Mid-density residential, industrial, undeveloped

INTERSECTION:

Chapel Hill Road/Morrisville Carpenter Road

Morrisville in Motion
A Safety Action Plan

CRASH TYPE PROFILE

CRASH TYPE

K (Fatal Injury): 0
A (Serious Injury): 1
B (Minor Injury): 4
C (Possible Injury): 34
O (No Injury): 246
U (Unknown): 2

TOTAL NUMBER OF CRASHES:

188

CRASH RISKS:

All Mode Crashes

Bike/Pedestrian Crashes

Rear End makes up 31% of injury crashes, 38% of all crashes

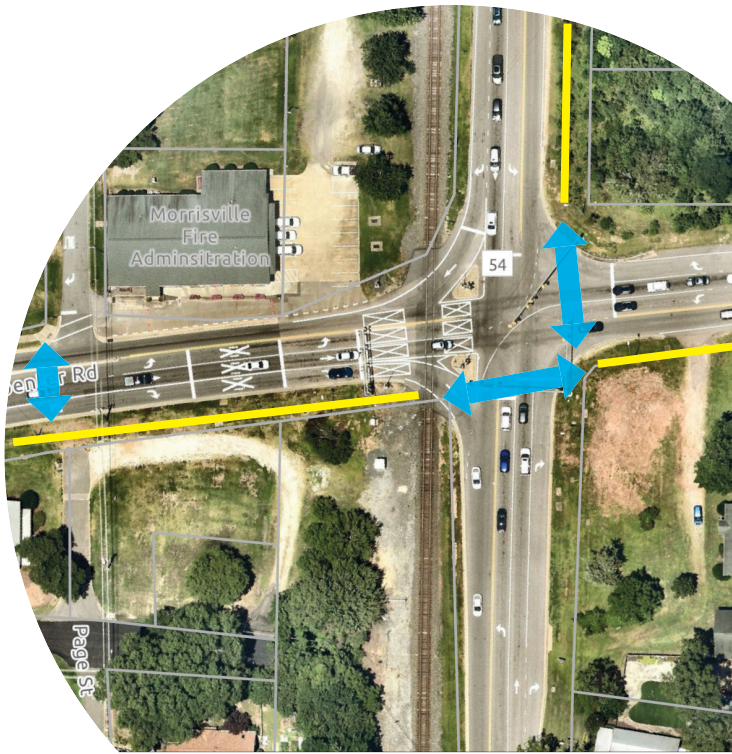
Left Turn (Same Roadway) makes up 49% of injury crashes.

PLANNED

This intersection has some planned projects in the 5-10 year horizon that will impact it's design. U-5811, a widening project for Aviation Pkwy, will include adding a quadrant loop along Aviation Pkwy in the northeast intersection quadrant and realigning the intersection further east. This project will also add sidewalk segments on the southwest, northwest, and northeast corners of the intersection, and a multi-use path segment on the southeast corner, with crosswalks on the northern and southern approaches of
NC-54. U-5811 is anticipated to begin construction in 2029. North Carolina Railroad (NCRR) also has plans to add a second track on the rail corridor that runs through this intersection.

PROPOSED SAFETY COUNTERMEASURES

- **Add crosswalks** on southern and eastern approaches.
- **Add sidewalk or MUP** to southwest, southeast, and northeast corners.
- **Review all corner radii and improve pavement markings** to create tighter turning movements and more space for pedestrian facilities as feasible.
- **Review turning movements** for combining right turn and through movements on approaches as feasible.
- **Near-term improvements should attempt to align with future right of way plans** for U-5811 for sidewalk/MUP and crosswalk.



INTERSECTION:

McCrimmon Parkway/Davis Drive

ROADWAY PROFILE

McCrimmon Parkway

Classification: Local

Number of Lanes: 4

Median: Y, 4'-6'

AADT: 19,500

Posted Speed Limit: 35 mph

85th Percentile Speed: 40 mph

ROW: 80-85'

Crosswalks: Y, 100'

Refuge: N

Sidewalks: Y

Bike Facilities: N

Transit Facilities: N

Land Use Context: Commercial

Davis Drive

Classification: Minor Arterial

Number of Lanes: 4

Median: Y, 4'

AADT: 25,000

Posted Speed Limit: 45 mph

85th Percentile Speed: 45 mph

ROW: 85-90'

Crosswalks: N

Refuge: N

Sidewalks: Y

Bike Facilities: N

Transit Facilities: N

Land Use Context: Commercial

McCrimmon Parkway/Davis Drive

CRASH TYPE PROFILE

CRASH TYPE

K (Fatal Injury): 0
A (Serious Injury): 0
B (Minor Injury): 8
C (Possible Injury): 20
O (No Injury): 126
U (Unknown): 1

TOTAL NUMBER OF CRASHES:

155

CRASH RISKS:

All Mode Crashes

Bike/Pedestrian Crashes

Bicycle makes up 7% of injury crashes, 1.3% of all crashes

Angle makes up 36% of injury crashes

PLANNED

This intersection has a major project planned in the 1-5 year horizon that will significantly impact intersection operations and may impact safety outcomes. U-5747, a widening project for McCrimmon Parkway, will widen the road from two lanes to four lanes and includes continuous flow/displaced left turn lanes at the intersection with Davis Drive. U-5747 is expected to begin construction in 2027. The project includes 5- to 8-foot sidewalks and 5-foot bike lanes on McCrimmon Parkway and sidewalks on Davis Drive to match existing sidewalks. The intersection re-design includes 7 vehicle lanes on McCrimmon Parkway and 11 vehicle lanes on Davis Drive, with crosswalks and “porkchop” islands at all corners.

PROPOSED SAFETY COUNTERMEASURES

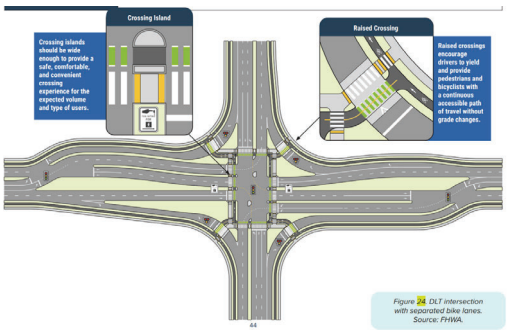
Due to the near-term impacts of construction and redesign of this intersection, the Town should closely monitor the safety outcomes at this intersection. In line with the strategies in this plan, as a growing municipality with numerous planned major projects, tracking the safety outcomes associated with large-scale intersection redesigns is critical to ensuring Morrisville can “sustain zero”. This project presents an opportunity for the Town to assess how well the various design elements in U-5747 address safety at one of the Town’s primary High Injury Intersections.

Monitoring should include tracking reductions in all crashes, KA crashes, and bicyclist and pedestrian safety, including crash data and separation in time and space, and crossing safety.

Consider retrofitting intersection with multimodal improvements upon completion of U--5747, including wide trail crossings at or within 100 feet of the intersection at all approaches, median refuge islands, and adding in MUP facilities behind the curb at all approaches.

At multi-lane, high-volume intersections, the Town should evaluate multimodal safety design principles.

FHWA’s Improving Intersections for Pedestrians and Bicyclists Information Guide (2022) provides examples of separating users in time and space at Displaced Left-Turn intersections.



Implementation Tools

Screening with Safety Data

To describe a specific safety problem or crash risk, the selected location (intersection, segment or corridor) can be reviewed using data from the Action Plan and regional safety frameworks. The potential for certain crash types can be described by reviewing the "crash type risk" mapping tools developed for the CAMPO Blueprint for Safety. Potential speeding problems can be assessed by comparing the "crash severity" metric to the surrounding context. Document site characteristics, including facilities for pedestrians and bicyclists and whether the location is managed for access, to inform countermeasure selection.

Table 4 is an example of information to be recorded as part of Safety Screening.

Location Characteristics	Existing Conditions
High Injury Network	What type of HIN was this location associated with? (See HIN maps)
Lane or Intersection Configuration	What are the number of lanes at Segment or by approach to intersection (Review aerial imagery or visit site)
Traffic Volumes	What is the Annual Average Daily Traffic (AADT) (See Exposure maps)
Speeds (Observed or Posted)	What are the posted or observed speeds (miles per hour) (See Severity maps for observed 85th weekday speeds)
Pedestrian Facilities	Are sidewalks present?
Bicycle Facilities	Are designated bike lanes or separated path present?
Transit Facilities	Are bus stops or shelters present?
Land Use Context	What is the current land use context? Urban Core, Urban, Suburban, Rural Town or Rural (See Block Group Classifications – Context maps)
Access Management	Does the location include a center median or restricted turning movements?

Table 4: Data for Safety Screening

Location Characteristics	Existing Conditions
High Crash Risk Types (see CAMPO Blueprint for Safety Data	» Intersection- Related; Intersection Bike-Ped - Related » Bicycle » Pedestrian » Lane Departure » Motorcycle » Speed-Related

Table 4: Data for Safety Screening

Countermeasures

Conducting field reviews is necessary to describe explicit safety problems and to identify opportunities for specific countermeasures. Additional analysis may be necessary to evaluate the impacts of potential countermeasures on traffic operations, pedestrian and bicycle mobility, constructability, and implementation costs. Refer to the NCDOT Countermeasure Glossary for more information about treatments and other strategies to consider.

While reviewing the location in the field through an implementation strategy and considering the safety problems identified earlier in the process, potential countermeasures may be identified. Countermeasures match identified safety needs (such as crash types) and are chosen based on their effectiveness in addressing the types and severity of the safety problems specific locations.

Project Funding

Federal Programs

The USDOT and NCDOT manage several funding programs to support local transportation safety projects. The USDOT FHWA provides core federal-aid funding to NCDOT specifically for safety and other transportation improvements. NCDOT programs most of these core federal funds through its Strategic Transportation Investments (STI) process, known as SPOT. The SPOT ranking system evaluates safety alongside other scoring criteria. Additionally, USDOT offers the SS4A grant program to help local and Tribal transportation agencies develop and construct infrastructure safety projects. Partners should consider these federal funding sources valuable resources for project implementation.

SS4A Implementation Grants

Implementation Grants are one of **two grant types available** under the SS4A program. Implementation Grants provide federal funds to implement projects and strategies identified in a comprehensive safety action plan to address a roadway safety problem. Applicants must have an eligible action plan to apply for an Implementation Grant. All applications must address safety problems by proposing to implement projects and strategies (e.g., construction) included in the action plan within 5 years of executing a grant agreement. Eligible projects and strategies can include infrastructural, behavioral, or operational activities.

Planning and Demonstration Grants may be used to:

» Develop, complete, or supplement the safety action plan

» Supplementary planning activities (e.g., RSAs) and demonstration activities (e.g., feasibility studies).

- Note: Demonstration activities require before-and-after crash data analysis for the addressed safety concerns.

Implementation Grants may be used for:

» Safety demonstration activities to inform an existing Action Plan

» Supplemental safety planning to inform an existing Action Plan

» Project-level planning, design, and development activities for projects and strategies identified in an Action Plan

Project-level planning, design, and development activities must connect directly to the completion of projects and strategies funded through an Implementation Grant. In 2024, approximately 20 percent of applications were awarded Implementation Grant funds. The Implementation Grant program is much more competitive than the Planning and Demonstration Grant Program.

NCDOT Highway Safety Improvement Program (HSIP)

HSIP serves as a core federal-aid program dedicated to implementing safety projects through a data-driven process. 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 and pedestrian intersections, bicycle and 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. The Regional Traffic Engineers (RTE) within NCDOT's Traffic Safety Unit (TSU) analyze these sites and submit projects for quarterly funding consideration. The HSIP and Spot Safety programs, which are state funded, finance 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 solicits grant applications and selects recipients to fund 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 change annually based on state and federal guidance and funding. GHSP grants primarily receive funding from 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, local governments, universities, nonprofit organizations, and medical institutions. The application period typically opens each January, with selections finalized by summer. Projects generally start in October, and grantees must submit at least quarterly progress reports throughout the one-year grant cycle.

Local Funding

The Town should conduct 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 the inclusion of low-cost safety improvements such as revised pavement markings, rumble strips, warning signage, and temporary median islands. The Town should also consider appropriating funds to match state and federal grants for sustained law enforcement campaigns, safety education programs, and large-scale capital projects.

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8 Evaluating and Updating the Safety Action Plan

Reporting Progress

The Town of Morrisville will drive the Action Plan forward by meeting regularly to discuss and track implementation progress. The Town will report on progress annually using an annual report template. These reports will align with the goals, strategies, and performance measures in the Crash Reduction Framework and highlight key accomplishments from the previous year.

Morrisville may create a Traffic Safety Task Force to track and promote implementation among plan partners. A Traffic Safety Task Force should include representatives of the Town of Morrisville. The Task Force couls include or partner with NCDOT, non-governmental organizations, or other community organizations. The Task Force will develop and present bi-annual reports.

The Town will review new information from ongoing coordination and innovation to propose new strategies or projects for plan updates. The Action Plan should be updated every five years, preceding or concurrent with updates of the CTP. In preparation of future Action Plan updates, the Crash Analysis and HINs should use the most recent five years of crash data (all crash types) and the most recent ten years of bicycle and pedestrian crashes.

Statewide and Regional Coordination

NCDOT and its divisions administer federal funds and state grants that can support the implementation of the Action Plan. NCDOT supports the prioritization and implementation of the strategies and actions outlined in the plan for Morrisville's goals for improved safety, mobility, and community investment. In addition to supporting funding and prioritization, the Town of Morrisville and its stakeholders can communicate their interests to state lawmakers to increase access to safety countermeasures and strategies.

A strong line of communication between local, regional, and state agencies can help establish local safety guidelines and policies for safer transportation laws, increase enforcement and visibility, increase accessibility to safety countermeasures, and create resource libraries across the state.

The Action Plan includes strategies that complement the NCDOT SHSP and is not intended to compete with or replace the work that the NCDOT TSU performs across the state. NCDOT TSU serves as a resource for expertise, including safety data analysts, engineers who evaluate the effectiveness of safety projects, and regional field staff who review locations for potential safety improvements. The Town of Morrisville will continue to coordinate closely with CPRC to develop future safety projects and identify opportunities for funding and implementation. NCDOT also provides information about HSIP, and the procedures followed by TSU to identify traffic safety issues and select potential projects.

Pictured: RRFB at Town Hall Dr. and Cedar Fork Elementary School
Pictured: RRFB at Town Hall Dr. and Cedar Fork Elementary School

9 Future Considerations for Transportation Safety Planning

The Town of Morrisville oversees several programs that can fund priority actions of the Action Plan. CAMPO has several funding programs that can support priority actions, such as developing policies, integrating safety data tools into studies and plans, prioritizing safety in local projects, promoting safety education messages and materials, and providing staff support for monitoring Action Plan implementation. This section describes opportunities for implementing Action Plan recommendations through several programs, plans, and activities.

Long-Range Planning

The Town can incorporate tools developed for the Action Plan into long-range plans, such as the Comprehensive Transportation Plan (CTP). The Town of Morrisville has initiated the process of updating its CTP, which is expected to take approximately 15 months, with adoption projected around October 2026. The current Morrisville CTP, adopted in 2019, was evaluated using a SSA methodology. The 2019 CTP effectively addresses safe road users and safe roads through its focus on multimodal transportation investments and by encouraging safe, responsible driving habits while prioritizing conditions that support the safe arrival of all road users. Safe vehicles, safe speeds, and post-crash care elements of the SSA are absent from the 2019 CTP. There are opportunities in the update of CTP to expand upon elements in the SSA. These may include explicit safety considerations in roadway design, intersection improvements, and mode separation, with measurable strategies or outcomes.

Actions in the Action Plan can be integrated into the long-range planning process in the following ways:

» Include new safety partners for future CTP stakeholder involvement (traffic engineers and planners, first responder agencies, public health, schools, advocacy groups, members of the public) to provide diverse perspectives on roadway safety.

» Integrate safety data and risk factors into CTP project cut sheets.

» Perform an inventory of roadway features common to focus crash types and develop systemic (multi-site or widespread) safety projects based on crash risk or common deficiencies identified across the network.

» Consider establishing "bundled" or grouped projects for safety in the CTP (e.g., low-cost systemic safety improvements at multiple locations). Develop systemic (multi-site or widespread) safety projects based on crash risk or common deficiencies identified based on an inventory of the network.

» Consider including a flag for projects that have been screened using safety data (e.g., specific crash history or expected crash risk) and reviewed as part of the RSA. This flag would indicate a specific safety problem and inform project descriptions and potential treatments before projects reach the evaluation stage of the Metropolitan Transportation Plan (MTP) process.

Area-wide Plans, Corridor Studies and Regional Plans

The Town of Morrisville can implement priority actions in the Action Plan by taking the following steps in plans and studies it develops:

» Consider all modes in the development of system plans and project scopes.

» Address separation of roadway users by incorporating guidance for bikeway and pedestrian network facility selection in all multimodal corridor studies.

» Consider transit and K–12 school bus operator and passenger safety in plans.

» Include first responders (EMS, police, fire) in plan development to address 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.

» Integrate the Safety Scoping process and safety data when evaluating locations in corridor studies, hot spot investigations, and area plans.

» Address pedestrian crossing safety and access to bus stops in transit planning.

- Consider including a “vehicle-to-everything” technology review and discussion of vehicle safety features in future transportation plans and studies.
- Include crash severity analysis when performing alternative analyses in intersection studies, such as Hot Spot and interchange feasibility studies.
- Refine and incorporate context-based guidance for land use development and setting design speeds in area studies.
- Incorporate speed studies and speed management strategies in corridor studies on non-access-controlled routes.
- Incorporate traffic-calming and visibility-improvement measures in local area and collector street studies.

Pictured: PHB at Morrisville Carpenter Rd. and Madres Ln. Bus Stop

Morrisville in Motion in Action

Morrisville in Motion underscores the Town of Morrisville's commitment to maintaining zero fatal and serious injury crashes on Morrisville roadways. The Town of Morrisville is committed to diligently pursuing the outlined strategies and actions in this Action Plan. This includes a commitment to the level of departmental and inter-agency collaboration required to advance the goals laid out in Morrisville in Motion.

Traffic safety is a shared responsibility—everyone has a role to play! Every action we take and every choice we make can model safety behavior, can support a culture of traffic safety, and can affirm our shared responsbility to protect lives on Morrisville roads.

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Morrisville *in Motion*

A Safety Action Plan

Morrisville
Live connected. Live well.