**Knightdale Town Council**
**Meeting Agenda**

**November 21, 2024, 7:00 p.m.**
**950 Steeple Square Court, Knightdale, North Carolina 27545**

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1. **WELCOME**
2. **ADOPTION OF AGENDA**
3. **JOINT PUBLIC HEARINGS**

   *If you anticipate speaking at tonight's joint public hearing, print your name and address on the form at the entry table. You must speak from the podium to assure an accurate record of testimony. Before speaking, please state your name and address for the record. Speaker comments are limited to three (3) minutes and large groups are asked to designate a spokesperson. Written public comments will be accepted up to 24 hours prior to the meeting and can be submitted online (Knightdale Public Comment Form).*

   a. ZMA-13-21 EP Mart Vested Rights Extension — DS Director

   b. Safe Streets for All Safety Action Plan — Senior Planner

4. **ADJOURNMENT**

# Town of Knightdale

*Staff Report Cover Sheet*

Title: EP Mart Vested Rights Extension Request

Staff: Kevin Lewis, Senior Planner

Date: November 21, 2024

**PURPOSE**

- The purpose of this staff report is to provide an overview of a vested rights extension request for the 2.33-acre parcel at 7604 Knightdale Blvd.

**STRATEGIC PLAN PRIORITY AREA(S)**

- Connected & Inclusive

**GENERAL STATUTE REFERENCE(S)**, *if applicable*

- N.C.G.S. 160D-108(d)

**TYPE OF PUBLIC HEARING,** *if applicable*

- Legislative

**FUNDING SOURCE(S)**, *if applicable*

- N/A

**ATTACHMENT(S)**

- Staff Report
- Approved Master Plan
- Vested Rights Extension Request

**STAFF RECOMMENDATION**

- Receive comments during the Joint Public Hearing comment period;
- Refer to the Land Use Review Board for advisory statement and recommendation.

# Town of Knightdale

*Staff Report*

Title: EP Mart Vested Rights Extension Request

Staff: Kevin Lewis, Senior Planner

Date: November 21, 2024

Director Signature: JB

Asst. Town Manger Signature: DT

Town Manager Signature: WRS

## I. REQUEST:

Kimley-Horn & Associates, Inc., on behalf of Eastern Petroleum Corp., has submitted a vested rights extension request for the 2.33-acre parcel at 7604 Knightdale Blvd., identified by Wake County PIN 1754-55-8995.

## II. PROJECT PROFILE:

| | |
|---|---|
| PROPERTY LOCATION: | 7604 Knightdale Blvd |
| WAKE COUNTY PIN: | 1754-55-8995 |
| CURRENT ZONING DISTRICT: | Highway Business Conditional District |
| APPLICANT: | Kimley-Horn & Associates, Inc. |
| PROPERTY OWNER: | Eastern Petroleum Corp. |
| PROPERTY SIZE: | 2.33-acres |
| CURRENT LAND USE: | Gas Station with Convenience Store (UDO Sec 3.1.C.4.c) |

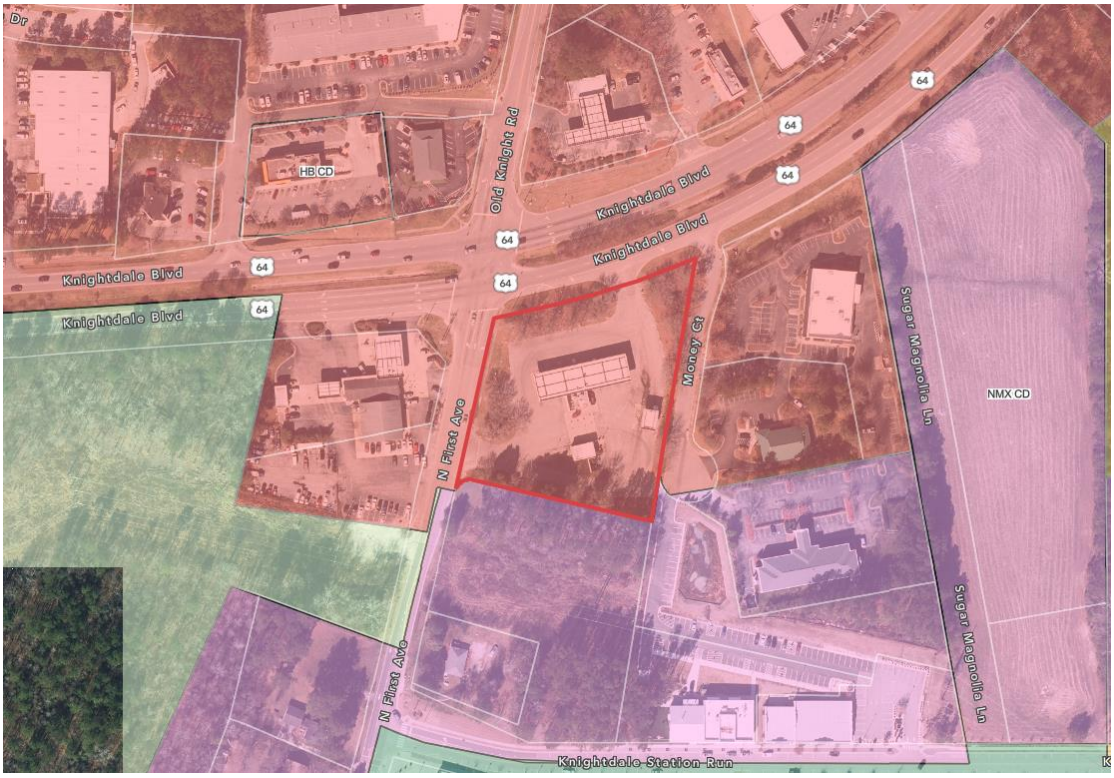
## III. BACKGROUND INFORMATION:

On September 21, 2022, a Conditional District Zoning Map Amendment and Master Plan were approved for this site to be redeveloped into a 6,600 square foot convenience store and gas station. According to UDO Section 12.2.G.3.f.iii, "the applicant must secure a valid building or construction permit(s) within a 24-month period from date of approval of the ZMA-CD unless otherwise specified." The vested right, or the right to complete the development of property under the terms and conditions of an approved site plan, can be rescinded by Town Council after the 24-month period. Under UDO Section 12.2.G.4, the applicant may request an extension to the vested rights period where it is determined that due to (i) the sizing and phasing of the development; (ii) the level of investment; (iii) the need for the development; (iv) economic cycles; or (v) due to market conditions.

## IV. PROJECT SETTING – SURROUNDING ZONING DISTRICTS AND LAND USES:

The site is located on one (1) parcel, located on the southeast corner of Knightdale Blvd and North First Avenue. The current structure is 2,500 square feet and features six fuel pumps and a car wash.

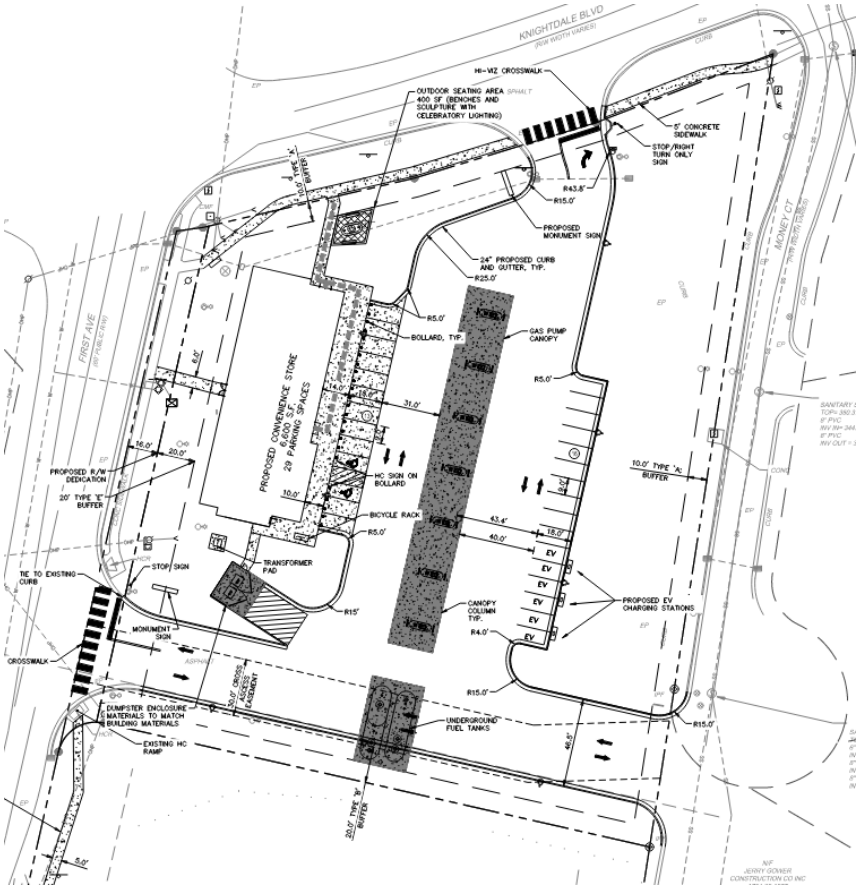
| DIRECTION | LAND USE | ZONING |
|---|---|---|
| North | Retail | HB |
| South | Vacant | NMX |
| East | Retail | HB |
| West | Retail | HB |

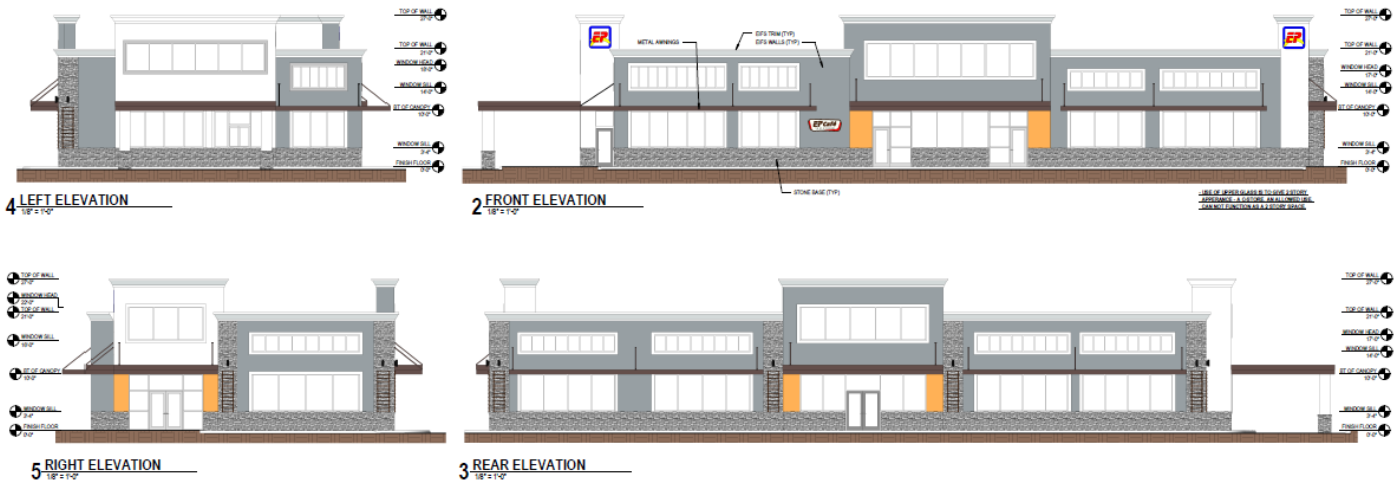

HB CD
Old Knight Rd
Knightdale Blvd
Knightdale Blvd
Knightdale Blvd
Knightdale Blvd
64
Money Ct
N First Ave
N First Ave
Sugar Magnolia Ln
Sugar Magnolia Ln
NMX CD
Knightdale Station Run


Old Knight Rd
Knightdale Blvd
Knightdale Blvd
Knightdale Blvd
Knightdale Blvd
64
Money Ct
N First Ave
N First Ave
Sugar Magnolia Ln
Sugar Magnolia Ln
Knightdale Station Run


**V. APPROVED MASTER PLAN:**

The approved master plan would replace the existing convenience store with a larger, single-story structure, relocating it to front N First Avenue and placing the seven fuel pumps and canopy behind. The developer would also construct off-site sidewalk along N First Avenue to connect this site to Knightdale Station Run.






## VI. VESTED RIGHTS EXTENSION:

The developer has requested the vested rights period be extended two additional years, to conclude in 2026, with the following timeline:

1. Evaluate Floor Plan/Customer Feedback on Remodels of Recent Stores: through June 2025
2. Resubmittal of Construction Drawings: April/May 2025
3. Construction Drawing Approval: December 2025/January 2026
4. Submittal of Building Permit: December 2025
5. Building Permit Approval: February 2026
6. Start Construction: May -July 2026

## VII. STAFF RECOMMENDATION:

Staff recommends holding a joint public hearing, and following public comment, to close the public hearing and refer the case to the Land Use Review Board for review and recommendation.

Kimley»Horn

September 10, 2024

Mr. Kevin Lewis, AICP, CZO
Town of Knightdale
950 Steeple Square Court
Knightdale, NC 27545

**RE:** ***ZMA- 13-21 Master Plan Extension Request***

Dear Mr. Lewis,

On behalf of EP Mart, we are formally requesting a 2-year extension to the subject approved master plan located at 7604 Knightdale Boulevard. Per UDO Section 12.2.G.4, the level of investment based on current economic conditions and subsequent required approval durations have necessitated this request.

EP Mart did make an initial submittal of site construction drawings shortly after master plan approval; however, a consistent uptick in construction pricing coupled with the unique design aspects of this project represents a significant level of investment.

We would anticipate initiation of the final design of the building and canopy within the next year with final permitting occurring in the subsequent year. As such we are requesting a 2-year extension.

Please feel free to contact me at (919) 653-2927 or chris.bostic@kimley-horn.com should you have any questions.

Sincerely,

Christopher O. Bostic, P.E.

# Town of Knightdale

*Staff Report Cover Sheet*

Title: Safe Streets for All – Safety Action Plan

Staff: Andrew Spiliotis – Senior Planner, Land Use & Transportation

Date: November 21, 2024

**PURPOSE**

- The Town received a USDOT Safe Streets for All grant to develop a transportation Safety Action Plan. The Town worked with Kimley-Horn & Associates to develop transportation safety recommendations over the past year. The recommendations focus on achieving a safe transportation system through speed limit reductions, roundabout design and feasibility analysis, safety policy strategies and through identifying priority project corridors based on fatal and severe crash concentrations.
- The Joint Public Hearing marks the end of the public comment period on the draft Safe Streets for All Safety Action Plan (SAP) that began on October 25th. An open house was held in the Town Hall Lobby before tonight's Joint Public Hearing as well. Staff and Kimley-Horn & Associates will provide an update on the draft SAP including the year long development process, the SAP contents and feedback received on the draft SAP.

**STRATEGIC PLAN PRIORITY AREA(S)**

- Safe
- Connected & Inclusive

**GENERAL STATUTE REFERENCE(S),** *if applicable*

- NCGS 160D-501 *"Plans"*
- NCGS 160D-605 *"Governing Board Statement"*

**TYPE OF PUBLIC HEARING,** *if applicable*

- Legislative

**FUNDING SOURCE(S),** *if applicable*

- NA

**ATTACHMENT(S)**

- Staff Report
- Draft Safety Action Plan
- Draft Safety Action Plan Appendices

**STAFF RECOMMENDATION**

- After receiving public comment, close the public hearing and refer to the December 9, 2024 Land Use Review Board Meeting for an advisory statement and recommendation.

# Town of Knightdale

*Staff Report*

Title: Safety Action Plan

Staff: Andrew Spiliotis, Senior Planner

Date: November 21, 2024

Director Signature:

Asst. Town Manager Signature:

Town Manager Signature:

**PURPOSE:**

The Joint Public Hearing will conclude the comment period on the draft Safety Action Plan (SAP) that began on October 25, 2024. The Joint Public Hearing presentation will include: 1) a recap of the SAP process and the contents of the SAP; and 2) an overview revisions to the October 25 draft SAP.

**ENGAGEMENT:**

The SAP process included the creation of a Vision Zero Task Force which included representatives from Administration, Development Services, Fire, Police, Public Works and Town Council. The Task Force met multiple times throughout the year long process to provide direction and review of the SAP. The process also included a SAP kickoff open house, an open house on the draft SAP, a presence at the Comprehensive Plan's open house and tables at the Latin American Festival and the Arts and Education Festival. Social media posts were made advertising both open house events, a public input survey and the draft plan. The SAP's website included an interactive map survey where staff received helpful feedback around priorities and safety concerns.

**SAFETY ACTION PLAN OVERVIEW:**

The Town was awarded a USDOT Safe Streets for All planning grant to create a Safety Action Plan in February of 2023. After finalizing the USDOT agreement and securing Kimley-Horn and Associates as the consultant, the Town kicked off the plan in December of 2023. The year long process began with an existing conditions State of Safety analysis alongside public outreach and stakeholder interviews. The draft SAP develops recommendations for a High Injury Network Map, Priority Corridors for Safety Projects, Quick Build Projects, Roundabout Design Guidance, Roundabout Feasibility Analysis, and CTP Corridor Speed Limit Audits. These SAP components are summarized below.

State of Safety Report

- *State of Safety Report* - The State of Safety Report is an existing conditions report that compares crash data from the last five years against relevant demographic variables.
- *High Injury Network Map* - The report also breaks out crash data according to whether or not crashes are fatal, severe injury or a minor crashes. The Task Force agreed to assign higher weights to fatal and severe injury crashes, as well as pedestrian crashes, in order to develop a concentrated corridor heat map or High Injury Network Map. This map depicts areas in Knightdale's planning area where future safety projects should be focused due to the concentration of serious crashes.

Priority Corridors for Safety Projects

- The High Injury Network map was overlaid with public comments and staff feedback to identify corridors where future safety improvements should be targeted. Identifying these corridors and intersections will allow for staff to apply for Safe Streets for All Implementation Grants.

Roundabout Design Guidance

- The SAP developed flexible standard specifications for the design of roundabouts and traffic calming infrastructure. The guidance is designed to adapt to different intersection geometries and constraints. The guidance covers improvement types including a single lane roundabout, a roundabout where a second through lane/slip lane drops off, a mini roundabout, roundabout signage and traffic calming elements such as chokers, medians and chicanes.

Roundabout Feasibility Analysis

- The SAP analyzed twenty-five intersections to determine if roundabouts are feasible given constraints such as roadway grade, traffic congestion and whether a traffic signal or stop sign would function better than a roundabout. The locations selected were all intersections where the Unified Development Ordinance calls for a roundabout based on collector and/or arterial roadways intersecting. The analysis determined fourteen intersections where a roundabout is feasible and the preferred solution. Traffic volumes on Smithfield and Hodge roads near I-87 ruled out several potential roundabouts.
- As a separate deliverable, the SAP included conceptual roundabout designs and cost estimates at five locations: Old Crews Road @ Forestville Road, Hodge Road @ Mingo Bluff Boulevard, Smithfield Road @ Mailman Road, Widewaters Parkway extension @ Old Faison Road, and Laurens Way @ Lynwood Road (mini roundabout).

CTP Corridor Speed Limit Audits

- The SAP analyzed all Comprehensive Transportation Plan (CTP) classified roadways to determine if speed limit adjustments are needed given speed is a major safety variable. The analysis compared observed versus posted speed limits for all CTP roadways. The analysis also provided a more thorough analysis of twenty five corridor segments using the US Limits 2 tool which includes additional variables in developing target speed limits such as the number of driveways and pedestrian activity. The consultant also coordinated with staff to include Town concerns around slower speeds needed in downtown and around schools and transit. The final maps include short term (1-5 years) and long term (6-10 years) speed limit recommendations. The corridor recommendation timelines were coordinated against approved development and corridor urbanization timelines.

Actions

- The draft SAP includes a list of actions that the Town may pursue in order to achieve a safer transportation system. Notable examples include updating the Town's Traffic Calming Policy, implementing speed limit reductions, ongoing safety data monitoring and implementing sidewalk and roundabout projects.

**REVISIONS TO THE DRAFT:**

The consultant has incorporated ongoing staff comments on the initial draft that was released on October 25. The attached draft has been updated since October 25 to include the following:

- *Appendices* - The draft's appendices have been finalized and include:
  - Appendix A—Corridor Urbanization Decision Tree *(corridor urbanization threshold for when to request speed limit reductions)*
  - Appendix B—Data Management Plan
  - Appendix C—Roundabout Design Guidance
  - Appendix D—Roundabout Feasibility Assessment
  - Appendix E—Implementation Grant Checklist

- *Actions* – Staff provided comments on the table of proposed actions to clarify actions that the Town is already undertaking.

- *Project Prioritization Scoring* – Staff provided direction to adjust project prioritization criteria to provide additional points for roadways that are Town owned versus NCDOT owned given Town owned facilities are more feasible for project implementation.

- *Quick Build Projects* - The SAP identified six "quick build" lower cost safety projects that are easier to implement. These projects include:
  - *Main Street between Smithfield Road and 1st Avenue*: Parallel parking striping, traffic calming, lane striping and/or sharrows.
  - *Hodge Road at Mingo Creek Greenway Crossing*: Restripe excess outer lane pavement for greenway parking and traffic calming.
  - *Glen Manor Trail between Fayetteville Street and Village Gate Development*: stripe bike lanes and a through lane divider in order to slow Village Gate traffic.
  - *Raised Intersection and/or crosswalk for 1st Avenue at Sycamore Street*. The improvement will bring visibility to the Mingo Creek Greenway crossing, slow traffic and improve stop sign adherence.
  - *"No Trucks" Signage from Lynwood Road/Laurens Way/Parkside Commons Drive:* Signage would prevent heavy vehicles from cutting through the neighborhood and creating a safety concern for pedestrians and cyclists.
  - *Laurens Way @ Parkside Commons Mini Roundabout*: The roundabout would slow neighborhood cut through traffic.

- *Roundabout Guidance (edit underway)* – Based on staff input, the guidance will be revised to specify developers provide an audit of a proposed roundabout's physical dimensions as part of the design package they submit in order to aid staff review. This was consistent with prior recommendations but was not explicitly listed.

**PUBLIC COMMENTS RECEIVED:**

- A comment was provided using the SAP website ahead of the public comment period but was not discovered by the consultant until during the public comment period due to the comment being accidentally logged as spam by the website. The comment was a request from the Glenmere Home Owners Association management company requesting the SAP explore a recommendation for traffic calming on Glen Manor Trail which will experience cut through traffic to the Village Gate development. Staff responded that the SAP includes a quick build project intended to slow traffic on Glen Manor Trail.

**APPLICABLE REGULATIONS:**

- NCGS 160D-501 "*Plans"*
- NCGS 160D-605 *"Governing Board Statement"*

**ATTACHMENTS:**

- Draft SAP
- Draft SAP Appendices

**RECOMMENDED ACTION:**

- After receiving public comment, close the public hearing and refer to the December 9, 2024 Land Use Review Board Meeting for an advisory statement and recommendation.

October 2024

DRAFT

KNIGHTDALE
start something

The Knightdale

# SAFETY ACTION PLAN REPORT

KNIGHTDALE
Safety Action Plan

The Safety Action Plan was prepared by:

**The Town of Knightdale**

with

**Kimley-Horn**

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# 1

# Introduction

# INTRODUCTION

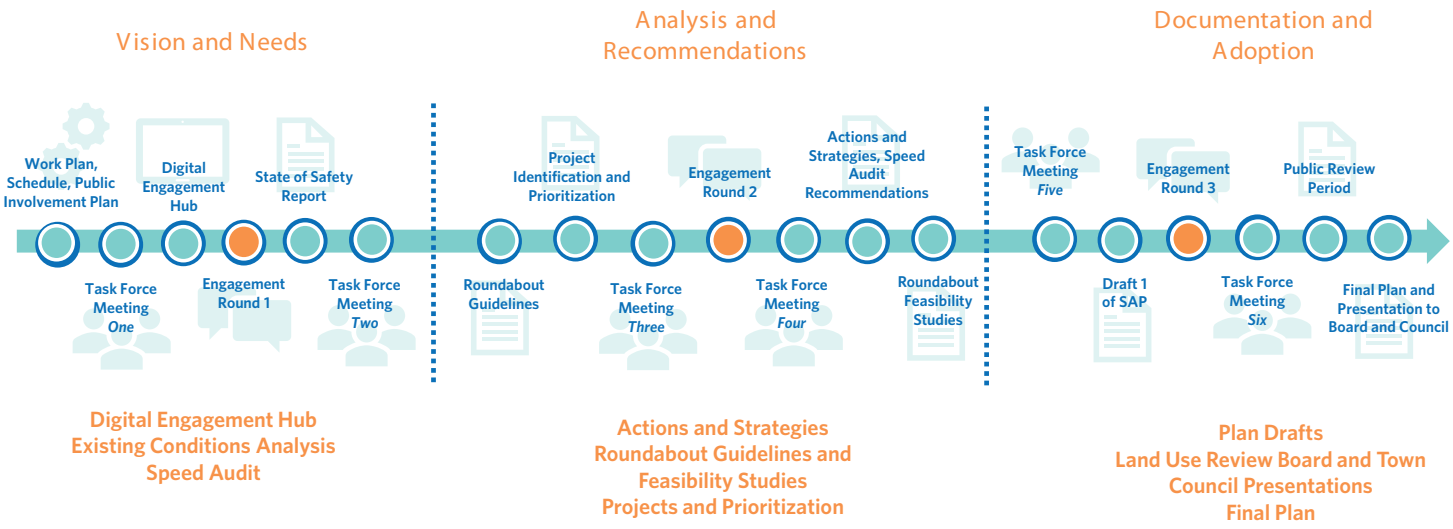
## Purpose

The Knightdale Safety Action Plan is the Town's vision for improving transportation safety in Knightdale. It includes a High-Injury Network (HIN), which is a map of the Town's roadway system highlighting the areas historically known to experience the most crashes—particularly fatal and serious injury crashes. The HIN becomes the Town's way of identifying the highest priority road segments for safety improvements.

The accompanying projects, actions, and strategies will help guide investments in roadway safety throughout Knightdale. The Plan uses data to analyze where fatal and serious injury crashes occur and outlines a tailored set of realistic projects and practical strategies that align with Knightdale's needs and the community's vision for transportation safety.

## Process

The Knightdale Safety Action Plan includes three phases: Vision and Needs, Analysis and Recommendations, and Documentation and Adoption. Meetings with the Task Force and public engagement opportunities guide each phase, including key interim deliverables, such as the State of Safety Report, the Project Identification and Prioritization, and the Safety Action Plan report document.



## Key Elements

The Plan is anchored around three key elements: the High-Injury Network (HIN), project prioritization, and an Action Table that provides a wealth of practical strategies to support the Town's roadway safety goals.

**High-Injury Network**

**Segments with the highest concentration of crashes and any segments with a fatal or serious injury crash**

**Prioritization**

**A list of project prioritized using highly vetted criteria that align with the Town's vision for roadway safety**

**Action Table**

**Policy and programmatic recommendations to support the Town's roadway safety goals**

# VISION ZERO OVERVIEW

Roughly 40,000 people are killed each year in roadway crashes in the United States. In 2021, more than 1,700 people died in North Carolina (Source: North Carolina Vision Zero). In recent years, there has been an uptick in roadway deaths and serios injuries.

To help prevent this tragic loss of life and health, there needs to be a coordinated approach among planners, engineers, public health professionals, law enforcement, elected officials, and all who travel our roadways. Vision Zero is a global movement to help provide that coordinated approach to prevent roadway deaths and serious injuries.

**The goal of Vision Zero is to eliminate all traffic fatalities and serious injuries, while increasing safe, healthy, and equitable mobility for all.**

## Safe Systems Approach

To achieve this goal, Vision Zero is grounded in a process called the Safe Systems Approach, which involves proactively implementing strategies most effective at preventing the most dangerous crashes before they even happen and ensuring when crashes do happen, they are not severe.

At the heart of the Safe Systems Approach are six key principles developed by the United States Department of Transportation (USDOT):

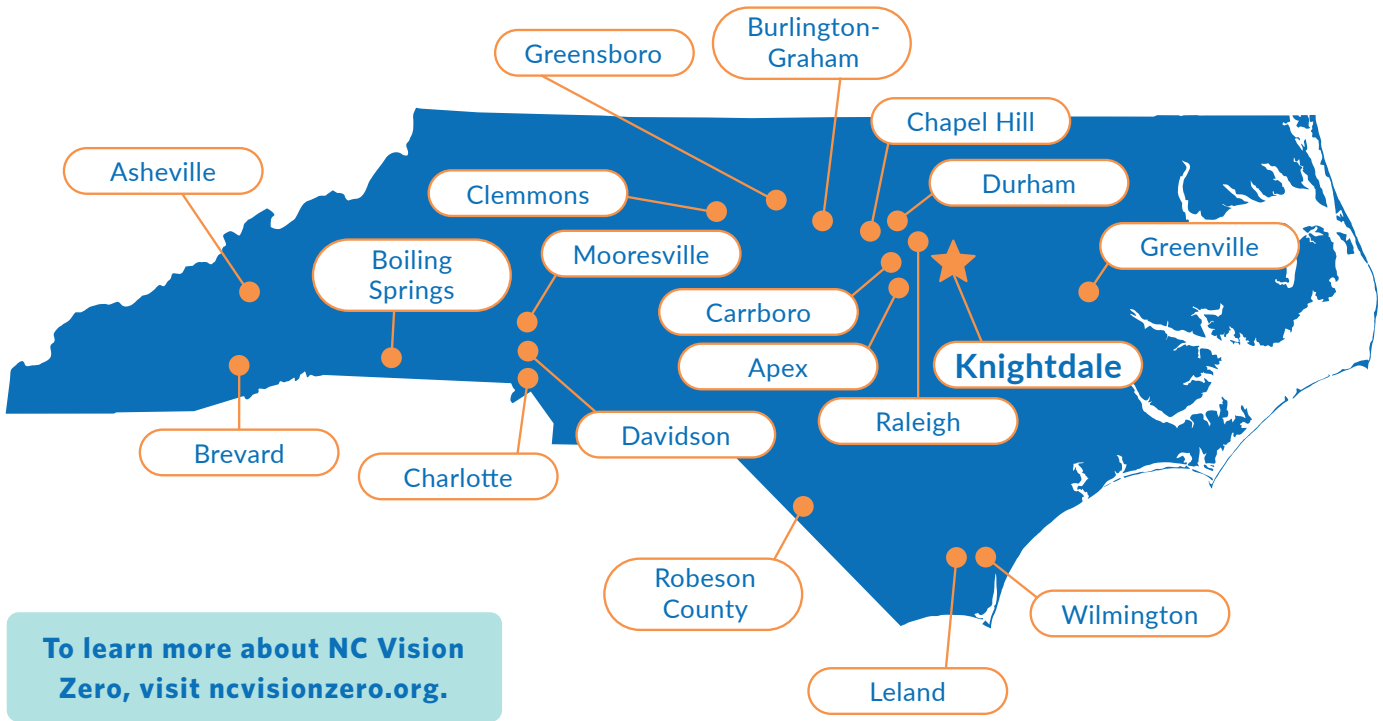
- **Deaths and serious injuries are unacceptable.** A single roadway death or serious injury is too many. Therefore, the Safe Systems Approach prioritizes strategies to prevent crashes that result in death and serious injuries.
- **Humans make mistakes.** Human error is a given, so the Safe Systems Approach emphasizes building a transportation system that anticipates mistakes to prevent the most dangerous crashes.
- **Humans are vulnerable.** The transportation system must be built with these human needs and vulnerabilities in mind, and not simply focus on moving people and goods quickly.
- **Responsibility is shared.** Everyone is responsible for preventing fatal and serious injury crashes, those who plan, design, build, manage the transportation system, and those who use it.
- **Safety is proactive.** The Safe Systems Approach relies on finding proactive solutions to identify risks in the roadway network and implement solutions to mitigate and eliminate those risks.
- **Redundancy is critical.** A robust transportation system that allows all users to travel in the manner they choose safely and efficiently is key to the Safe Systems approach. This acts as a fail-safe to keep roadway users protected if one part fails.

# NC Vision Zero

NC Vision Zero is focused on eliminating roadway deaths and injuries in the state. Knightdale is one of 17 communities who have adopted a goal of zero traffic fatalities and serious injuries. As an NC Vision Zero partner community, Knightdale will use this Action Plan to establish and implement data-driven strategies to improve safety, using the following NC Vision Zero principles:

- No loss of life on our roads is acceptable.
- All road users deserve safe streets.
- Injury or death is not an inevitable price to pay for mobility.

Knightdale is one of 18 communities in the state that have adopted the zero traffic fatalities and serious injuries goal.




**To learn more about NC Vision Zero, visit ncvisionzero.org.**

# 2

# The State of Safety

# ABOUT THE STATE OF SAFETY

The Knightdale State of Safety is a foundational assessment of the existing characteristics, physical conditions, and socio-demographic trends related to transportation safety in the community. The intent of this document is to showcase the need for further investment in transportation safety in Knightdale. As a part of this planning process, a wide variety of data was analyzed by the project team. The State of Safety isn't a full accounting of all available data, but showcases the information and trends most relevant for identifying safety needs in Knightdale. **The full State of Safety Report will be included as an appendix to this document.**

## Data Sources

This report leverages a variety of data sources that provide unique and foundational data related to transportation safety in Knightdale. Those sources that provided the bulk of the data in this report are identified and described below:

### US Census American Community Survey (ACS)

The ACS is an ongoing survey by the US Census Bureau that collects detailed population and housing information on a yearly basis down to block group level.

### Connect NCDOT Mapping Resources

The North Carolina Department of Transportation (NCDOT) maintains these mapping resources to help with planning and mapping things like traffic volumes, safety scores, speed limits, planned projects, and other transportation network data.

### NCDOT Crash Data

NCDOT maintains a crash database for planning-level analysis. Due to differences in recording methods, not all crashes are captured within the location-based data; however, those recorded act as a good high-level representation of crashes in the area.

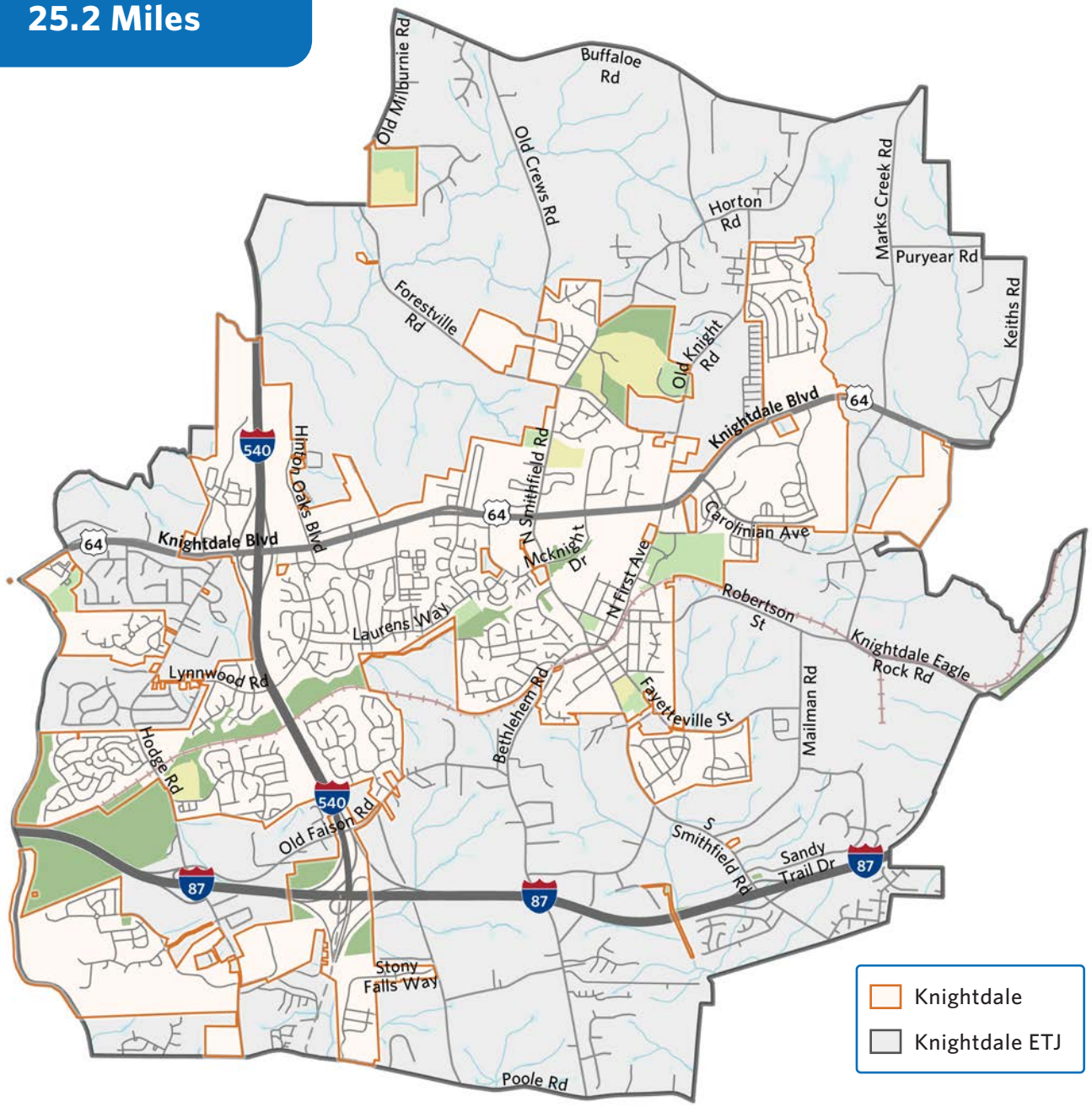
### NC OneMap and Wake County GIS

NC OneMap is North Carolina's open data portal with mapping layers for the entire state. Similarly, Wake County maintains a similar open data portal with county-specific data.

# Study Area

The Study Area for the Knightdale Safety Action Plan is the extraterritorial jurisdiction (ETJ) for the Town. The ETJ extends beyond formal boundaries of Knightdale, but represents a broader area that the Town has some amount of legal authority. For the purposes of the Knightdale Safety Action Plan, the project team will review and analyze all data within the existing ETJ to ensure a comprehensive approach to transportation safety planning for the community.

**Knightdale ETJ Area**
**25.2 Miles**



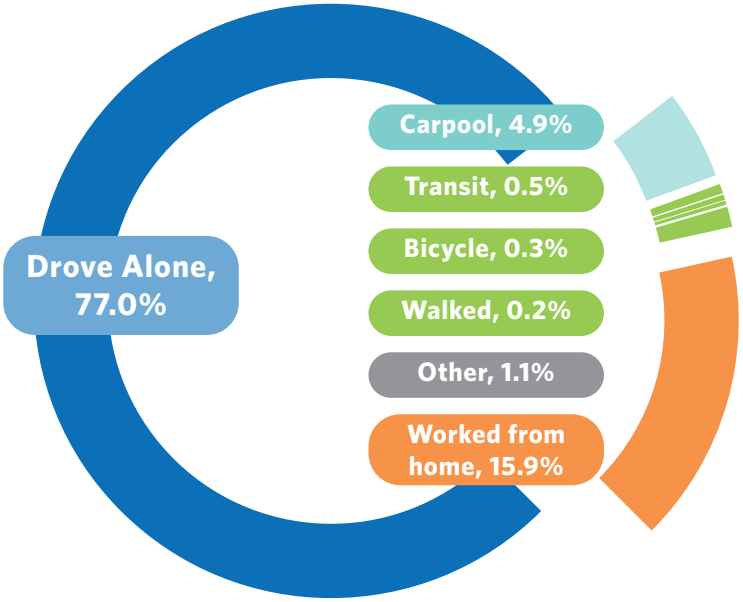
# COMMUNITY CONDITIONS

The Community Conditions provide a snapshot of the demographic conditions within the Town of Knightdale. In this section, we outline how people commute to work, where they live, their access to a car, the racial and ethnic makeup of the Town, and the median income.

## Commute Mode

Commute data shows us that the majority of Knightdale residents either drive alone (77%) or carpool (4.9%) on their way to work for a typical day. Multimodal options (like transit, biking, and walking) are used sparingly (1% total). It's also worth noting that almost 16% of residents work from home, meaning that their typical driving patterns are different than those that drive to their jobs each day.

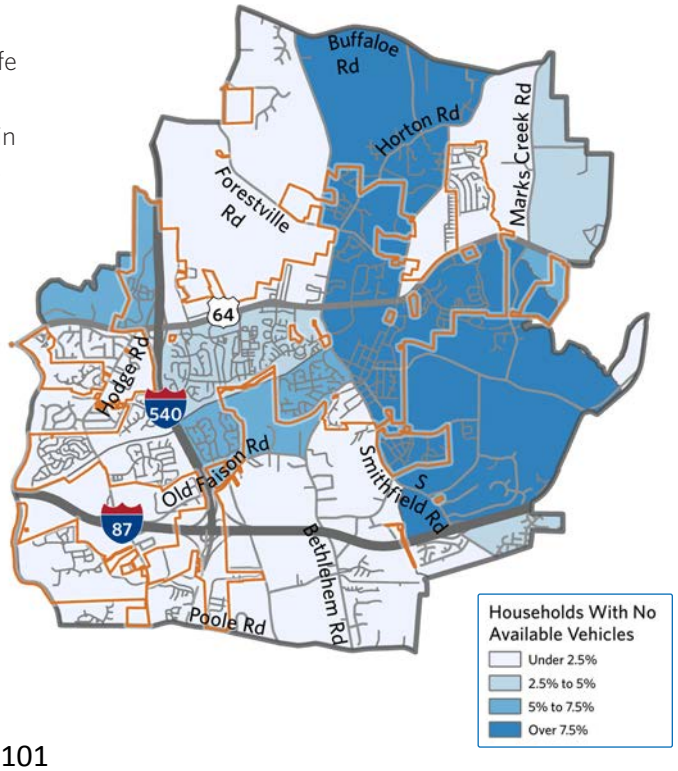
**Just over 1.1% of residents commute by transit, walking, or biking.**




## Vehicle Access

Areas where vehicle access is limited are likely also more in need of safe multimodal transportation options, compared to other parts of the community. Within Knightdale's jurisdiction, over 7.5% of households in areas in the east and north of the ETJ (shown in dark blue) do not have access to a vehicle. It's worth noting that most of these areas are not as densely populated or developed as the central and eastern side of Town. Additionally, households in neighborhoods and apartments west of Downtown, south of Knightdale Boulevard, and east of I-540 show some limited access as well (between 2.5% and 7.5% of households).

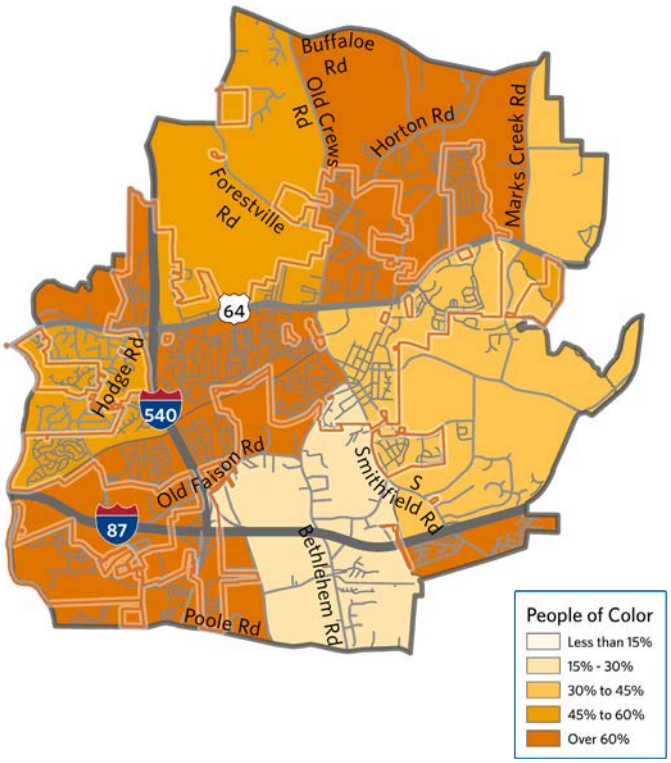
**Rural areas in the east and residential areas west of Downtown have some of the most households without access to a vehicle.**



## Percent People of Color

Statistically, communities of color are most often impacted by transportation safety issues. The highest concentrations of non-white residents are in the central, southwest, and northeast areas (over 60% persons of color). Additionally, there is some correlation between the Town's most diverse communities and the areas that most lack access to a vehicle in the household.

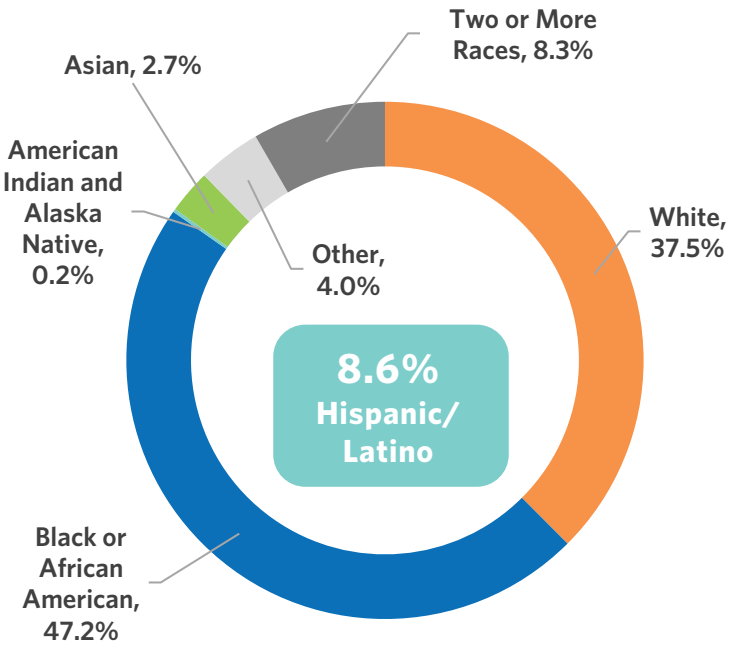
**People of color are more than 30% of the population in every part of the Knightdale area except the south central area along Bethlehem Road.**




## Racial Distribution

Knightdale is a very diverse community, especially when compared with adjacent municipalities. 62.5% of Town residents are non-white, with the highest share in Black or African American communities (47.2%). The next largest ethnic group is Hispanic/Latino at 8.6%. Hispanic/Latino is considered by the US Census Bureau as an ethnicity, not a race—which is why it isn't included in the full chart to the right.

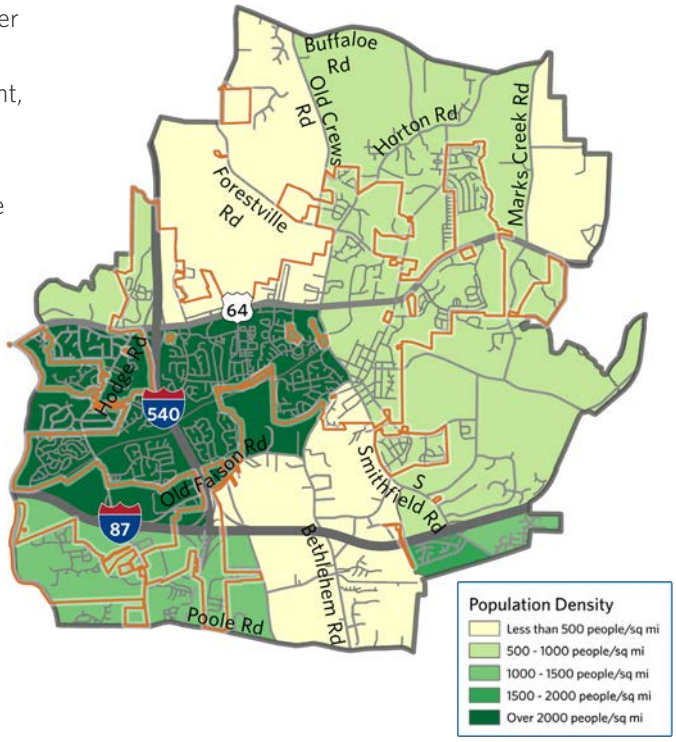
**Black/African Americans are the largest racial group in the Knightdale area, making up almost half of the population.**



## Population Density

The western part of the Town between Knightdale Boulevard and I-87 has the highest population density, largely due to much of Knightdale's older residential neighborhoods and subdivisions being located in that area and growth coming out from the Raleigh area. With recent development, the population density in other areas may begin to rise as new dense residential subdivisions are constructed. Areas with higher population densities are often better areas for multimodal transportation and have increased needs to design for safety of people outside of cars.

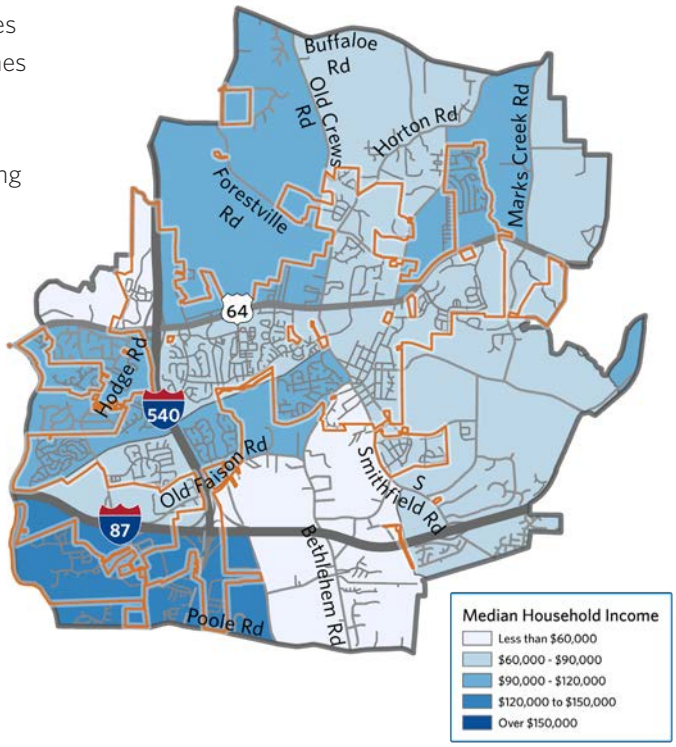
**While Knightdale's highest population density is currently in the west, new development will likely increase densities elsewhere in the ETJ.**




## Median Household Income

Everywhere in Knightdale's ETJ other than its bottom left corner has a median household income of less than $120,000, with the communities in the southern middle along Bethlehem Road having household incomes under $60,000. Other areas have median incomes under $90,000 throughout the more rural parts of the east. Lower income households may find it more difficult to afford transportation costs related to owning a car or have less cars per household than others.

**Overall Median Household Income**
**$79,364**



# TRANSPORTATION CONDITIONS

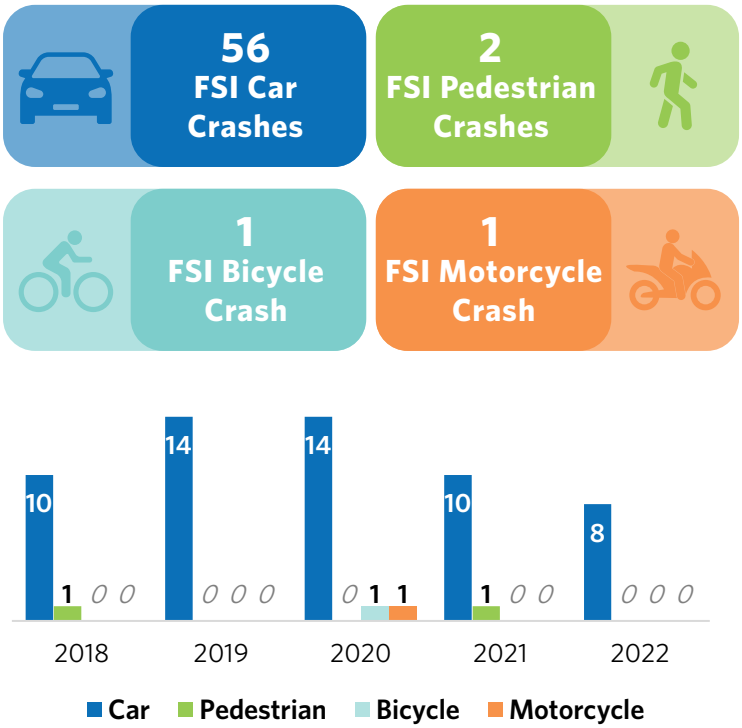
The Transportation Conditions describe the crash history in Knightdale, including overall crash history and contributing factors.

## Fatal and Serious Injury (FSI) Crashes By Year, By Mode

Between 2018 and 2022, Knightdale and its extraterritorial jurisdiction experienced over 3,700 crashes. While the area saw a high amount of crashes, only a small percentage were fatal or caused severe injuries (FSI), with 56 fatal or severe car crashes, 2 FSI pedestrian crashes, and one FSI crash each with bicycles and motorcycles.

The vast majority of fatal and severe injury crashes between 2018 and 2022 were car crashes. Only about 3.4% of fatal and severe crashes involved pedestrians, and even fewer involved motorcycles or bicycles.

**Of 2018-2022, fatal car crashes were at their highest in 2019 and 2020. 3/4 non-car crashes of the period occurred during the height of the COVID pandemic in 2020-2021.**

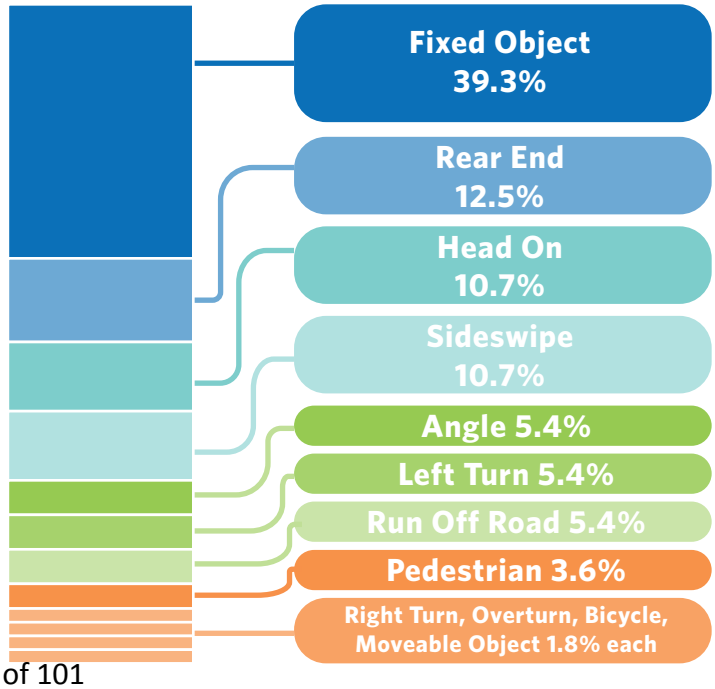



## Percent of FSI Crashes By Type

Amongst recorded fatal and severe crashes between 2018 and 2022, most were crashes with a fixed object (39.3%), followed by rear end collisions (12.5%), head on collisions (10.7%), and sideswipes (10.7%).

Head on crashes were one of the most likely crash types to be fatal or severe. 6 out of 21 total head on crashes (28.6%) were fatal or caused severe injury. For comparison, 22 out of all 468 fixed object crashes (4.7%) were fatal or severe, and 7 out of all 1446 rear end crashes (less than 0.5%) were fatal or severe.

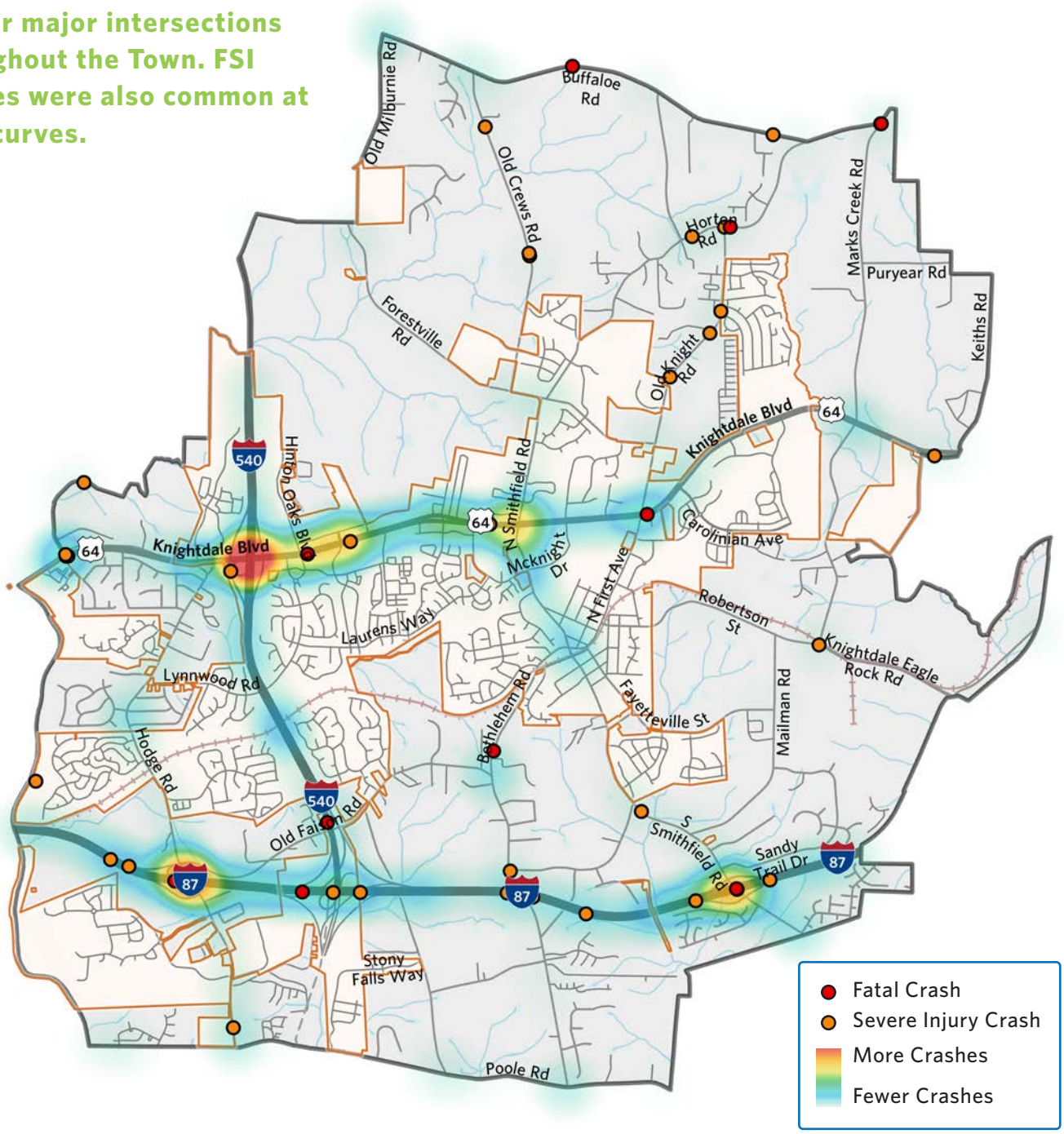
**More than a quarter of all head on crashes were either fatal or caused severe injury.**



# Crash History

From 2018 to 2022, the overall majority of spatially mappable crashes happened on Knightdale Boulevard (Business US 64), I-540, I-87, or Smithfield Road. Hodge Road, Poole Road, and Bethlehem Road also saw some crash hotspots. However, many of the smaller roads in the north with less overall crashes had a larger share of the fatal and severe injury crashes, such as Old Knight Road, Horton Road, and Old Crews Road. Some tight curves and uncontrolled exurban intersections also tended to have a higher number of crashes. Knightdale Boulevard and I-87 saw the most fatal and severe crashes overall.

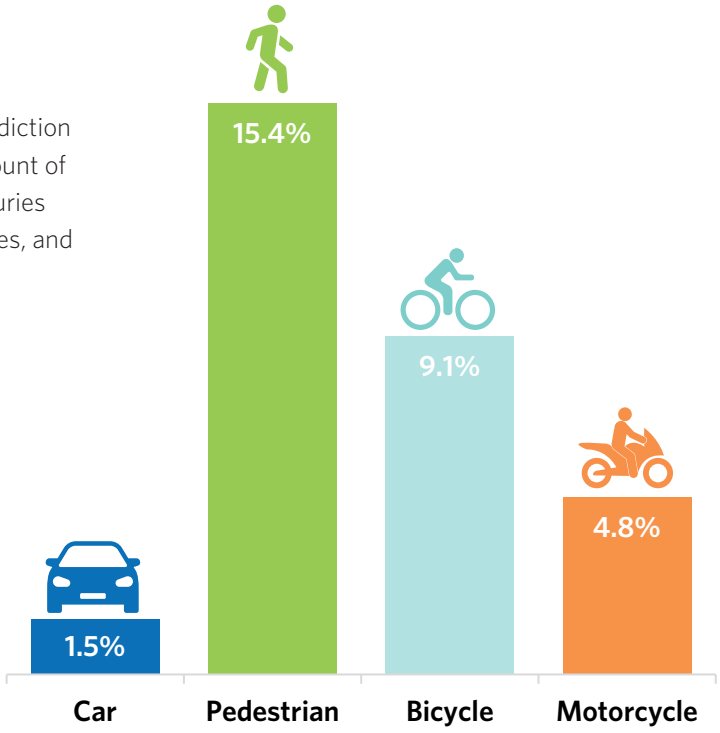
**Most crash hot spots were at or near major intersections throughout the Town. FSI crashes were also common at tight curves.**



## Likelihood of FSI in Crashes Involving Each Mode

Between 2018 and 2022, Knightdale and its extraterritorial jurisdiction experienced over 3,700 crashes. While the area saw a high amount of crashes, only a small percentage were fatal or caused severe injuries (FSI), with 56 fatal or severe car crashes, 2 FSI pedestrian crashes, and one FSI crash each with bicycles and motorcycles.

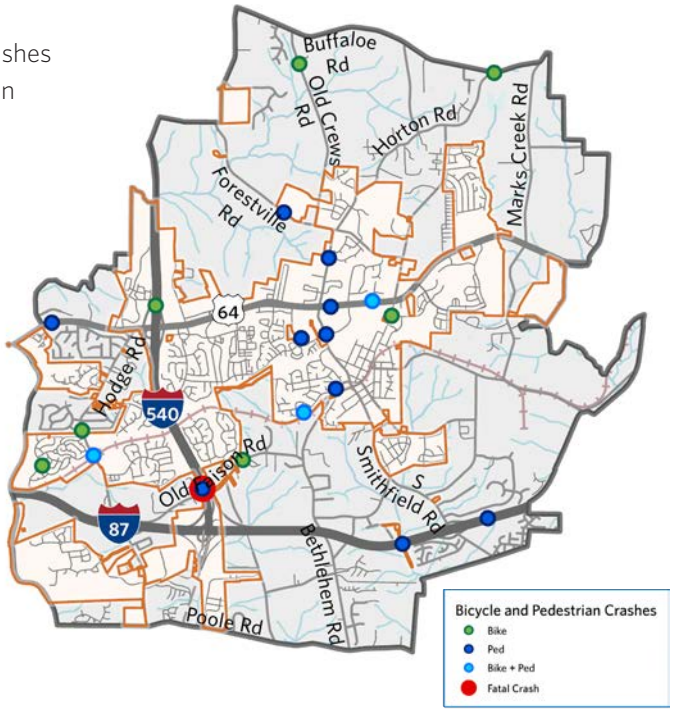
**Pedestrians and bicyclists are much more likely to get killed or severely injured if involved in a crash than drivers.**




## Bicycle and Pedestrian Crashes

Pedestrian crashes seem to occur more in the town core, while bike crashes were often on more rural-suburban roads further out. Several pedestrian crashes roughly followed Smithfield Road near and north of the Town center. In contrast, other than one bike crash near Knightdale Station Park, bicycle crashes followed more rural-suburban roads like Hodge Road, Old Faison Road, Old Crews Road, and Horton Road. Only one pedestrian crash from 2018 to 2022 was fatal, where a pedestrian was hit on the Old Faison Road bridge over I-540.

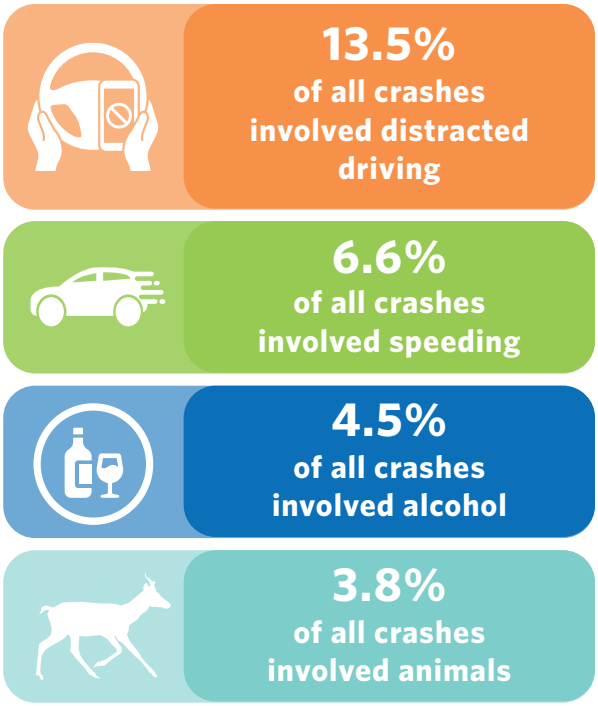
**Most pedestrian crashes were roughly along Smithfield Road in central Knightdale.**



## Contributing Factors

Across all recorded crashes, distracted driving was the most common contributing factor, with over 13% of crashes from 2018 to 2022 involving it. Speeding (6.6%), alcohol (4.5%), and animal crashes (3.8%) were also major contributing factors.

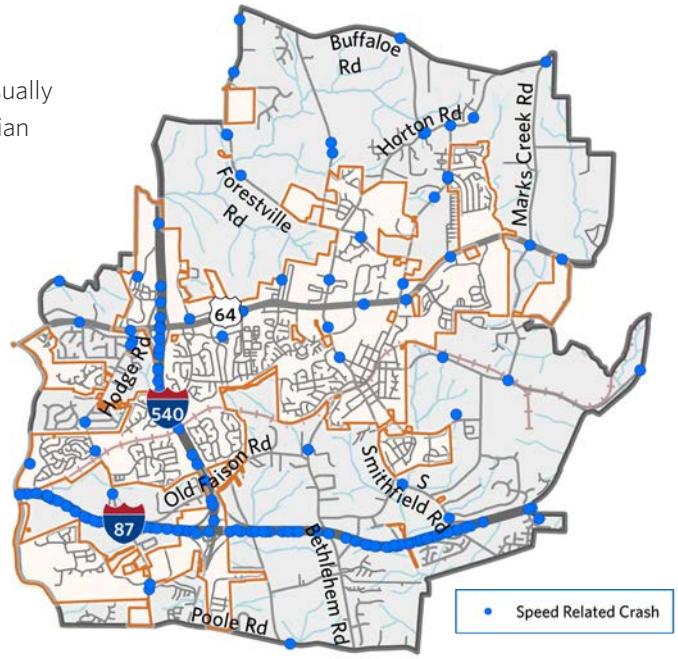
**Over half of crashes involving distracted driving were rear end collisions from failing to stop.**




## Crashes Involving Speeding

Speeding is often part of the cause of crashes and plays a large role in severity. The higher the speed of a crash, the more severe the crash usually is, especially if the crash involved a vulnerable road user like a pedestrian or bicyclist. While the majority of speed related crashes were along I-540 and I-87, higher speed arterials and rural roads where its easier for drivers to pick up speed also saw a lot of speed related crashes. Roads like Knightdale Boulevard, Smithfield Road, Horton Road, Old Knight Road, Hodge Road, and Forestville Road saw the majority of non-interstate speed related crashes.

**Out of 246 speed-related crashes, about 3.3% were fatal or caused severe injury.**

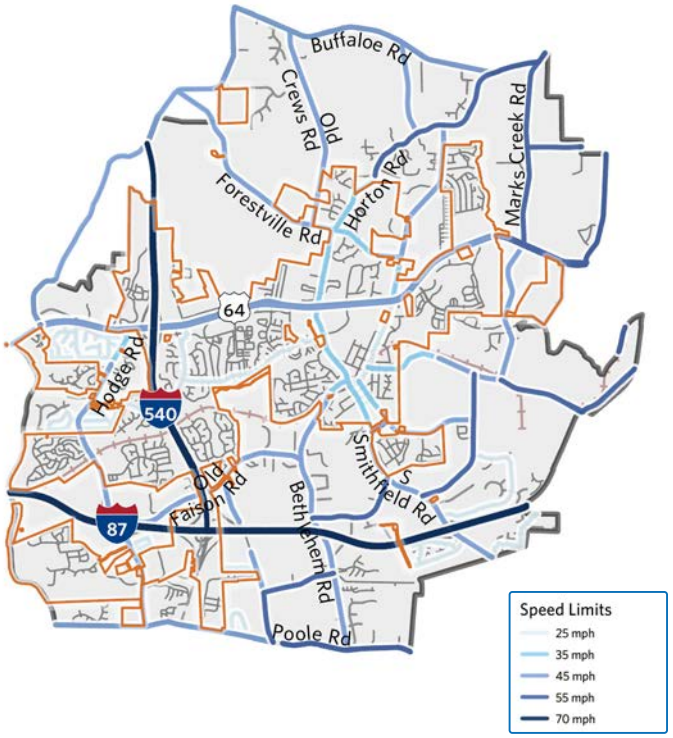


## Speed Limits

There is a sharp contrast between speed limits within the Town Limits and speeds on roads outside the Town. Within the Town itself, smaller streets like First Avenue, Laurens Way, and Lynnwood Road have 25 mile per hour (mph) speed limits, and most other major roads through the core of Knightdale have 35 mph speed limits (with the exception of Knightdale Boulevard with a 45 mph speed limit). Most of these speed limits immediately increase at the Town Limits, and outside of the Town most NCDOT controlled roads have a speed limit of 45 or 55 mph.

Notably lower speed limits do not necessarily mean lower speeds- actual traffic speeds depend on the design of the road and surroundings.

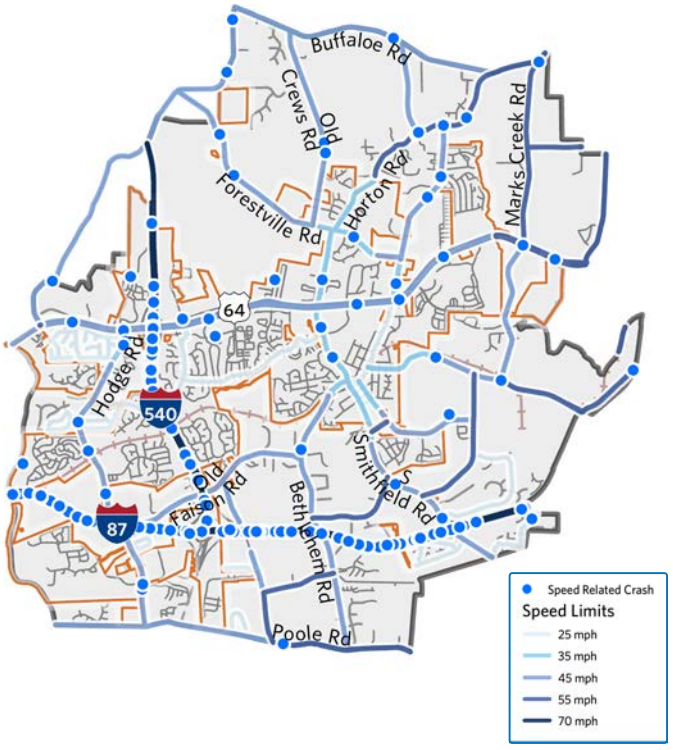
**Speed limits are generally lower within the Town, with most roads seeing immediate speed limit increases upon leaving the Town Limits.**




## Speed Limits and Crashes Involving Speeding

Above 35 miles per hour, speed limits alone do not appear to deter speeding drivers. Very few speed-related crashes in the study area from 2018-2022 occurred on roads with a speed limit of 25 mph or lower. However, for speed limits 35 mph and higher, there was no correlation between speed-related crashes and the speed limit of the road (excluding interstates), with crashes involving speeding appearing on most major roadways.

**Most major roads with a speed limit of at least 35 miles per hour experienced a crash involving speeding, with little connection between speeding crashes and speed limit.**




SPEED
LIMIT
25

# KEY TAKEAWAYS

## Our most traveled intersections are in need of safety improvements.

Not surprisingly, our intersections (especially those near interstate interchanges), see the highest volume of crashes. While these high volume crash areas don't directly correlate to crashes that involve serious injuries or fatalities, they do still highlight a need to improve safety at these types of intersections to ensure safety issues don't get worse in the future.

## Our more rural corridors are more likely to experience severe crashes.

Our highest volume intersections and corridors don't necessarily yield the majority of our fatal and serious injury crashes (FSI). When normalized using traffic volumes, our more rural corridors often see higher FSI crash rates, indicating a need to improve safety conditions on many of the corridors on the fringe of the community.

## Pedestrians and bicyclists are our most vulnerable road users.

Based on the crash analysis, pedestrian and bicyclists are significantly more likely to be killed or seriously injured if involved in a crash. Areas of high multimodal demand (key crossings and intersections, downtown, parks, schools, etc.) are in need of improvements to ensure that those in our community that want to walk or bike are safe doing so.

## Areas of higher crash density are more likely to be in communities of color.

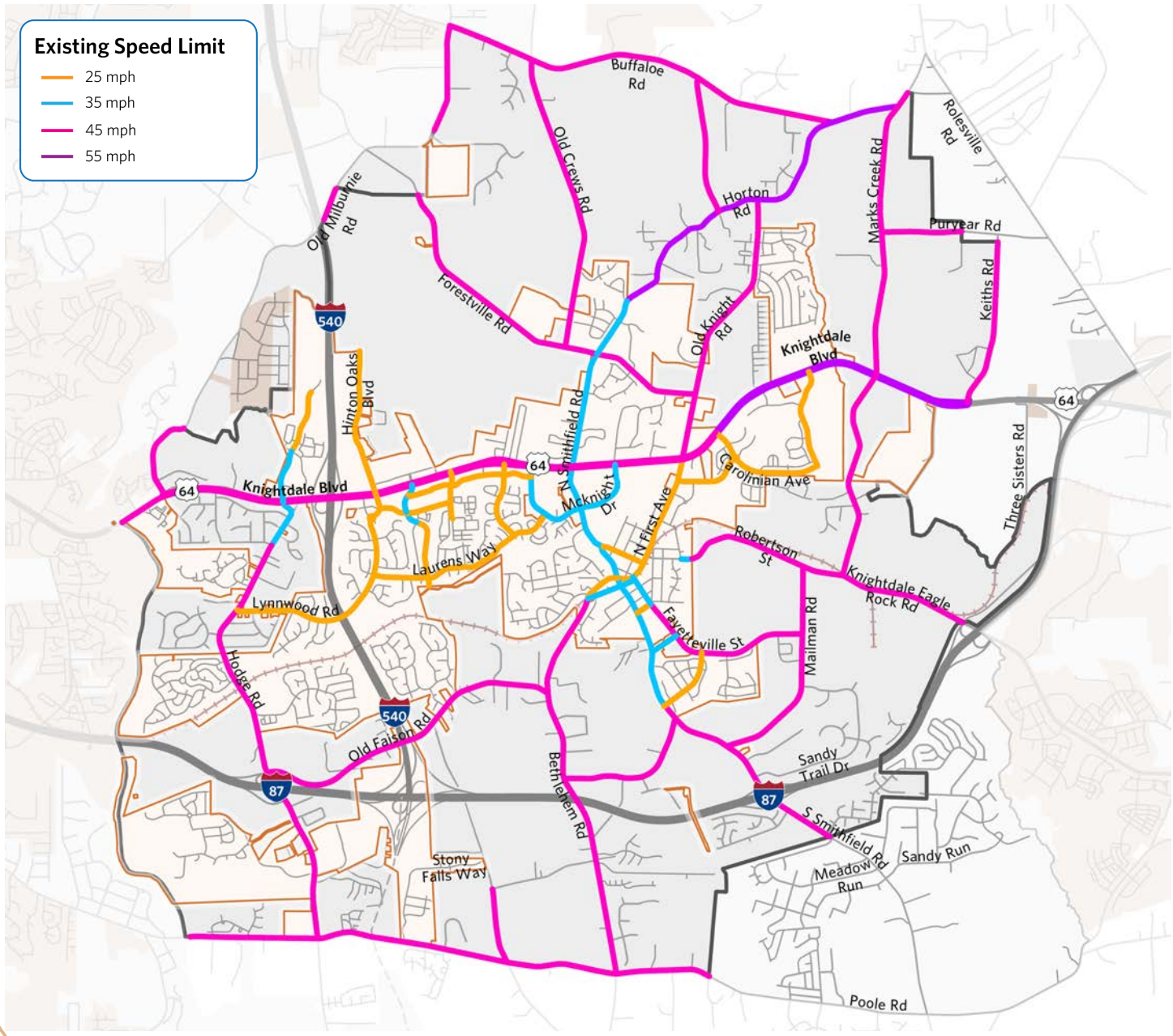
Many of the areas in our community that experience high crash rates are in communities of color. Additionally, these community members may be less likely to have access to a vehicle in the home, therefore making them more vulnerable to multimodal crashes as well.

# 3

# Speed Audit Results

# OVERVIEW

Speed related safety concerns are expressed in the Town of Knightdale's Comprehensive Transportation Plan (CTP). In addition, Knightdale is undergoing rapid development, and the analysis described in this section will be a tool to help the Town identify locations where speed limits need to be adjusted to accommodate evolving land use contexts. As part of the Knightdale Safety Action Plan (SAP), the project team partnered with Town staff to undertake a speed audit of the network. The goals of the audit were to identify corridors with speeding concerns and recommend safety improvements. This process followed the Safe Systems Approach adopted by the USDOT, which names safe speeds as a key pillar to achieving Vision Zero. Achieving safe speeds is accomplished through context-appropriate roadway design, education, and enforcement. As vehicles travel at high speeds, the driver's ability to react to hazards is limited—vulnerable road user safety decreases and the severity of crashes increase.




BUS
STOP

## Data Collection

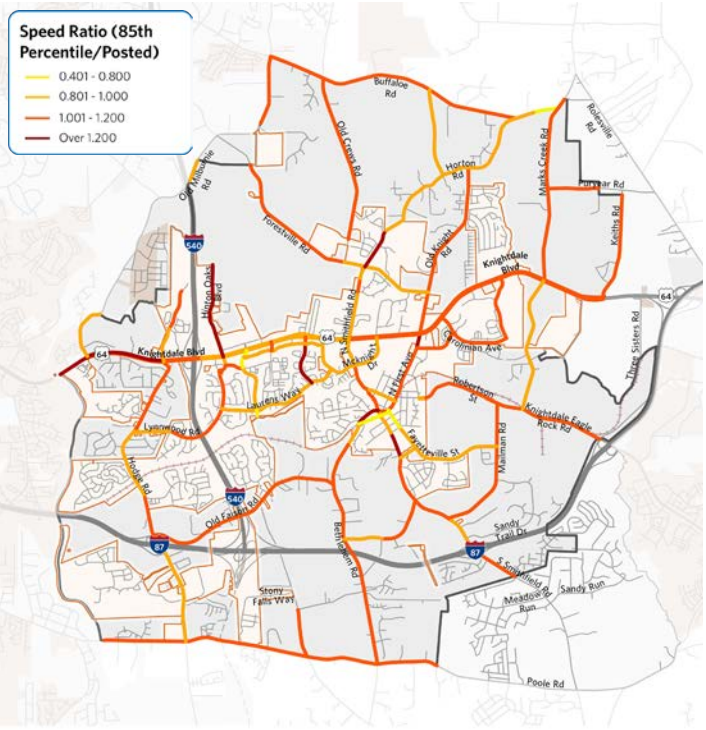
To collect existing operating speed data, various probe data sources were used—the types of speed data collected is important for making informed recommendations. The 85th percentile speed is the speed at, or below which, 85% of drivers travel on the road. The 50th percentile represents the average speed of travelers on a road. One data source, called StreetLight, can provide 50th and 85th percentile speeds on the identified network. For this evaluation, the project team used recorded 50th and 85th percentile speeds from January 2022 to May 2023 from StreetLight.

## Evaluation Process

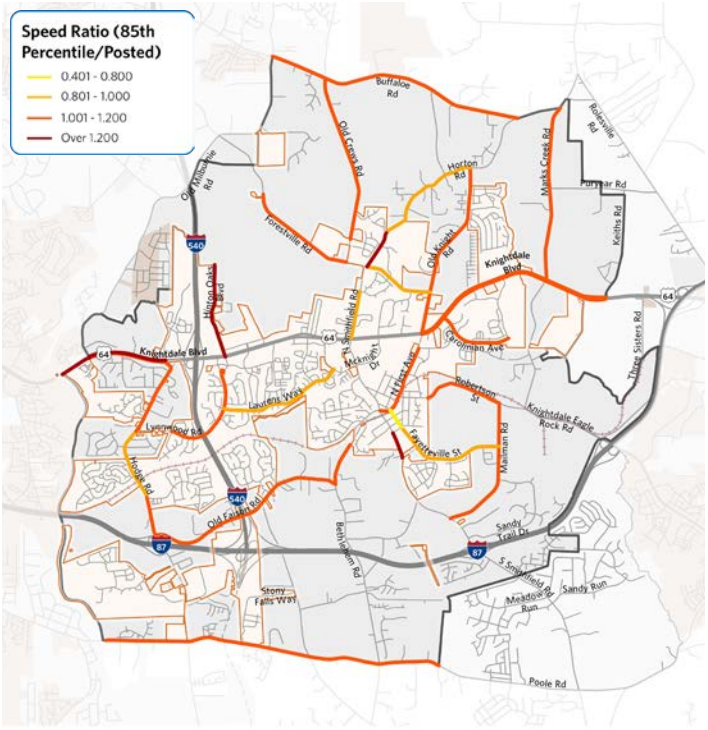
Using the posted speed limits and the 85th percentile speeds from StreetLight, the project team developed a speed ratio that indicated whether cars tended to travel faster or slower than the posted speed limit. The following performance measure thresholds were developed to analyze Knightdale's roadway network:

- **Ratio < 0.4** indicates slowness on the corridor
- **Ratio < 0.401 – 0.99** indicates field conditions operating slightly below posted limits
- **Ratio = 1.0** indicates field conditions operating at posted limits
- **Ratio 1.01 – 1.2** indicates field conditions operating slightly above posted limits
- **Ratio 1.201 <** indicates speeding on the corridor

## Speed Ratio—Overall Network




## Speed Ratio—Corridors




Using these thresholds, the Town of Knightdale selected 21 corridors for further evaluation to determine if current speed limits were appropriate. These corridors included a range of speed ratios, corridors that were on the High-Injury Network (HIN) and showed speed issues, or corridors for which the Town had received complaints.

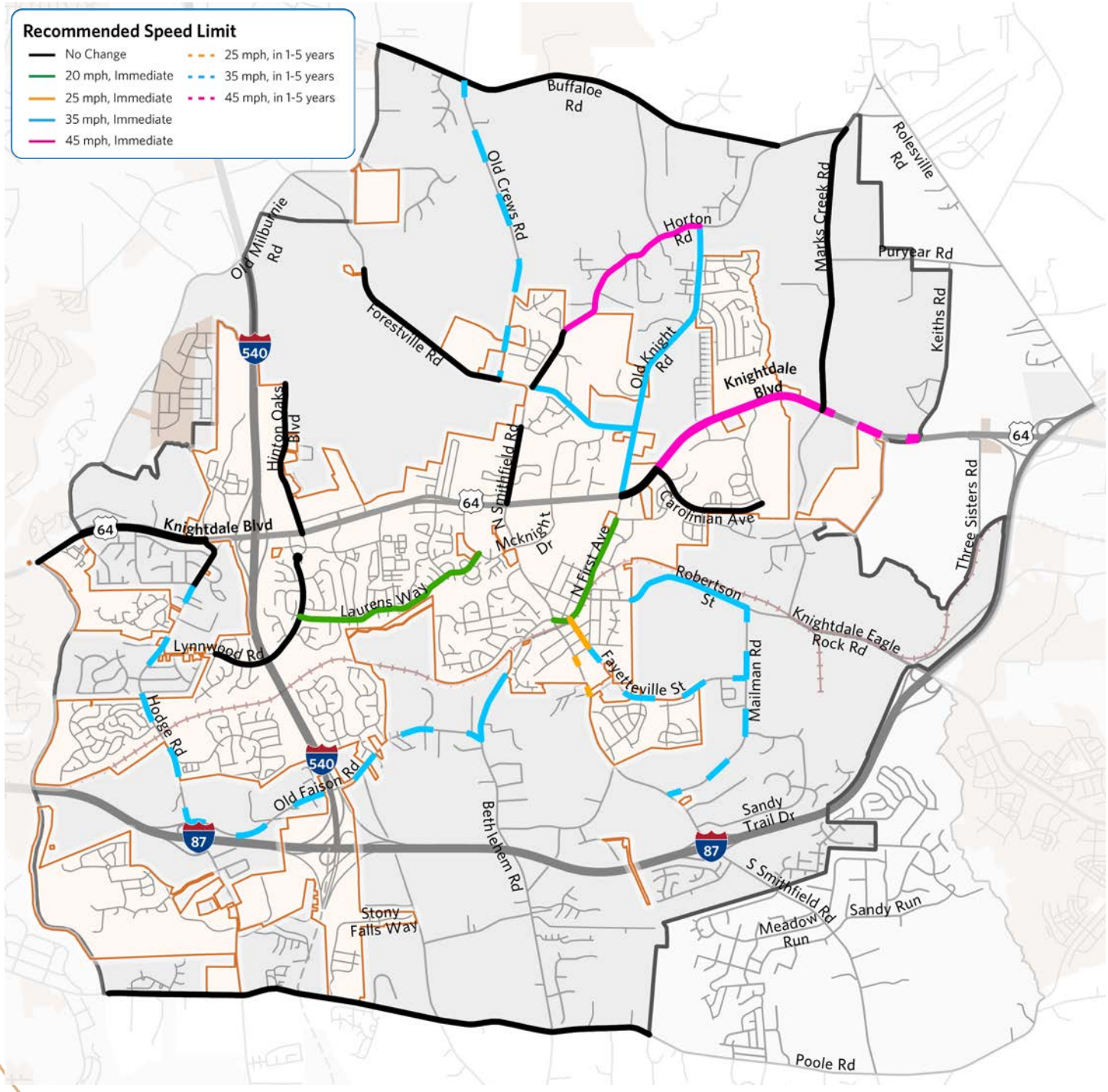
To explore potential speeding reductions and mitigations, the project team used a Federal Highway Administration (FHWA) tool called USLIMITS2. USLIMITS2 uses a variety of factors to evaluate speed limits, including:

- The posted speed limit
- Existing speeds (50th and 85th percentile)
- Average annual daily traffic (AADT)
- Crash data

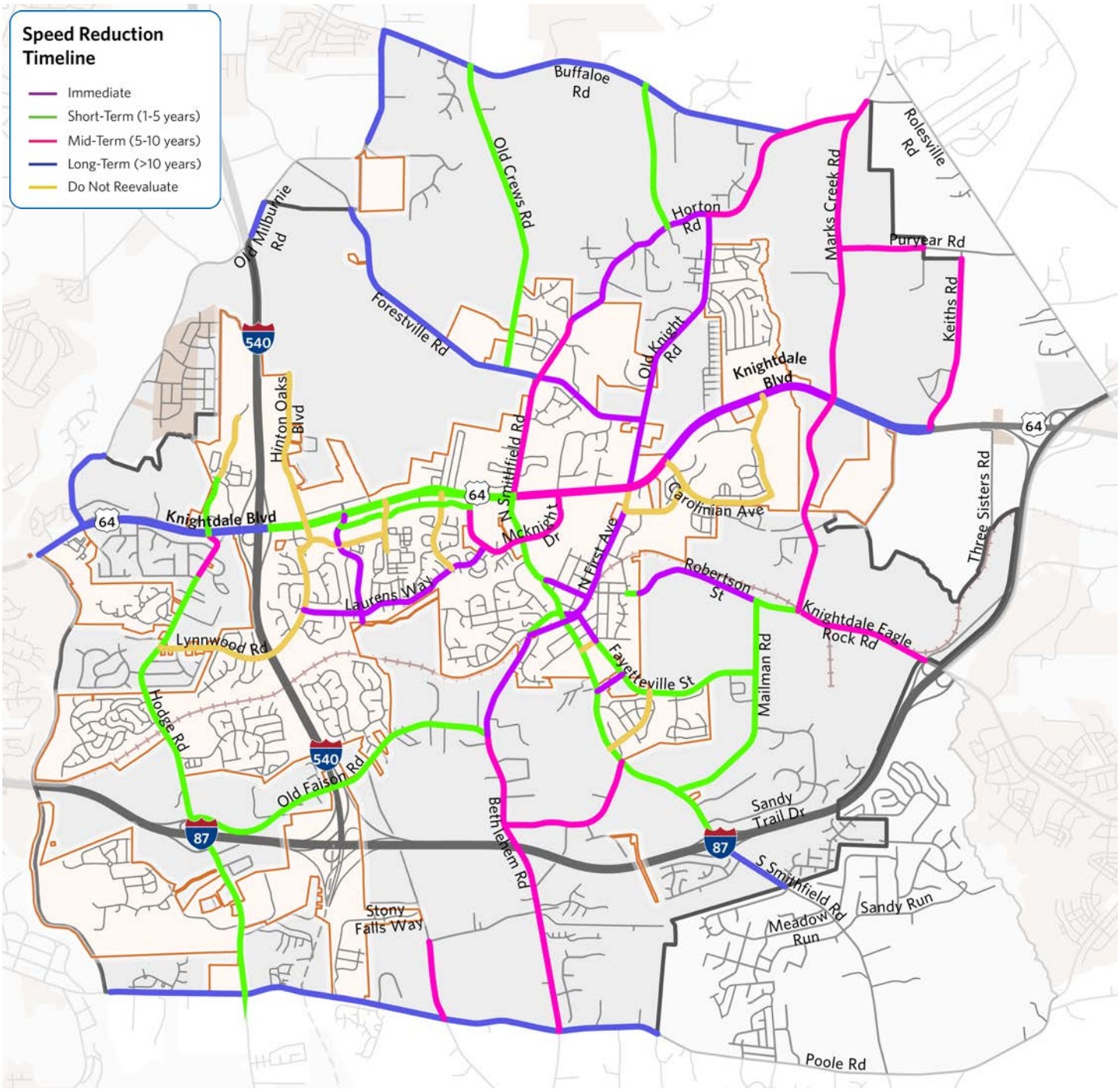
The project team incorporated the results from the USLIMITS2 tool as additional justification for recommended speed limit reductions on certain corridors in Knightdale. When the USLIMITS2 results did not justify a reduction, but notable safety concerns are known to be present—the project team relied on additional engineering judgment, local knowledge, and future plans (sidewalk improvements, bus route expansions, road connectivity).

## Recommended Speed Limits

The map below shows the speed recommendations for the 21 corridors analyzed with USLIMTS2.



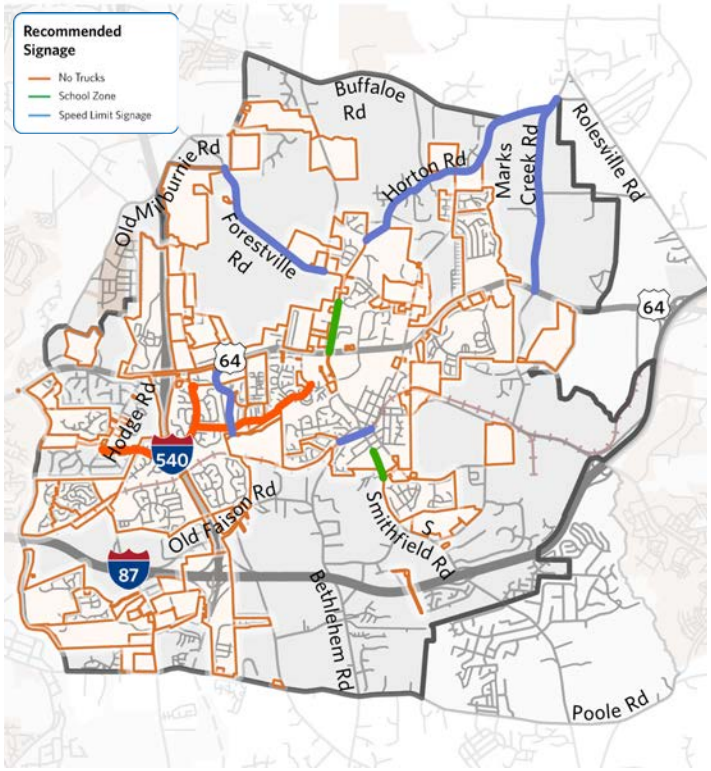
Once each corridor had been given a recommended speed, the project team assessed the remaining network to determine when and where speed limit changes should occur. A timeline of immediate, short (1-5 years), mid (5-10 years), and long-term (10> years) was assigned. The only corridors added to immediate that were not included in the USLIMITS2 analysis were corridors with a speed ratio <0.9, or where the operating speeds were already supportive of a lower speed. Neighborhood streets and roadways that are not anticipated to see an increase in vehicle or pedestrian traffic—that do not have existing crash related issues—were recommended to not be reevaluated, unless the Town receives complaints or a determines a spike in crashes.



# Recommended Signage

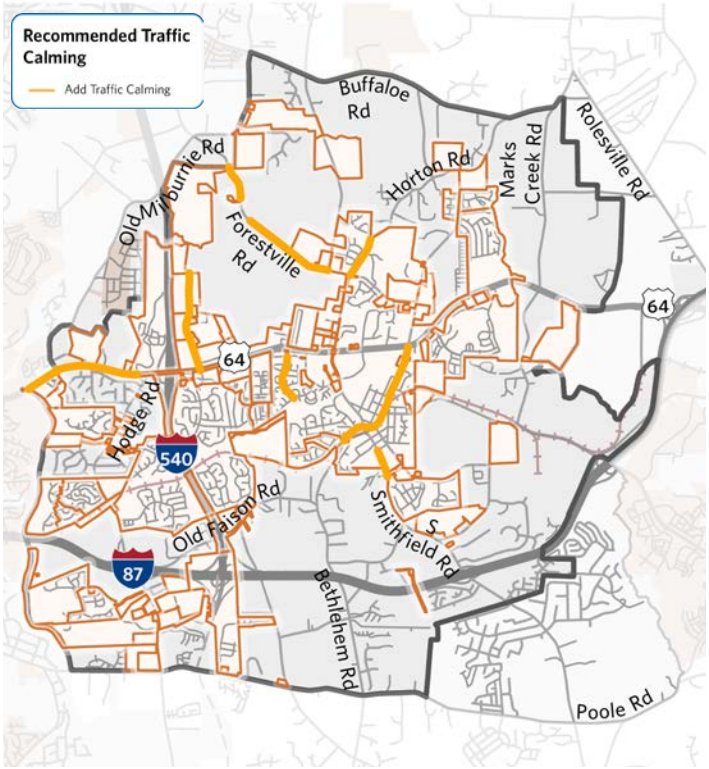
Concurrent with the speed limit audit, the project team reviewed signage across the Town, particularly for the 21 corridors that received a detailed review. In some places, signage preventing truck travel was recommended. In others, School Zone signage was recommended. Finally, where additional speed limit signage is a recommendation, the Town could add posted speed limit signs on corridors where it is lacking and unclear what the speed limits are.

This did not include a review of all signage on all roads, so this list—while useful—should not be considered comprehensive. The map below shows the signage recommendations for the corridors reviewed.




# Recommended Traffic Calming

There were several roads with a speed ratio greater than 1.2, indicating excessive speeding. However, due to a variety of factors, several of these corridors were not considered by USLIMITS2 results as supporting a recommendation for lower speed limits. Therefore, these were identified individually for additional traffic calming measures. The map below shows the corridors recommended for additional traffic calming measures.



# 4

# Engagement Summary

## Public Open House

In March 2024, a public open house was held at Knightdale Town Hall to introduce the Safety Action Plan, educate the public on Vision Zero, present the primary safety findings from the State of Safety, and provide interactive ways for attendees to express safety concerns. Photos from the public open house are shown on the page to the right.

The project team asked attendants to pinpoint safety concerns on a map of the study area by type—such as lack of pedestrian or bicycle facilities, congestion, lack of visibility or lighting, unsafe intersections, or speeding. In addition, attendees completed a variety of other activities:

- Showing where they work, play, and live on a map
- Sharing their highest safety priorities
- Providing comments related to specific concerns
- Indicating their perceived level of safety on Knightdale roads

## Vision Zero Task Force Meetings

To help guide the planning process and act as a conduit to the residents in Knightdale, a Vision Zero Action Plan Task Force was formed. Our four meetings with the Task Force were key in shaping this plan to ensure it reflects Knightdale's priorities. Task Force members included representatives from the Town Management office, Fire Department, the Police Department, and Town Council.

## Joint Planning Open House

In April 2024, Town staff hosted a joint planning open house with the Town Council and the Land Use Review Board (LURB). At the open house, Council and the LURB provided input on the Knightdale Safety Action Plan, the Comprehensive Land Use Plan Update, and the Knightdale Boulevard Pedestrian Project.

## Engagement Hub

Housed within the project website, the engagement hub provided a way for anyone interested in the Knightdale Safety Action Plan to share their thoughts and ideas when it was most convenient for them. It included an interactive transportation issues map and digital survey. Similar to the in-person engagement at the public open house, the interactive map allowed participants to pinpoint specific locations of safety concerns on a map of the study area by concern type. These were open from late April to early June on the project website.

## Project Website

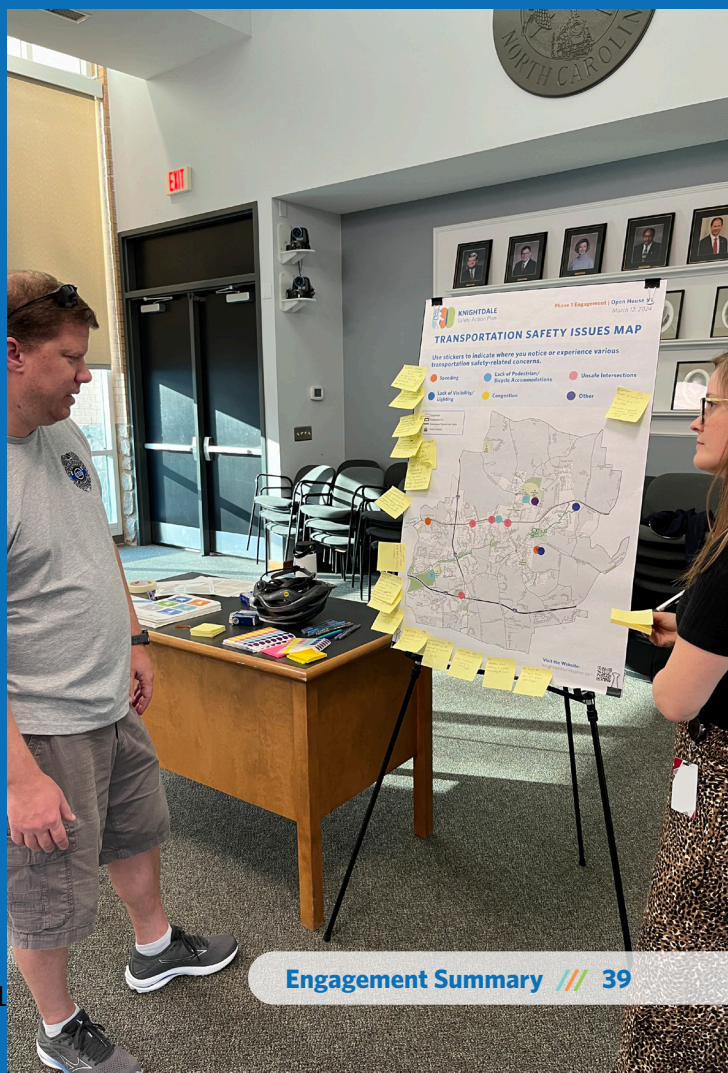
The project team created a website to act as a digital hub for the project, including information about the Safety Action Plan and Vision Zero, links to documents like the State of Safety Report, and an engagement hub where people could virtually participate in engagement about the project. The website also included a built-in translation feature to make the engagement materials and information available in multiple languages.

## Community Events

To provide additional opportunities for engagement and continue spreading the word about the project, the Knightdale planning staff attended two community events over the course of the project—including the Latin American Festival in April 2024 and the Arts and Education Festival in August 2024.


POLICE
KNIGHTDALE
KNIGHTDALE
development services


PROJECT OVERVIEW

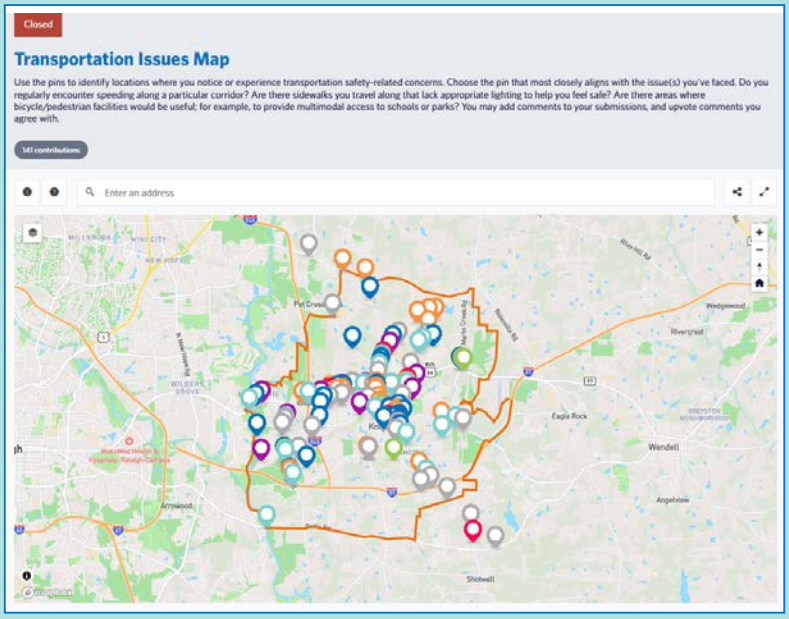

TRANSPORTATION SAFETY ISSUES MAP
EXIT

## Transportation Issues Map

One of the key activities within the Engagement Hub was the transportation issues map. With this map, participants could drop pins to identify locations where they've noticed or experienced transportation safety-related concerns. They could choose from a variety of categories:

- Speeding
- Lacks Sidewalk
- Lacks Crosswalk
- Lacks Bike Facility
- Unsafe Intersection
- Lacks Lighting
- Congestion
- Other

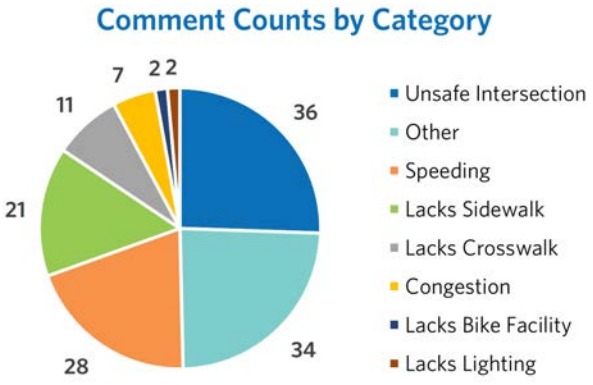
Most comments were about unsafe intersections, following by comments marked "other," concerns about speeding, and areas lacking sidewalks.




**141 pins were added to the interactive map by community members. Most comments were about unsafe intersections, followed by "other" comments, concerns about speeding, and areas lacking sidewalks.**

In addition, comments were largely concentrated in four areas:

- Downtown Knightdale
- Along Knightdale Boulevard (US-64 Business)
- Along Smithfield Road
- Along Old Knight Road and First Avenue



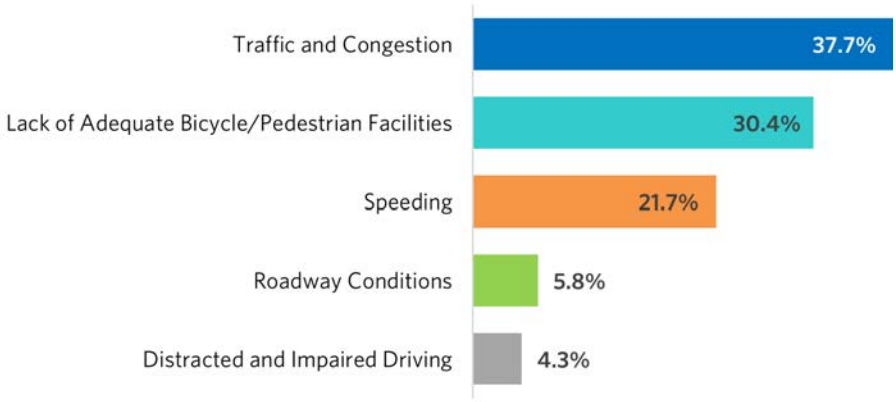

Downtown Knightdale saw several comments focused on speeding, especially along Park Avenue and Hester Street. Knightdale Boulevard saw a significant number of comments about unsafe intersections, followed by equal numbers of comments about speeding and missing sidewalks. Smithfield Road mostly saw comments about unsafe intersections clustered around the downtown area and near Knightdale Boulevard, though other parts of the roadway received comments about congestion. Comments along Old Knight Road focused primarily on missing sidewalks and lack of bike facilities.

Besides the aforementioned corridors, other locations with intersection safety concerns included Bethlehem Road at Old Faison Road, Hodge Road at Old Faison Road, and North Smithfield Road at Carrington Drive.

# Quick Poll

The project website homepage included a quick poll that asked people to indicate the most pressing transportation safety issue affecting Knightdale today. The poll received 69 responses with the top three responses being about Traffic and Congestion, Lack of Adequate Bicycle/Pedestrian Facilities, and Speeding.

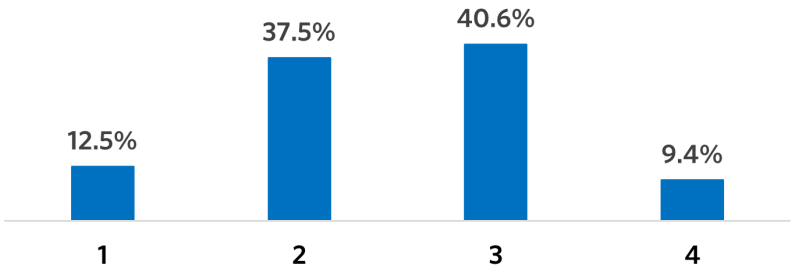
**The most pressing concerns are Traffic and Congestion, Lack of Adequate Multimodal Facilities, and Speeding.**




# Survey

## How safe is it to travel in Knightdale?

On a scale of 1 to 5, most responses were in the middle of the range, indicating respondents do not feel completely safe. No responses gave Knightdale a perfect 5 for safety.




## What are your thoughts on transportation safety in Knightdale?

Generally, responses indicated driving in Knightdale overall feeling safe outside of dangerous intersections, but that walking and biking felt significantly less safe due to the lack of facilities. While several comments mentioned congestion, many of these comments noted safety concerns from road rage when drivers become frustrated with traffic and drive erratically. Nighttime visibility also emerged as a concern.

**"Lots of congestion leads to a large number of people acting irrationally as they try to speed to their destination/ appointments."**

**"It's generally safe for driving with some problematic intersections. It doesn't feel that safe to walk or bike, with some exceptions like the greenway."**

**"Crack down on speeders."**

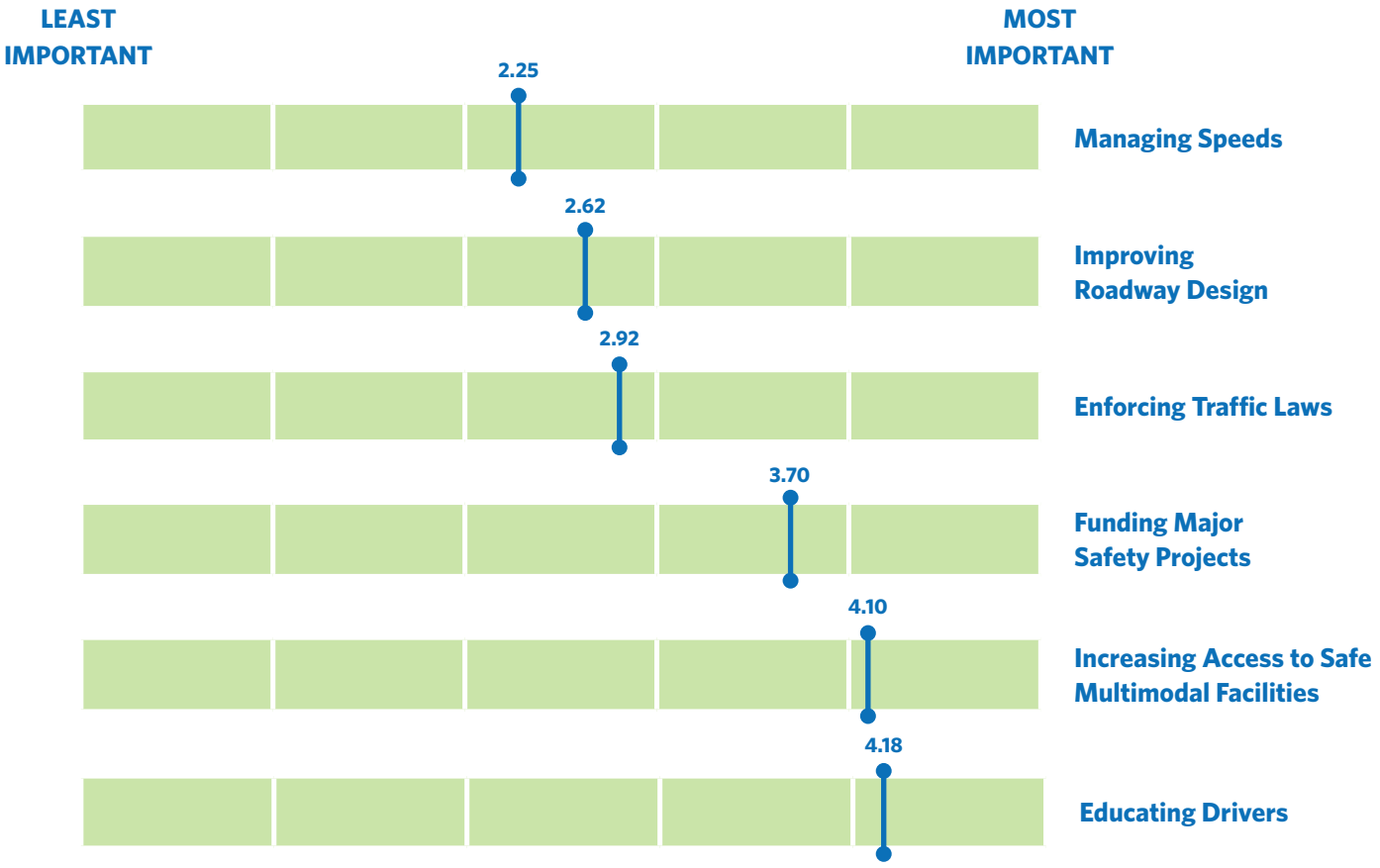
**"Fill in all the sidewalks that are needed, add safe bicycle lanes, and expand the greenway."**

**"It is very unsafe to drive around, especially at night and [during] bad or rainy weather."**

**"With only a single viable travel corridor running east west, the sheer amount of traffic is unsafe."**

## What safety improvements are most important and pressing in Knightdale?

On a scale of 1 to 5, most responses were in the middle of the range, indicating respondents do not feel completely safe. No responses gave Knightdale a perfect 5 for safety.




**Increasing Access to Safe Multimodal Facilities and Educating Drivers are the improvements the majority of participants feel are most important and pressing.**

# Demographic Questionnaire

The survey also asked a series of demographic questions to track how closely respondents reflected the population of Knightdale.

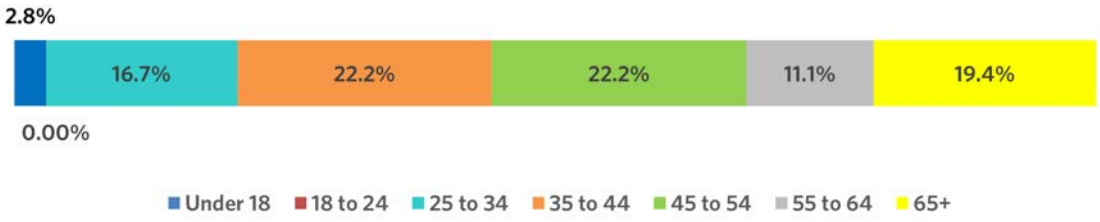
## Which of the following best describes you?

| | |
|---|---|
| I live in Knightdale | 91.7% |
| I work in Knightdale | 16.7% |
| I own a home in Knightdale | 80.6% |
| I own a business in Knightdale | 5.6% |
| I attend school in Knightdale | 5.6% |
| I attend special events in Knightdale | 47.2% |

**Most engagement participants live and own a home in Knightdale (91.7% and 80.6%, respectively). Notably, most work outside of Knightdale, suggesting the potential for high commuter traffic during peak AM and PM times.**

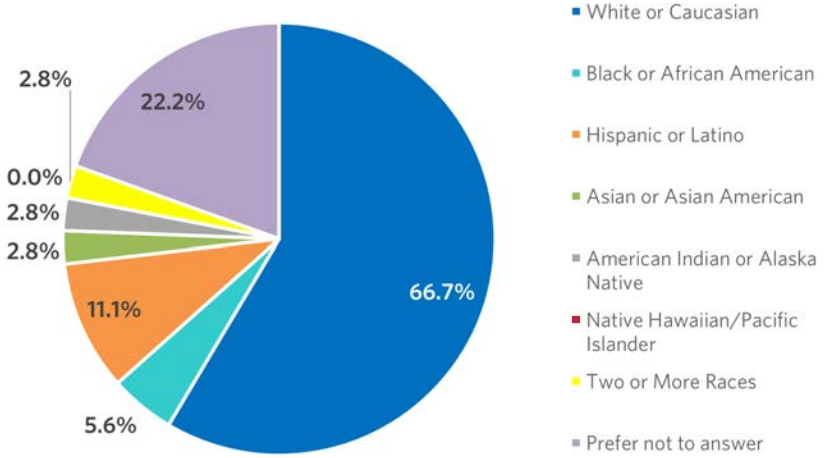
## Age

**Nearly half of engagement participants are between the ages of 35 to 54 (44.4%).**




## Race/Ethnicity

**The majority of respondents identify as White/Caucasian (66.7%). 11.1% identify as Hispanic or Latino.**



# 5

# High-Injury Network

# Methodology

After analyzing where and how crashes occur in and around Knightdale, the project team looked closer at what parts of the roadway network have had fatal and serious injury crashes, large numbers of minor injury crashes, and bicycle/pedestrian crashes. Overlaying crash data and the road network revealed what parts of the network have experienced the most injury-causing crashes (or in the case of bicycle and pedestrian crashes, pose injury risks for vulnerable road users). This information led to the generation of a High-Injury Network (HIN) for Knightdale to help guide strategic investments in safety. This section explains the methodology behind the creation of the HIN.

## Segmenting the Network

First, the roadway network was split into segments to group related crashes. We generated a network of road segments approximately 0.5 miles in length each (with all segments between one-third and two-thirds of a mile).

## Counting Crashes per Segment

Next, we associated crashes with their corresponding street segment(s) in preparation for scoring. For each segment, we calculated the number of crashes by type along each segment and coded the numbers into the network attributes. Since interstates are state-owned, state-operated, and state-maintained with little opportunity for the Town to influence design/construction, crashes along I-87 and I-540 were excluded from this process and from the resulting High-Injury Network.

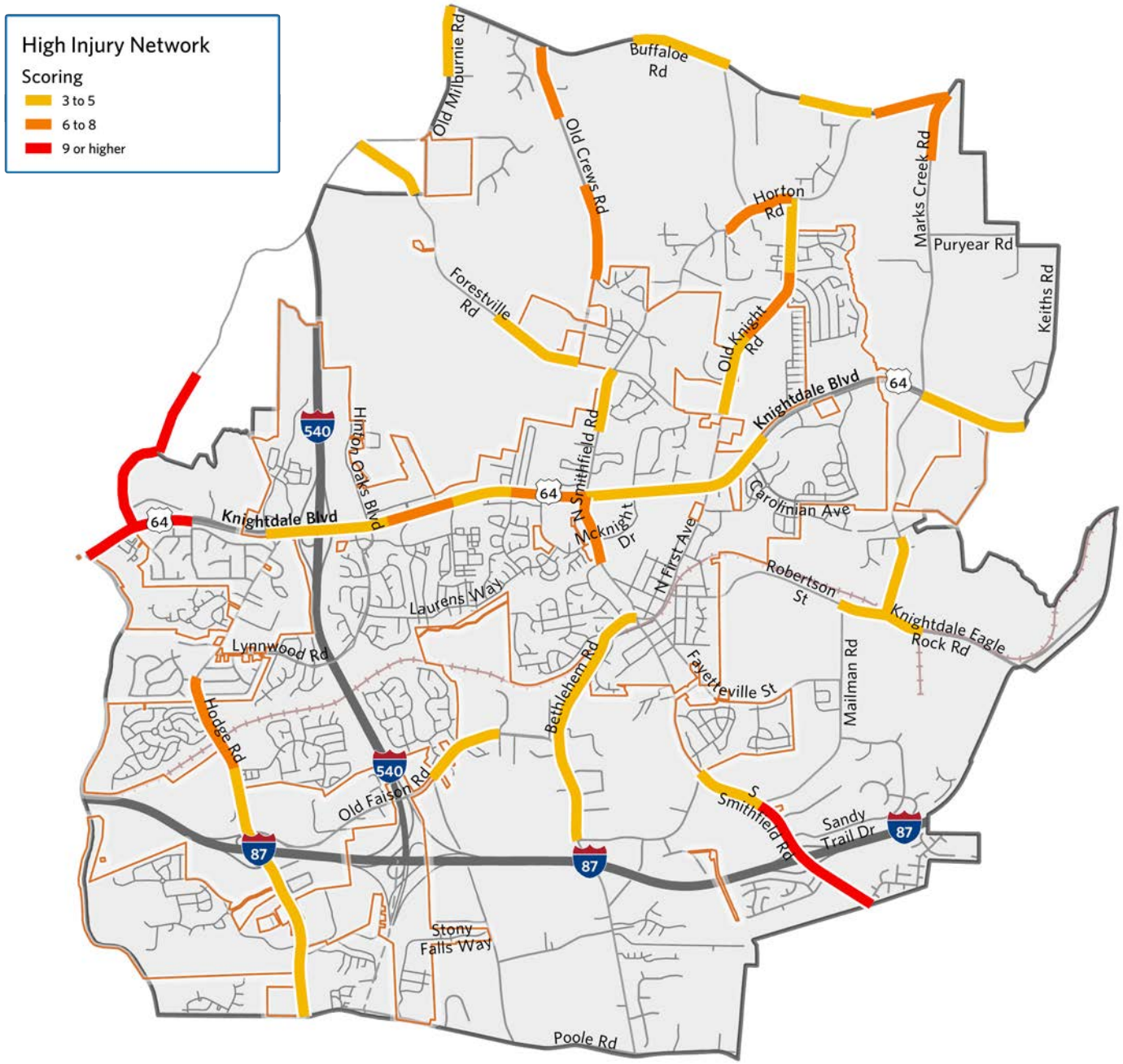
## Calculating Scores

Lastly, scores were assigned to all segments based on the crashes that occurred along the segments. Scoring for each crash type was weighted by severity. Fatal and severe injury crashes were weighted the highest individually, while minor injury crashes were scored based on frequency of crashes. Because bicyclists and pedestrians are more vulnerable at the same crash impact level, crashes that involved them were also more heavily weighted. The following formula was used to calculate each segment's severity score:

| | |
|---|---|
| **Fatal or Severe Injury (FSI) Crashes** *(Severity of K or A)* | ○ Each FSI crash: 3 points |
| + | |
| **Minor Injury Crashes** *(Severity of B or C)* | ○ Between 1 and 10 minor injury crashes: 1 point<br>○ Between 11 and 20 minor injury crashes: 2 points<br>○ Between 21 and 30 minor injury crashes: 3 points<br>○ Between 31 and 40 minor injury crashes: 4 points<br>○ 41 or more minor injury crashes: 5 points |
| + | |
| **Bicycle or Pedestrian Crashes** | ○ Each bicycle or pedestrian crash: 2 points |

Minor injury crash range score (x1) + Number of bicycle or pedestrian crashes (x2)
+ Number of fatal and severe injury (FSI) crashes (x3)
**= severity score**

This map shows the resulting High-Injury Network and the score range for each segment. All scored segments that received a score of 3 or higher are included in the HIN, ensuring that segments with at least one fatal or severe crash in the last five years are automatically included in the network. Segments with a score of 6 or higher may either have had multiple FSI crashes or high numbers of minor injury crashes. When referring to the HIN in prioritizing focus and resources, higher scores would help indicate segments with a higher need/priority for safety investments.



# 6

# Projects and Prioritization

# PROJECT IDENTIFICATION

The Town of Knightdale has a robust program of pipeline projects to help improve the transportation network. These are projects the Town could implement as well as improvements that will occur through continued development. The Town supports efforts by private development to increase safety, improve access, and provide multimodal connections.

For the Safety Action Plan, the project team drew from project lists identified as part of the Comprehensive Transportation Plan (CTP) as well as documented priorities from the North Carolina Department of Transportation (NCDOT), Town Council, and the Town of Knightdale Development Services Department (Development Services) to first collect a master of list of projects referred to as the universe of projects. Projects that could reasonably be assumed to have an impact on transportation safety in Knightdale were considered, and included:

- Speed issues (prioritized separately based on the findings of the previously mentioned speed audit)
- Bicycle/pedestrian facilities
- Spot safety and maintenance projects
- Intersection improvements

This list was further refined by overlaying the universe of projects over the High-Injury Network (HIN) and determining which projects fell along the HIN. As part of this process, the project team performed a gap analysis of the HIN—or those places along the network where no project had yet been identified to improve safety.

## Calculating the Prioritization Score

To prioritize the HIN projects, the project team, in coordination with the Task Force, developed context-sensitive prioritization scores that outline what is most important in Knightdale. This prioritization provides the Town with the guidance necessary to understand where resources are most needed to improve safety.

For each of the three main project types (bicycle/pedestrian facilities, spot safety and maintenance projects, and intersection improvements), project-type specific criteria were developed.

| Bicycle/Pedestrian Facilities | Spot Safety and Maintenance Projects | Intersection Improvements |
|---|---|---|
| School proximity | Number of crash incidents at project site | Traffic volume |
| Along a transit route | Severity of crash incidents at project site | CTP / Council Priority |
| CTP roadway designation | Quality of life improvement | Number of crash incidents at project site |
| Park proximity | | Severity of crash incidents at project site |
| Downtown proximity | | Quality of life improvement |
| Traffic volume | | |
| Connects residents to commercial destinations | | |
| Fills in a network gap | | |

In addition to these project-type specific criteria, the project team used a set of universal criteria to help compare the list of projects against one another. The universal criteria included:

- Roadway location (in Town vs. out of Town)
- Cost (low, medium, high)
- Ease of implementation
- Roadway speed
- Demographics
- Public feedback
- HIN score

To further refine the projects and ensure the prioritization captured the Town's vision for safety in Knightdale, each scored criterion was weighted. To determine the weights, the project team used input from the public and the Task Force on the following question:

**If you had funding for projects that will improve transportation safety in Knightdale, which projects would you spend your money on?**

**Projects that provide safer access to important destinations**

**Projects that incorporate multimodal facilities**

**Projects that mitigate traffic and congestion**

**Projects that address safety issues in the roadway**

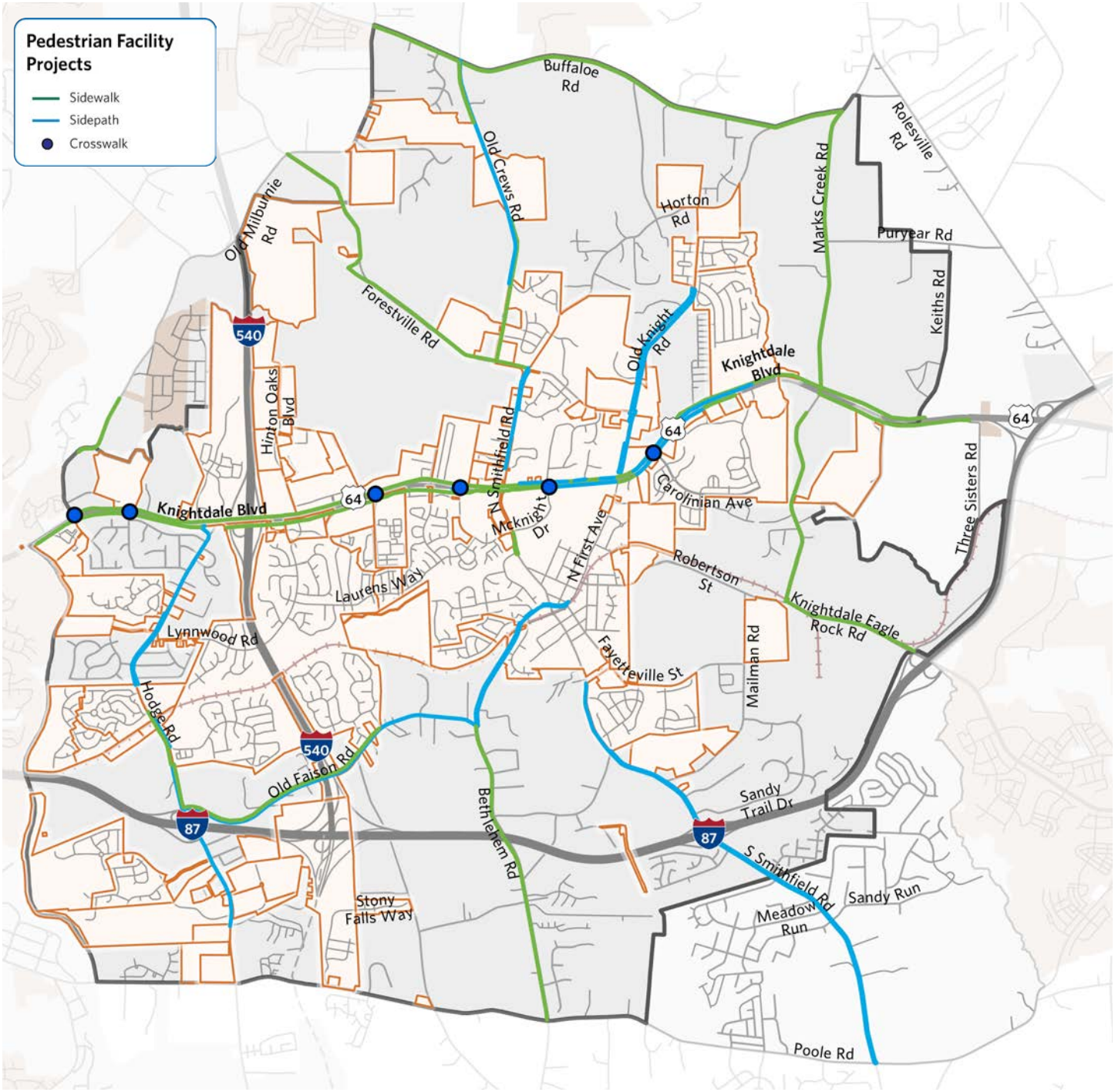
**Projects that improve safety in our vulnerable communities**

**Projects that are easiest to implement**

The rankings from the public and the rankings from the Task Force were averaged together to create a multiplier to weight the scores.

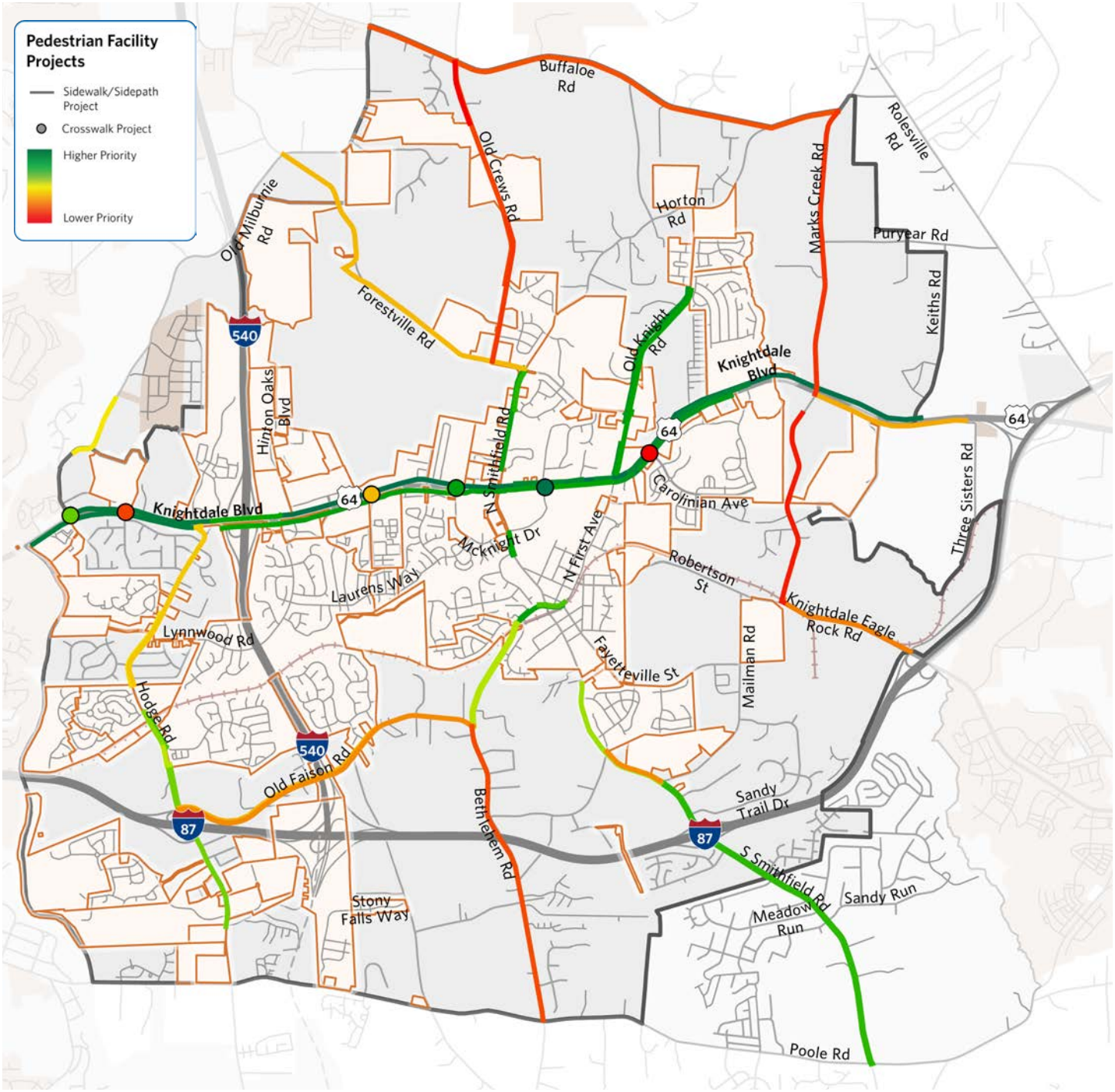
## Pedestrian Facilities

Pedestrian facility projects, including sidewalks, sidepaths, and crosswalk locations, were prioritized as a group. 50 of these projects were identified, including 21 sidewalk projects, 23 sidepath projects, and six crosswalk projects.



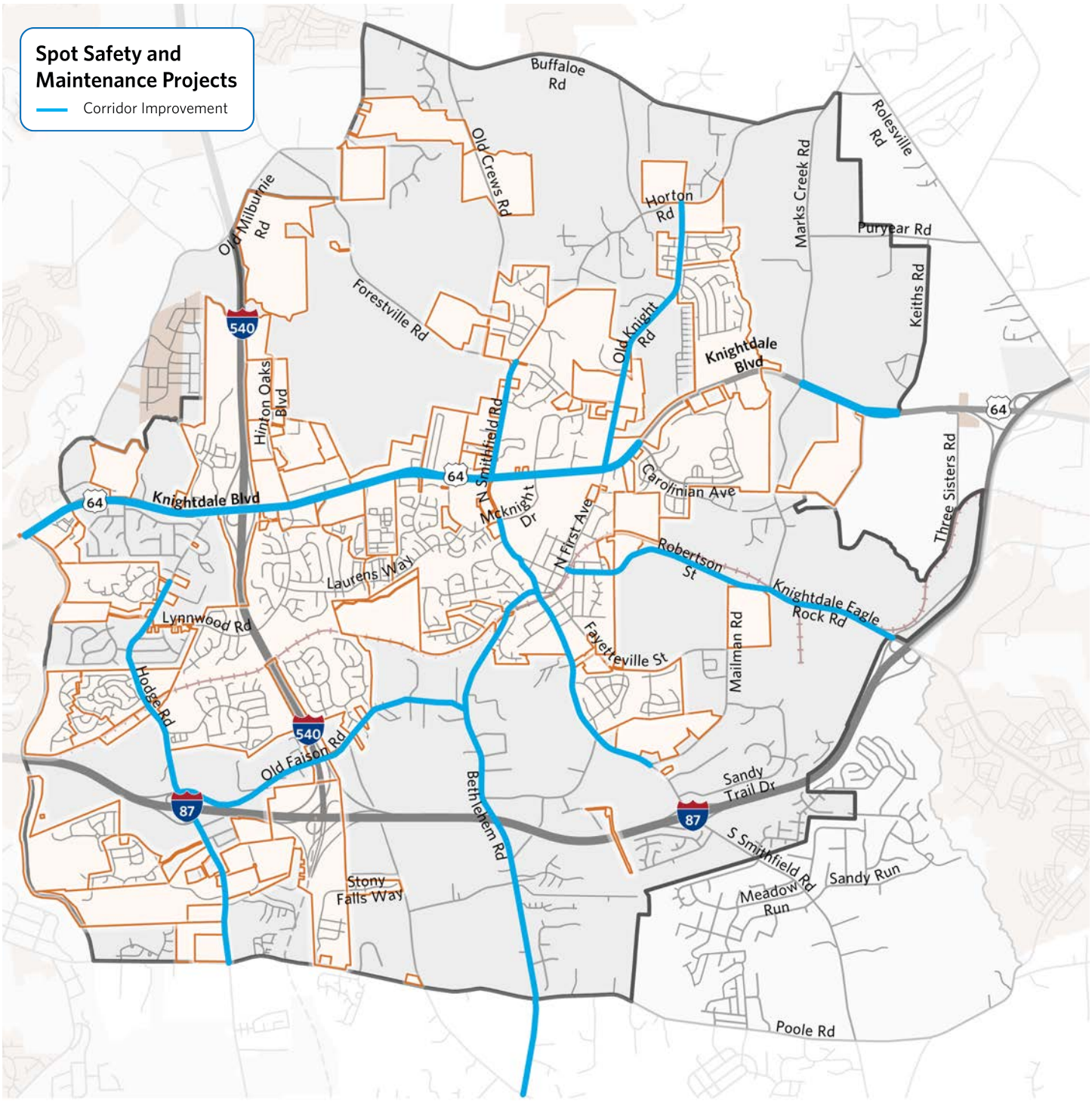
# Prioritized Pedestrian Facilies

Projects along Knightdale Boulevard/GoRaleigh Route 33 emerged as top priority projects, along with projects surrounding Downtown.



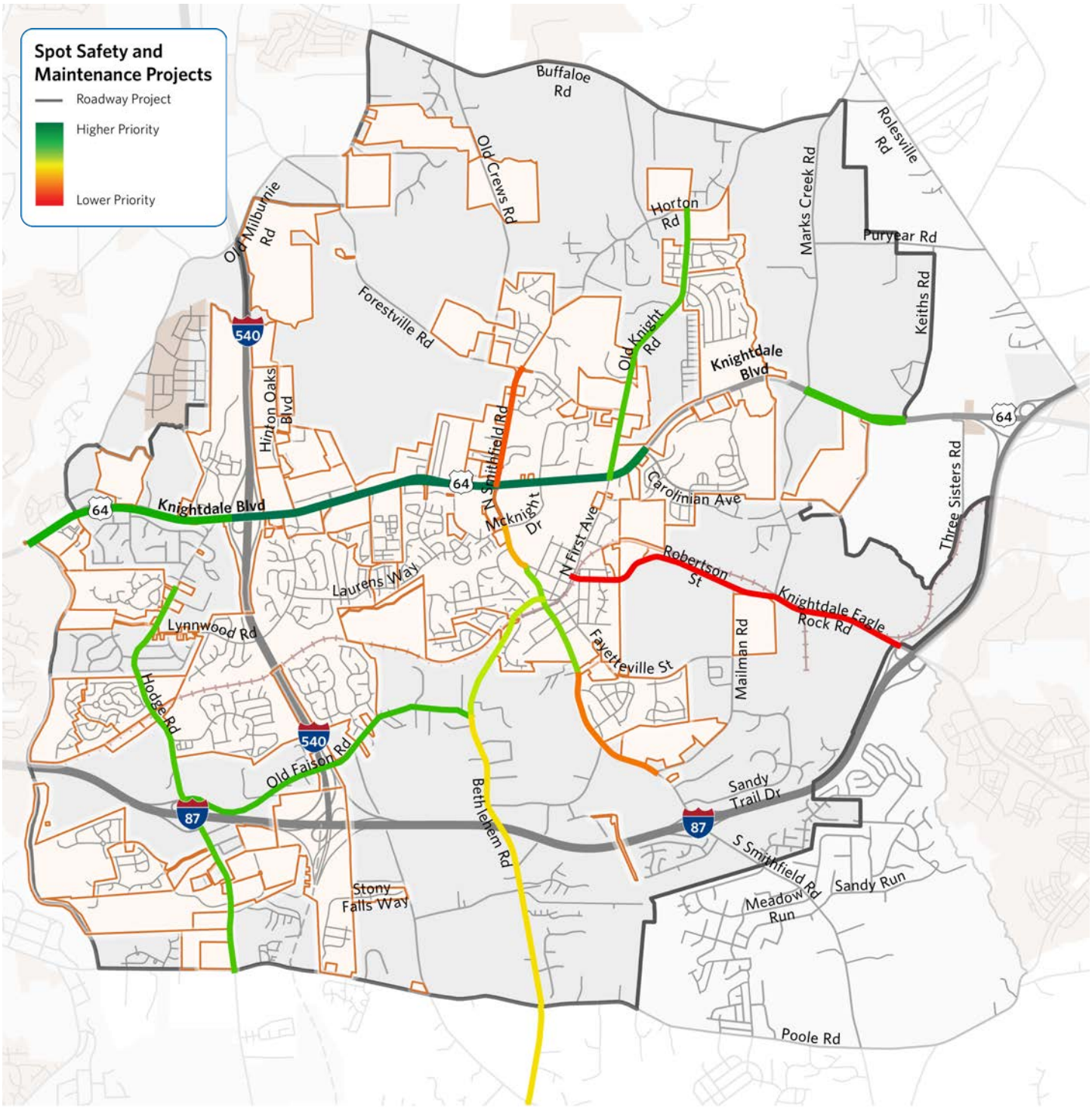
# Spot Safety and Maintenance Projects

Spot safety and maintenance projects were categorized broadly as corridor improvement projects. 16 projects were identified, including three access management projects and nine other modifications.



# Prioritized Spot Safety and Maintenance Projects

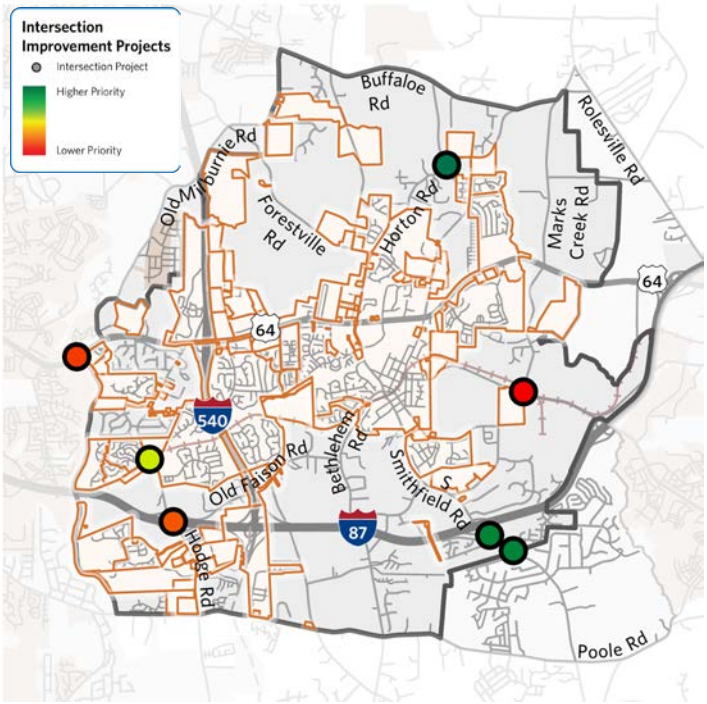
Projects along Knightdale Boulevard received the highest prioritization scores, followed by Old Knight Road and projects around Downtown Knightdale on Smithfield Road and First Avenue/Bethlehem Road.



# Prioritized Intersection Improvements

Roadway-focused intersection/point improvements including grade separations, bridge improvements, and other general intersection improvements were grouped together for prioritization. Four projects were identified within this category. **Programmed projects were ommitted from the rankings, including the following NCDOT intersection projects: Poole/Smithfield, Old Faison/Hodge, 1st/Smithfield, Smithfield/I-87, and Poole Road Bridge over the Neuse River. These projects are underway.**

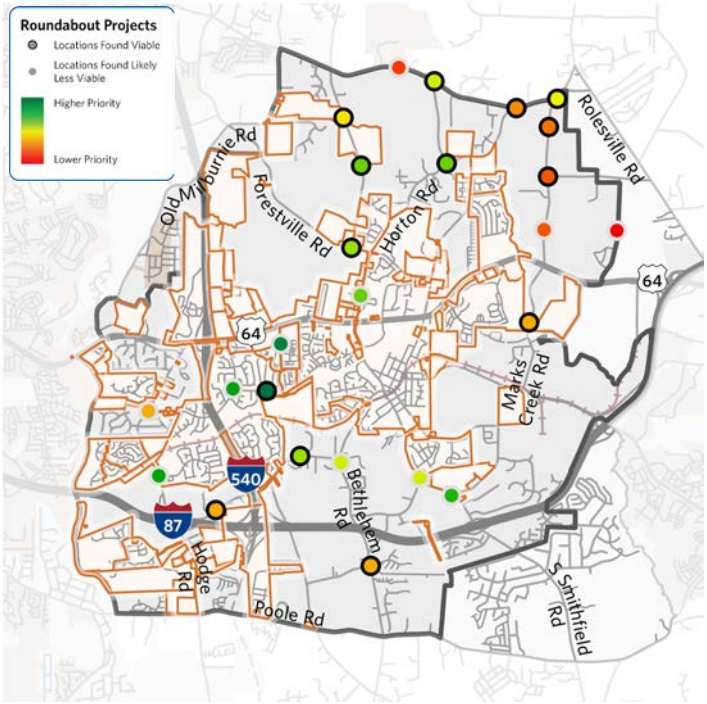
The grade separation of Hodge Road over the railway received the highest prioritization score, followed by the two bridge widenings (Hodge Road over I-87; Knightdale Blvd over the Neuse River). The realignment of the intersection between the Marks Creek Road Extension and Knightdale-Eagle Rock Road ranked lowest; however, there may still be smaller steps taken to improve visibility at said intersection in the interim.




# Prioritized Roundabouts

The Town's development ordinance requires that roundabouts be considered at significant intersections. The Town therefore wanted to further refine a list of intersections where roundabouts were the most feasible. While prioritized separately from other intersection projects, the 25 roundabout projects largely followed the same prioritization process. However, when receiving a score for traffic volumes, the results of the roundabout feasibility screening were used to give points to volumes within the optimal range identified for both need and NCDOT viability, rather than to roadways with the highest volumes. While all 25 roundabouts were prioritized, the map below notes which roundabouts were identified as less viable through the screening process.

Out of the roundabouts that both made it through screening as most viable and ranked as high priorities, Laurens Road at Widewaters Parkway emerged as the highest priority, followed by Lucas Road at Horton Road, Old Crews Road at future CTP Avenue South, Old Faison Road at future Widewaters Parkway Extension, and Old Crews Road at Forestville Road. However, several of these roundabouts are dependent on the construction of other projects.

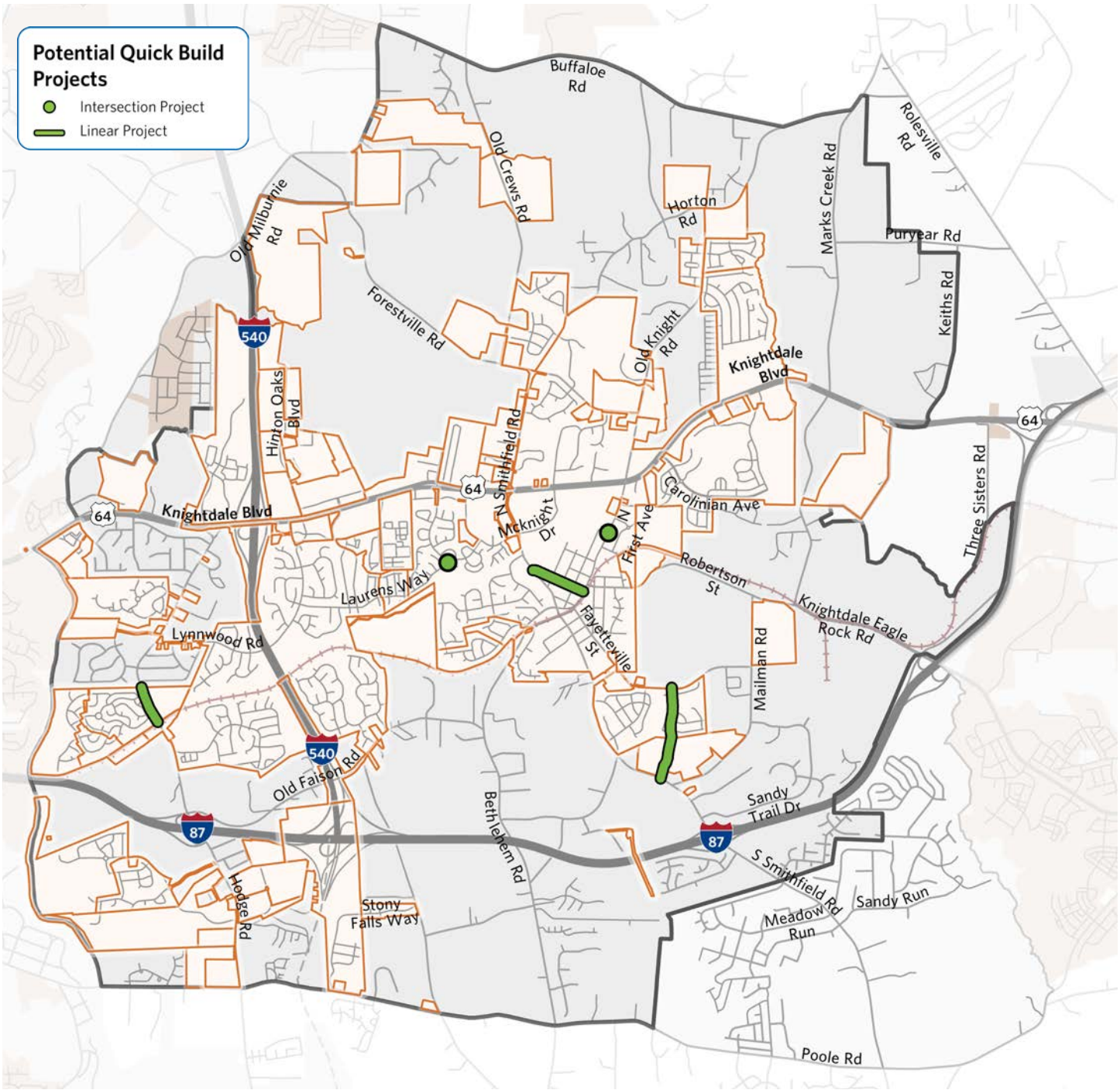



Other roundabouts along Hodge Road, Lynnwood Road, Parkstone Towne Boulevard, and Smithfield Road also ranked high in the prioritization process but were screened as less feasible due to traffic volumes, V/C, or grade concerns.

# Quick Build Projects

As part of the Knightdale Safety Action Plan, a selection of quick build projects were identified that could be quickly implemented. They include:

- **Main Street between Smithfield road and 1st Avenue**—parallel parking, stop striping, traffic calming, lane striping, sharrows
- **Hodge Road at Mingo Creek Greenway Crossing**—restripe excess pavement for trail parking and traffic calming
- **Glen Manor Trail between Fayetteville Street and Village Gate Development (under construction)**—stripe bike lanes and a through lane divider
- Raised intersection for 1st Avenue at Sycamore Street—to address speeding at this stop sign
- **Laurens Way at Parkside Commons**—mini roundabout demonstration project



# 7

# Action Plan

The following actions represent Knightdale's commitment to roadway safety. These are the additional ways—outside of transportation projects that improve safety—that Knightdale will work toward the goal of preventing roadway deaths and serious injuries.

Programs, policies, and strategies are organized around three key themes:

- Roadway design improvements to increase safety
- Community awareness, education, and engagement
- Programmatic actions to support implementation

For each measure, the lead agencies or party as well as key partners are shown.

- PD = Police
- FD = Fire
- NCDOT = North Carolina Department of Transportation
- VZTF = Vision Zero Task Force
- CR = Community Relations

In addition, each action has an associated performance measure and an estimated recommendation for implementation (near term, medium term, long term).

## Action Table

| Action # | Description | Measure | Lead Agency(ies) | Key Partner(s) | Priority |
|---|---|---|---|---|---|
| 1 | Apply the USDOT Safe Systems Approach to the design of new and improved streets. Prevent crashes by anticipating human mistakes and ensuring that if a crash occurs, it is unlikely to seriously hurt or kill someone. | Per capital and total fata/ severe injury crashes | DS | Other Departments | Near Term |
| 2 | Use the results of the speed audit within the Safety Action Plan to update speeds at identified locations. For corridors managed by NCDOT, make requests to change speeds. | Number of street segments reduced in speed limit | DS; PD | NCDOT | Medium Term |

| Action # | Description | Measure | Lead Agency(ies) | Key Partner(s) | Priority |
|---|---|---|---|---|---|
| 3 | Continue requiring sidewalks with new development. | Miles of sidewalks | DS | NCDOT; development community | Near Term |
| 4 | Ensure existing sidewalks are well maintained and meet Town standards. | Maintenance calls fulfilled for sidewalk issues | DS | NCDOT | Near Term |
| 5 | Update a comprehensive sidewalk inventory of all existing sidewalks in Knightdale and identify all gaps in the sidewalk network. | Completeness of the digital sidewalk network | DS | NCDOT | Medium Term |
| 6 | Create a sidewalk program that leverages Town, state, and federal resources to address gaps in the sidewalk/multimodal network. | Ongoing sidewalk Capital Investment Program created | DS | NCDOT | Long Term |
| 7 | Create a program for residents to request new sidewalks or improved pedestrian crossings. Advertise this resource to residents as part of the ongoing Vision Zero campaign. | Creation of request program; number of requests filled | DS | Town residents | Long Term |
| 8 | Proactively require traffic calming measures, such as roundabouts, raised intersections, and raised crosswalks where appropriate, in new development. | Number of new development projects including traffic calming measures | DS | Development community | Near Term |
| 9 | Identify lane diet opportunities where wide lanes can be reduced in width to slow motor vehicle travel speeds and provide space for other travel modes. | Number of safety conversions on Town-maintained streets and HIN segments | DS | NCDOT | Long Term |
| 10 | Use recommendations within the Safety Action Plan to prioritize conversion of existing intersections into roundabouts. | Number of intersections converted to roundabout | DS | NCDOT | Medium Term |

| Action # | Description | Measure | Lead Agency(ies) | Key Partner(s) | Priority |
|---|---|---|---|---|---|
| 11 | Conduct audit of existing signal operations to support safety goals. This may include considerations for retiming signals to support safe speeds, as well as adding leading pedestrian intervals, restricted turn phases, and walk signals with countdown timers and activation buttons. | Reduction in vulnerable user conflict; reduction in recorded crash modification factors | DS | NCDOT | Medium Term |
| 12 | Conduct more comprehensive corridor study of Knightdale Boulevard to assess current conditions and more closely evaluate identified safety improvements for vehicular, bicycle, pedestrian, and future transit users as well as bus rapid transit (BRT) running way locations. | Completion of Knightdale Boulevard Corridor Study | DS; NCDOT | Other Departments; Town residents | Medium Term |
| 13 | Meet with the Vision Zero Task Force each quarter to review safety data and continue to develop community messaging to advance Vision Zero. | Facilitation of quarterly meetings | DS; VZTF | | Near Term |
| 14 | Create a unified communications strategy for Vision Zero in Knightdale. Consistently use the Knightdale Vision Zero brand to publicize safety improvements that are planned or implemented. | Familiarity with Vision Zero and local safety improvements | CR | DS; VZTF | Near Term |
| 15 | Collaborate with and continue to learn from other Vision Zero communities in North Carolina, including by sending staff representatives to the NC Vision Zero Leadership Institute each year. | Staff sent to NC Vision Zero Leadership Institute | DS | VZTF, NC Vision Zero, NC Vision Zero Communities | Near Term |

| Action # | Description | Measure | Lead Agency(ies) | Key Partner(s) | Priority |
|---|---|---|---|---|---|
| 16 | Partner with statewide, regional, and local organizations (such as NCDOT, Wake County Schools, elected officials, and local advocacy groups) to publicize the Vision Zero campaign and promote safe driving to their audiences. | Number of partner organizations | CR; PD; FD | NCDOT; community partners; DS | Medium Term |
| 17 | Integrate Vision Zero principles into driver's education programs at local schools by partnering with Police Department and Wake County Public School System (WCPSS). | Number of student drivers educated about Vision Zero principles | CR; PD; DS | WCPSS | Long Term |
| 18 | Represent Vision Zero at a minimum of two Town events or festivals per year. At these events, distribute educational resources produced by NC Vision Zero and others to promote bike safety, motorcycle safety, seat belt use, and discourage distracted, impaired, and drowsy driving. | Number of events attended, number of educational materials distributed | DS; PD; VZTF | | Near Term |
| 19 | Become a Watch for Me NC partner community to receive educational and marketing material to support pedestrian and bicycle safety in Knightdale through a collaborative effort with NCDOT. | Become a Watch for Me NC partner | DS; VZTF | NCDOT | Medium Term |
| 20 | Review the Town's updated traffic calming policy to include additional provisions for eliminating fatal and serious injury crashes. | Traffic Calming policy updated | DS | VZTF; PD; FD | Medium Term |
| 21 | Continue using the TIA process to intentionally identify opportunities for new development to include multimodal facilities, including the potential for additional safety improvements for projects along the High-Injury Network or near the site of a past fatal or serious injury crash. | TIA policy updated; additional multimodal facilities | DS | Town Boards and Committees; development community | Medium Term |

| Action # | Description | Measure | Lead Agency(ies) | Key Partner(s) | Priority |
|---|---|---|---|---|---|
| 22 | Track and continuously update relevant data, such as travel speed, traffic volume, posted speed limit, signal locations, sign locations, and street lighting. Partner with the Knightdale Police Department to ensure that crash location data is as accurate as possible. | Number of maintained crash- and transportation-related datasets | DS; PD; FD | Regional partners; NCDOT | Medium Term |
| 23 | Research requirements for and pursue state and federal grants to improve safety, especially Safe Streets and Roads for All (SS4A). Use the Safety Action Plan and the High-Injury Network to select projects for grant funding. | Number of projects funded/ Amount of grant funding received | DS; VZTF | State and federal agencies; Town Boards and Committees | Near Term |
| 24 | Incorporate elements to improve safety into already planned road improvement, utility, and street maintenance projects. | Number of improvements | DS | NCDOT, utility companies | Near Term |

## Roundabout Guidelines

As part of the Knightdale Safety Action Plan, the project team developed updated roundabout standards that considered factors like pedestrian and bicycle accommodations, landscaping, traversible truck aprons, entry radius, signage, entry and exit width, and pedestrian crossings. Standard specifications are included for single-land roundabouts, multi-lane roundabouts, and miniature roundabouts. **The full roundabout standards are included in an appendix.**

# CONCLUSION

**The safety of those who live, work, and play in Knightdale is top of mind in everything we undertake as a Town. We envision a future in Knightdale where everyone—regardless of how they choose to get around—can get to their chosen destinations safely, comfortably, and efficiently. Developing strategies and implementing projects specifically designed to increase roadway safety will be an important step in achieving this goal. The Knightdale Safety Action Plan is the Town's toolkit; it provides the framework, guidance, and strategies to improve roadway safety in the near term and well into the future. The plan outlines how the Town can implement safer roadway design, prioritize pedestrian and bicycle facilities to fill gaps in the multimodal network, and create a culture of safety through education and awareness. Town administration and staff, elected officials, residents, and visitors all have a role to play to ensure the safety needs of this community are met. Through their support, the Knightdale Safety Action Plan will be successful in helping achieve the goal of safety for all.**

# KNIGHTDALE
## Safety Action Plan

# APPENDICES

## Appendix A—Corridor Urbanization Decision Tree

## Appendix B—Data Management Plan

## Appendix C—Roundabout Standards

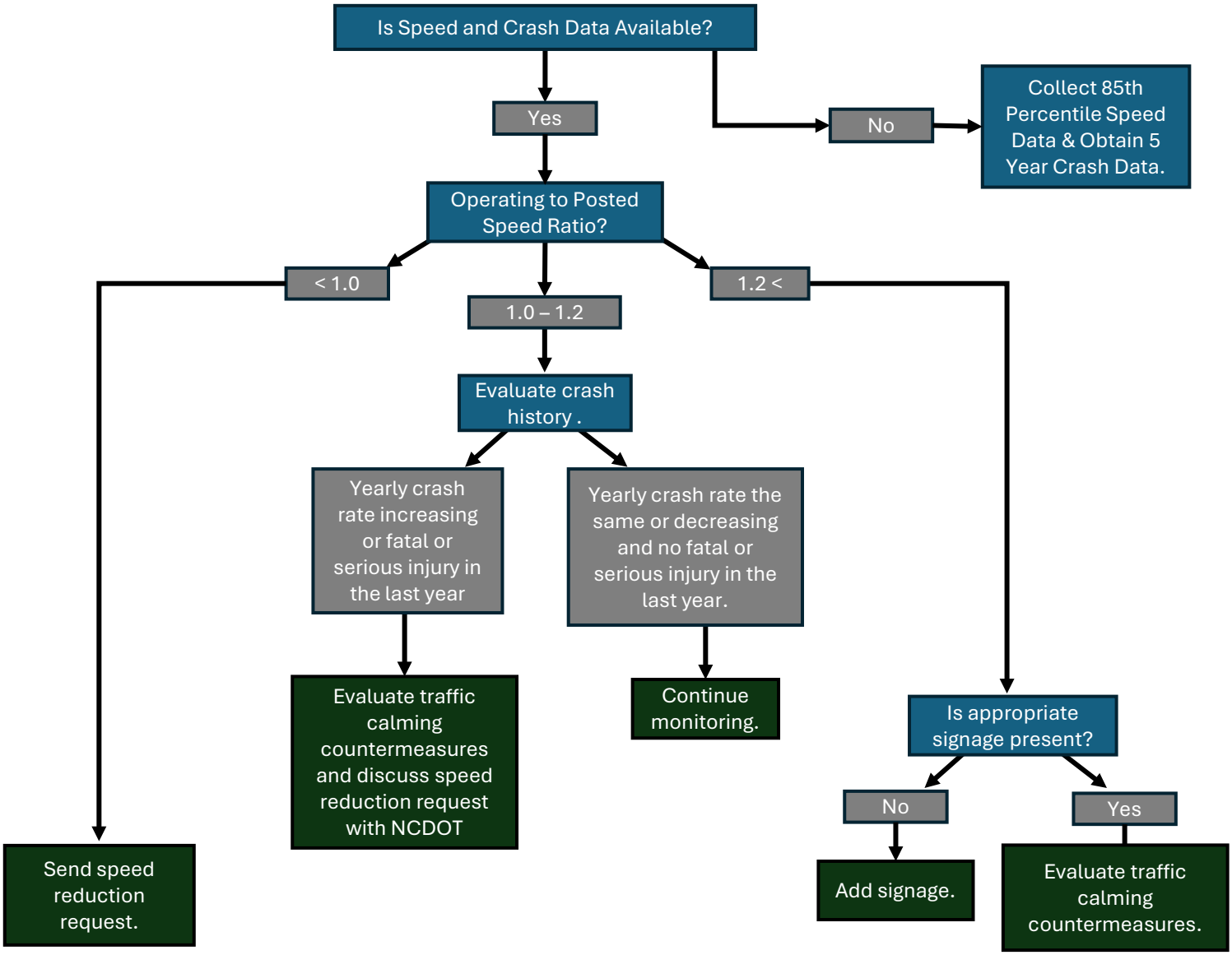
## Appendix D—Roundabout Feasibility Assessment

## Appendix E—Implementation Grant Checklist

# APPENDIX A

Prior to evaluating a corridor for speed alterations, the following questions should be considered. If you answered 'yes' to any of the following, an evaluation for a speed change request should be performed using the methodology below.

1. Has the town received any complaints or have police noted speeding issues on the corridor?
2. Has AADT increased by 15% year over year?
3. Are crash rates increasing year over year or higher than rates for roads of a similar type?
4. Have there been any fatalities or serious injuries in the last year?
5. Has the corridor experienced changes in pedestrian/transit activity or land uses?



# Vision Zero Data Management Plan

This document is intended to serve as a guide to the Town for maintaining the Knightdale Safety Action Plan via internal data management and updates to external data. Tracking and maintaining up-to-date information is essential to understanding the status of the Safety Action Plan and Vision Zero in Knightdale, and will allow the plan to be a living document that adapts to Knightdale's future needs.

The table below describes the relevant data to be collected and maintained, its source, and the recommended frequency of updates.

| Description | Source | Tracked Metrics/Performance Measures | Recommended Collection Frequency |
|---|---|---|---|
| **CRASH DATA** | | | |
| **NCDOT Crash Data**<br>GIS data including locations, types, severity, user type, and contributing factors | NCDOT 5-year crash history<br>Email Daniel Carter at NCDOT (dlcarter4@ncdot.gov) or submit Crash Data Request Form | Number of fatal/serious injuries, crash type breakdown, user type breakdown, contributing factors breakdowns | Annually |
| **Town Fatal/Serious Injury (FSI) Crash Data**<br>Use to create a combined dataset of NCDOT crashes and any additional FSI crashes | Knightdale Police Department | See above | Annually |
| **High-Injury Network**<br>Use crash data to periodically update the High-Injury Network | Crash data (see above) | See above. Use updates to the HIN to track whether safety improvement projects are having an effect over time. | Update every 2-3 years |
| **FACILITY DATA** | | | |
| **Bicycle and Pedestrian Facilities**<br>Maintain a continuously updated database of existing sidewalks, sidewalk gaps and bike facilities | Town of Knightdale | Miles of sidewalks, miles of bicycle facilities, miles of sidewalk gaps | Annually or continuously |
| **Road Ownership**<br>Maintain record of road ownership/maintenance responsibility as new streets are built or change ownership | Town of Knightdale | Miles of HIN on Town-owned streets | Annually or continuously |

| | | | |
|---|---|---|---|
| **Posted Speed Limits**<br>Maintain a GIS file of all speed limits in the Knightdale Planning Area (NCDOT and Town streets) | NCDOT via Web Map<br>And Town of Knightdale | Number of speed limit reductions, percentage of road mileage above 35 mph | Annually or continuously |
| **Annual Average Daily Traffic (AADT)**<br>Maintain record of AADT as recorded by NCDOT and by the Town when data is collected | NCDOT via ConnectNCDOT<br>See link to download. | | Annually |
| **Recorded/Actual Speeds**<br>Maintain a record of recorded speeds on roadways in the Knightdale Planning Area | Manually recorded speed data (Town of Knightdale or NCDOT) | 85th percentile speeds | At Town discretion when conditions surrounding a corridor change significantly from during initial speed audit |
| **PROJECT DATA** | | | |
| **Transportation Projects**<br>Maintain a single feature class that combines all transportation projects in the Town. | NCDOT (STIP, MTP, Town Projects – Funded and Proposed)<br>And Town of Knightdale | Number of projects completed by type (i.e., sidewalk, Complete Streets, traffic calming, crossing improvements, safety conversions), track which projects are on the HIN | Annually or continuously |
| **Maintenance Projects** | Town of Knightdale | Number of maintenance projects completed (i.e., resident-initiated sidewalk repair), track which projects are on the HIN | Annually or continuously |
| **OTHER DATA** | | | |
| **Demographic Data**<br>Including commute mode, vehicle access, population, median household income, race/ethnicity | American Community Survey 5-Year Estimates via https://data.census.gov/ | Notable demographic shifts such as population growth, income changes, etc. that may influence safety | Every 3-5 years |
| **Education and Outreach**<br>Track awareness of Vision Zero and outreach materials distributed | Town of Knightdale | Number of Vision Zero pledges signed, number of students educated about Vision Zero through Driver's Education, promotional materials distributed, events hosted | Continuously |
| **Development**<br>Track new and recently completed developments within the Knightdale planning area | Town of Knightdale | Proposed, approved, and under-construction developments that may influence need or priority of nearby safety improvements or speed reductions | Continuously |

TOWN OF KNIGHTDALE
STANDARD DETAILS

PHYSICAL CHARACTERISTICS
SINGLE LANE ROUNDABOUT
(GEOMETRY)

STD. NO. 3.33

1 of 8

| REVISIONS | DESCRIPTION | DATE |
|---|---|---|
| | | |

SUBMITTAL REQUIREMENTS:

IN ACCORDANCE WITH THE GUIDANCE AND PROVISIONS OF THESE DISPLAYS, THE TOWN REQUIRES THE SUBMISSION OF A SET OF DESIGN CHECKS THAT INCLUDES:

1. DESIGN VEHICLE SWEPT PATHS

2. GEOMETRIC SPEED CHECKS (FASTEST PATH CALCULATIONS)

3. SIGHT DISTANCE CHECKS

PRINCIPLES:

THE DESIGN OF A SINGLE LANE ROUNDABOUT SHOULD HAVE ENOUGH ENTRY PATH DEFLECTION TO CREATE BALANCED SPEEDS THROUGH THE ROUNDABOUT. THE USE OF LEFT OFFSET HELPS IN REDUCING SPEEDS IN ADVANCE OF THE ENTRY LINE; THIS IS ESPECIALLY IMPORTANT FOR COMPACT ROUNDABOUTS.

GEOMETRY DEFINITIONS:

1. INSCRIBED CIRCLE DIAMETER: MEASURE OF THE SIZE OF A ROUNDABOUT. GOVERNED BY NUMBER OF ENTRY AND EXIT LANES, SIZE OF DESIGN VEHICLE, AND PROPERTY CONSTRAINTS.

2. CIRCULATORY ROAD: SHALL BE 16'–18' FROM EDGE OF TRAVEL TO EDGE OF TRAVEL (EOT–TO–EOT), OR 18'–20' TO OUTSIDE FACE OF CURB (FOC).

3. LANDSCAPED CENTRAL ISLAND: A CENTRAL NON–TRAVERSABLE AREA. SIGHTLINES SHALL BE MAINTAINED AROUND THE OUTSIDE, BUT MAY BE OBSTRUCTED THROUGH THE CENTRAL ISLAND BY LANDSCSAPING.

4. TRUCK APRON: A TRAVERSABLE AREA FOR TRUCKS. SEE STANDARD DETAIL 3.33, SHEET 8 OF 8 FOR COLORED AND STAMPED CONCRETE GUIDANCE.

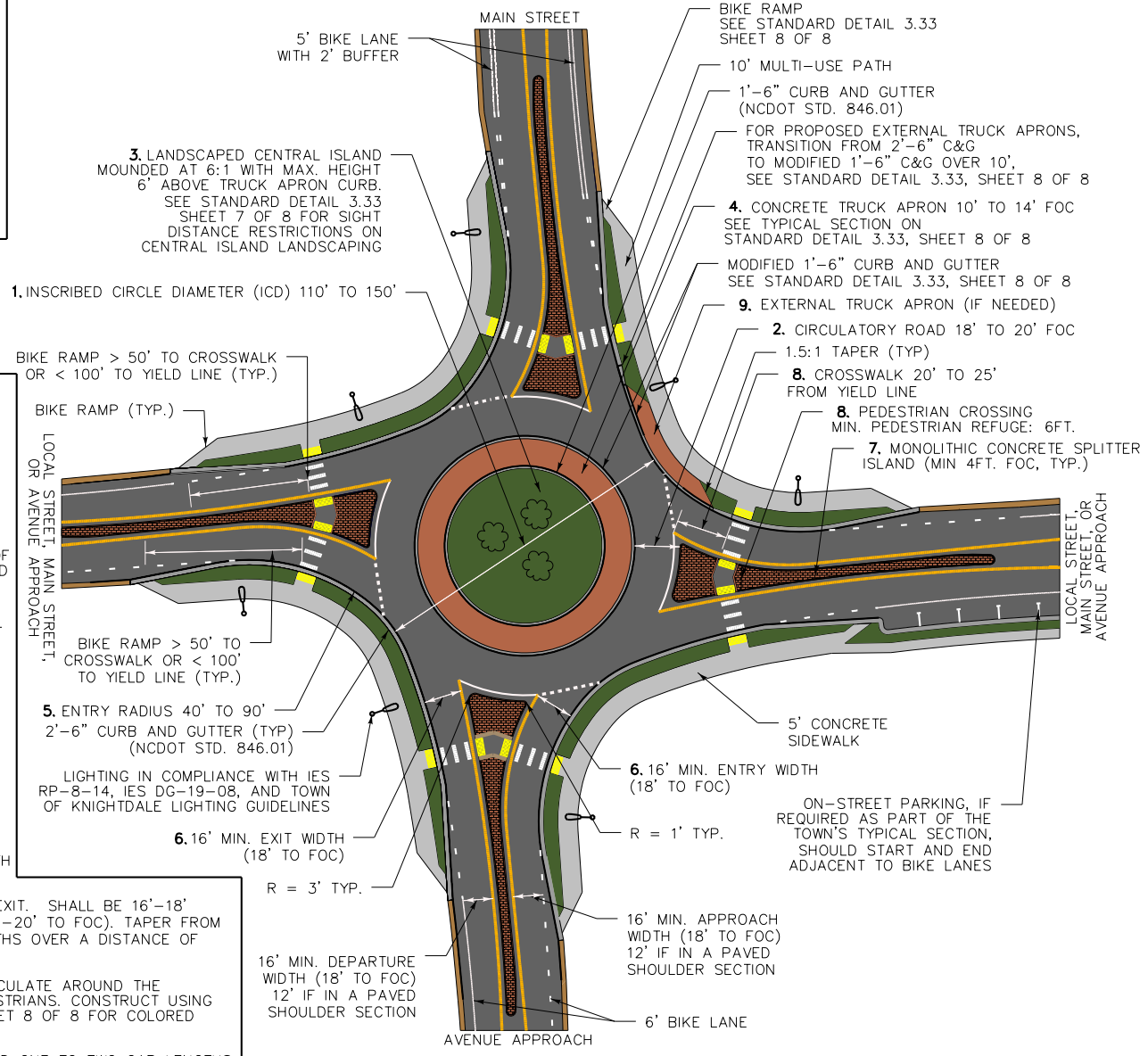
5. ENTRY RADIUS: THE SMALLEST CURB RADIUS BEFORE OR AT THE YIELD LINE. NOT THE SAME AS ENTRY PATH RADIUS OR DEFLECTION.

6. ENTRY/EXIT WIDTH: AT THE ROUNDABOUT ENTRANCE/EXIT. SHALL BE 16'–18' MEASURED FROM SPLITTER ISLAND STRIPE TO EOT (18'–20' TO FOC). TAPER FROM TYPICAL APPROACH LANE WIDTHS TO ENTRY/EXIT WIDTHS OVER A DISTANCE OF 75'–100'.

7. CONCRETE SPLITTER ISLAND: DIRECTS DRIVERS TO CIRCULATE AROUND THE ROUNDABOUT AND PROVIDES REFUGE AREA FOR PEDESTRIANS. CONSTRUCT USING NCDOT STD. 852.01. SEE STANDARD DETAIL 3.33, SHEET 8 OF 8 FOR COLORED AND STAMPED CONCRETE GUIDANCE.

8. PEDESTRIAN CROSSING: TWO–STAGE CROSSING LOCATED ONE TO TWO CAR LENGTHS (20'–25') BEHIND THE YIELD LINE. CROSSINGS SHOULD BE PERPENDICULAR TO THE TRAVEL LANE.

9. EXTERNAL TRUCK APRON: MAY BE USED AS NEEDED TO ACCOMMODATE LARGE DESIGN VEHICLES RIGHT TURN SWEPT PATH. TRANSITION FROM 2'–6" C&G TO MODIFIED 1'–6" C&G OVER 10'. CONSTRUCT CONCRETE EXTERNAL TRUCK APRON TO BE THE SAME DEPTH AS THE TRUCK APRON. EXTERNAL TRUCK APRONS SHOULD NOT PASS THROUGH CROSSWALKS. SEE STANDARD DETAIL 3.33, SHEET 8 OF 8 FOR COLORED AND STAMPED CONCRETE GUIDANCE.




GENERAL NOTES:

SHIFT FROM TOWN TYPICAL SECTION DIMENSIONS TO THE DIMENSIONS SHOWN IN THIS DETAIL USING THE APPROACH AND DEPARTURE TAPER LENGTHS AS SHOWN IN NCDOT ROADWAY DESIGN MANUAL (RDM) FIGURE 8–11

$$A = \frac{WS^2}{60} \text{ (WHEN S LESS THAN/EQUAL TO 40 MPH)}$$

$$A = WS \text{ (WHEN S GREATER THAN 40 MPH)}$$

A = APPROACH OR DEPARTURE TAPER LENGTH
W = WIDTH OF LATERAL SHIFT
S = DESIGN SPEED

FOR ROUTES MAINTAINED BY NCDOT, AN ENCROACHMENT AGREEMENT FROM NDCOT DIVISION OFFICE IS REQUIRED. COORDINATE WITH NCODT DIVISION OFFICE FOR DESIGN REVIEW.

REFER TO NCDOT ROADWAY DESIGN MANUAL SECTION 8.10.3 FOR STORM DRAIN DESIGN GUIDANCE.

REFER TO NCHRP REPORT 1043 FOR ADDITIONAL ROUNDABOUT DESIGN GUIDANCE.

APPENDIX C

TOWN OF KNIGHTDALE
STANDARD DETAILS

| REVISIONS | DESCRIPTION | DATE |
|---|---|---|
| | | |

SUBMITTAL REQUIREMENTS:

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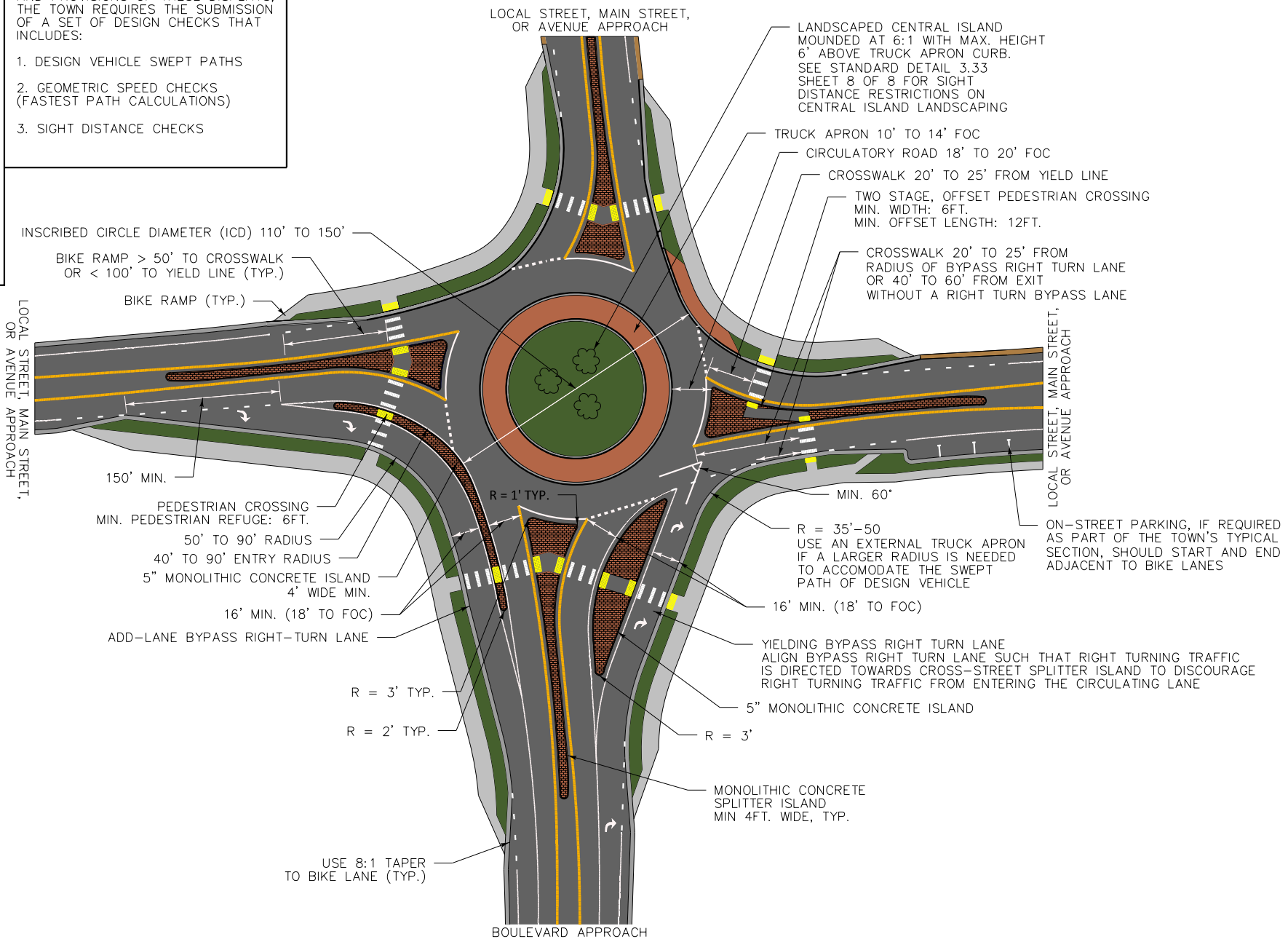
2. GEOMETRIC SPEED CHECKS (FASTEST PATH CALCULATIONS)

3. SIGHT DISTANCE CHECKS

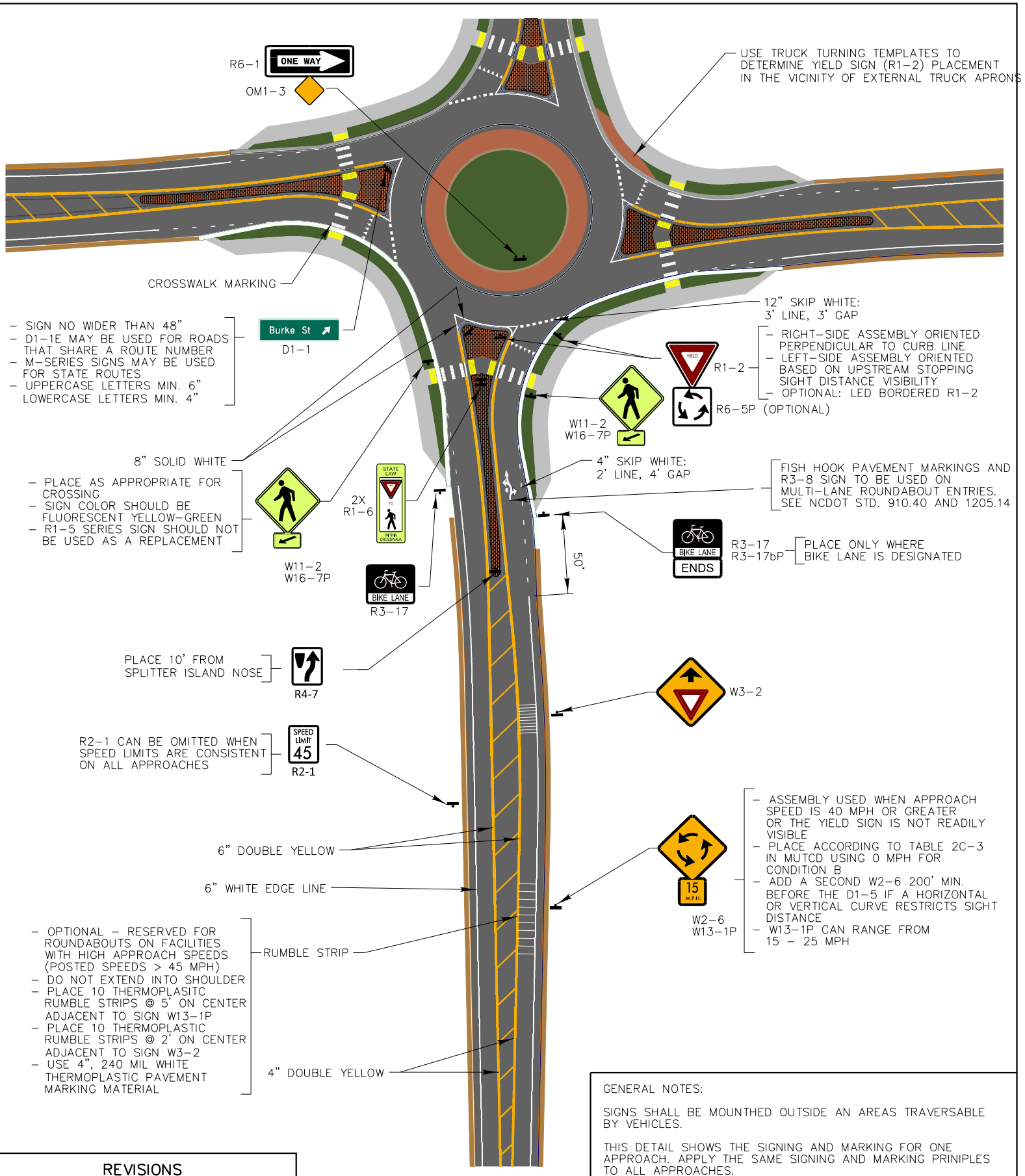



# PHYSICAL CHARACTERISTICS
## SINGLE LANE ROUNDABOUT WITH BYPASS LANES (GEOMETRY)

GENERAL NOTES:

SEE STANDARD DETAIL 3.33, SHEET 1 OF 8 FOR DESIGN PRINCIPLES, GEOMETRY DEFINITIONS, SUBMITTAL REQUIREMENTS, AND ADDITIONAL ROUNDABOUT DESIGN GENERAL NOTES

STD. NO. 3.33




GENERAL NOTES:

SIGNS SHALL BE MOUNTHED OUTSIDE AN AREAS TRAVERSABLE BY VEHICLES.

THIS DETAIL SHOWS THE SIGNING AND MARKING FOR ONE APPROACH. APPLY THE SAME SIGNING AND MARKING PRINIPLES TO ALL APPROACHES.

REFER TO THE MUTCD AND NCDOT STANDARD DRAWINGS (DIVISION 09 - SIGNING AND DIVISION 12 - PAVEMENT MARKINGS, MARKERS AND DELINEATION) FOR ADDITIONAL SIGNING AND MARKING GUIDANCE.

| REVISIONS | |
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| DATE | DESCRIPTION |
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TOWN OF KNIGHTDALE
STANDARD DETAILS

# SIGNING AND PAVEMENT MARKING SINGLE LANE ROUNDABOUT

STD. NO.
3.33

TOWN OF KNIGHTDALE
STANDARD DETAILS

PHYSICAL CHARACTERISTICS
MINI-ROUNDABOUT

| REVISIONS | DESCRIPTION | DATE |
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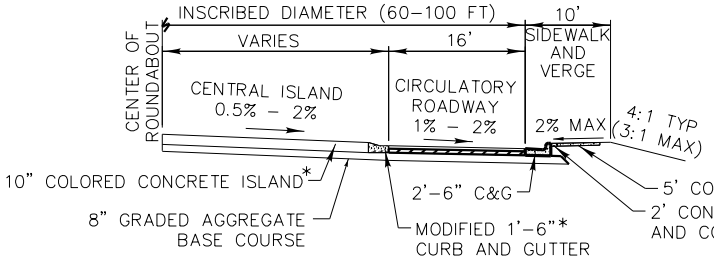
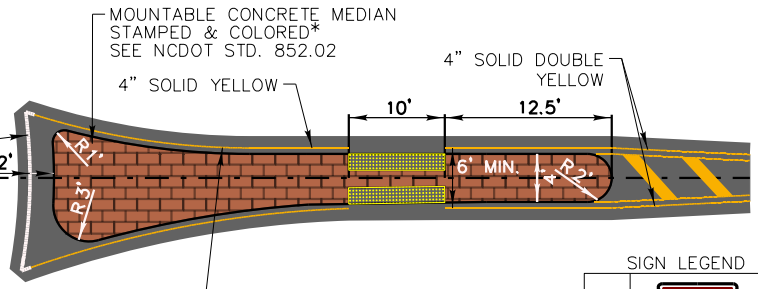
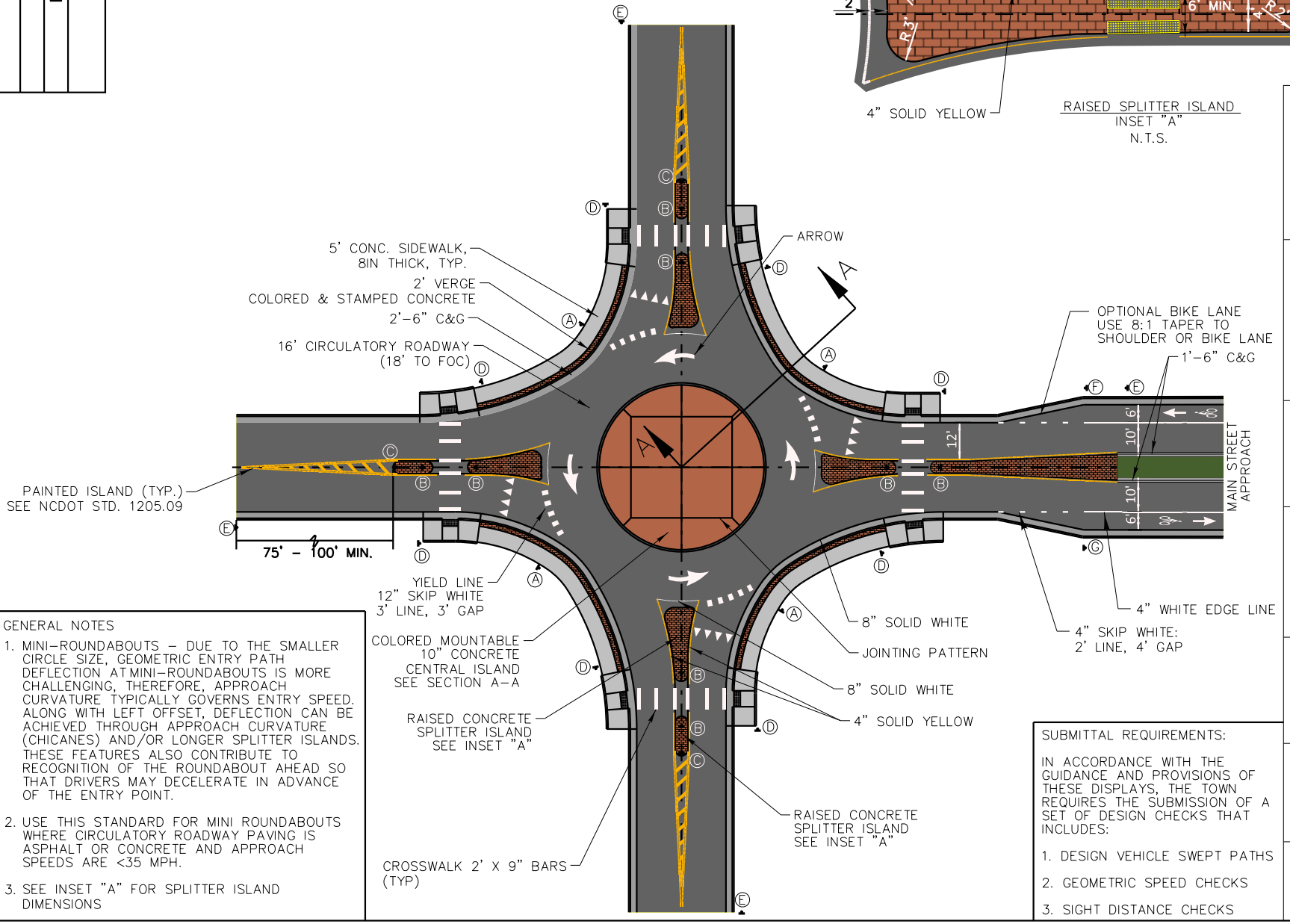



ROUNDABOUT TYPICAL SECTION
SECTION A–A
N.T.S.

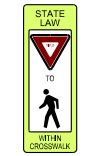
* NOTE: SEE STANDARD DETAIL 3.33, SHEET 8 OF 8 FOR COLORED AND STAMPED CONCRETE SPECIFICATIONS AND MODIFIED 1'–6" CURB AND GUTTER DETAILS




RAISED SPLITTER ISLAND
INSET "A"
N.T.S.




SIGN LEGEND

| | | |
|---|---|---|
| Ⓐ |  | R1–2, R6–5P 36"x36"x36" 30"X30" |
| Ⓑ |  | R1–6 12"x36" FLUORESCENT YELLOW–GREEN |
| Ⓒ |  | R4–7c 18"x30" |
| Ⓓ |  | W11–2, W16–7p 30"x30", 24"x12" |
| Ⓔ |  | W2–6 30"x30" |
| Ⓕ |  | R3–17, R3–17bP 24"x18", 24"x8" |
| Ⓖ |  | R3–17 24"x18" |

GENERAL NOTES

1. MINI–ROUNDABOUTS – DUE TO THE SMALLER CIRCLE SIZE, GEOMETRIC ENTRY PATH DEFLECTION AT MINI–ROUNDABOUTS IS MORE CHALLENGING, THEREFORE, APPROACH CURVATURE TYPICALLY GOVERNS ENTRY SPEED. ALONG WITH LEFT OFFSET, DEFLECTION CAN BE ACHIEVED THROUGH APPROACH CURVATURE (CHICANES) AND/OR LONGER SPLITTER ISLANDS. THESE FEATURES ALSO CONTRIBUTE TO RECOGNITION OF THE ROUNDABOUT AHEAD SO THAT DRIVERS MAY DECELERATE IN ADVANCE OF THE ENTRY POINT.
2. USE THIS STANDARD FOR MINI ROUNDABOUTS WHERE CIRCULATORY ROADWAY PAVING IS ASPHALT OR CONCRETE AND APPROACH SPEEDS ARE <35 MPH.
3. SEE INSET "A" FOR SPLITTER ISLAND DIMENSIONS

SUBMITTAL REQUIREMENTS:

IN ACCORDANCE WITH THE GUIDANCE AND PROVISIONS OF THESE DISPLAYS, THE TOWN REQUIRES THE SUBMISSION OF A SET OF DESIGN CHECKS THAT INCLUDES:

1. DESIGN VEHICLE SWEPT PATHS
2. GEOMETRIC SPEED CHECKS
3. SIGHT DISTANCE CHECKS

STD. NO. 3.33

TOWN OF KNIGHTDALE
STANDARD DETAILS

| REVISIONS | | | |
|---|---|---|---|
| DESCRIPTION | | | DATE |
| | | | |

# TRUCK MOVEMENTS SINGLE-LANE ROUNDABOUT AND MINI-ROUNDABOUT

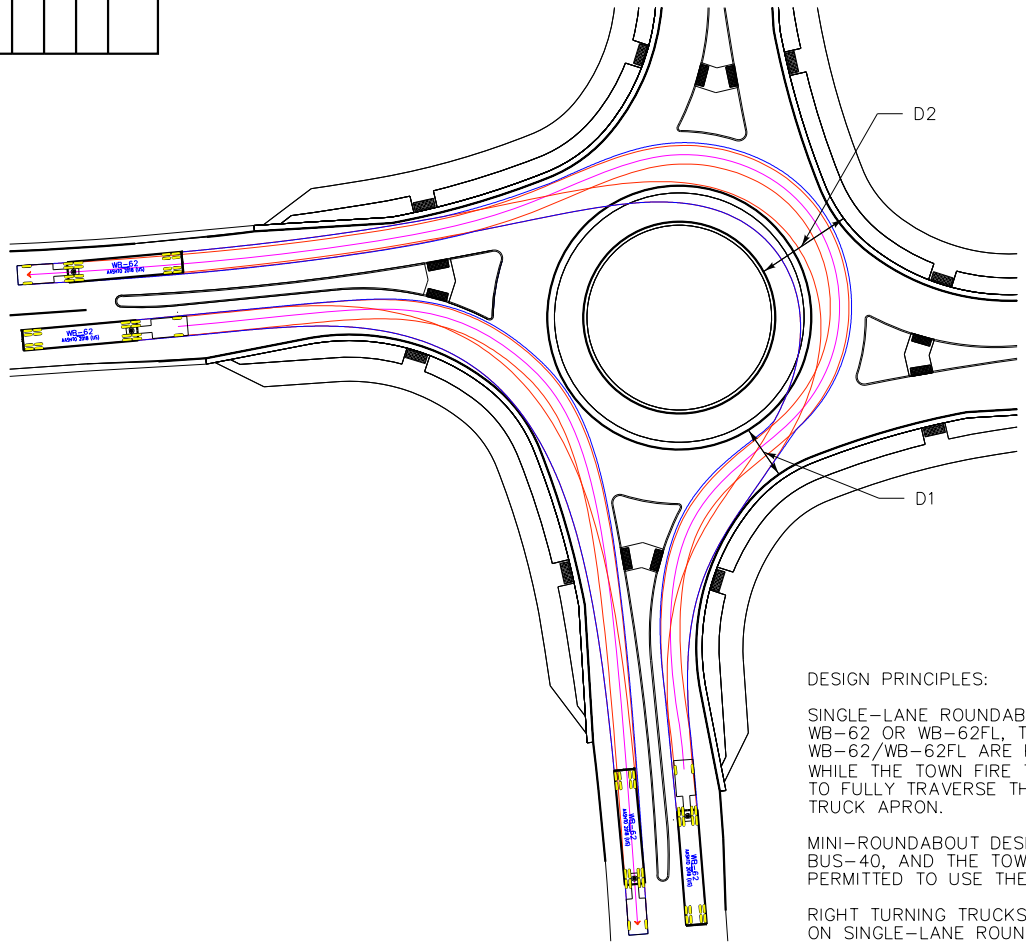
| TURNING WIDTH REQUIRED FOR SINGLE-LANE ROUNDABOUTS ('D' IN FT) | | | | | |
|---|---|---|---|---|---|
| INSCRIBED CIRCLE DIAMETER | DESIGN VEHICLES | | | | |
| | D1 (EOP) | | | D2 (FOC) | |
| | SU-30 | BUS-40 | FIRE TRUCK | WB-62 | WB-62FL |
| 110 | 14* | 15 | 14 | 32 | 39 |
| 120 | 14* | 15 | 14 | 30 | 36 |
| 130 | 14* | 14 | 14* | 27 | 33 |
| 140 | 14* | 14 | 14* | 26 | 30 |

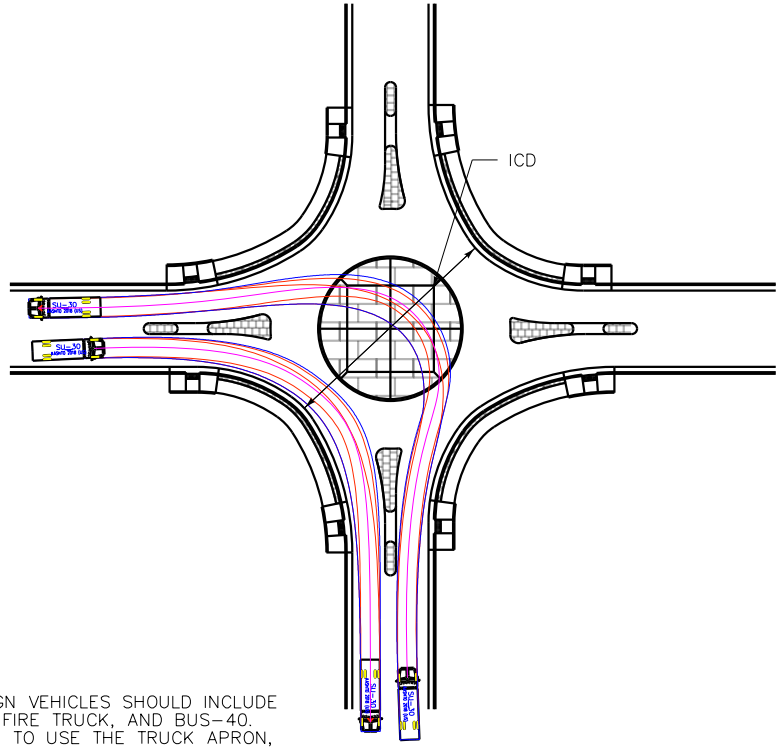
NOTE: THE VALUES PROVIDED ABOVE ARE FOR GENERAL GUIDANCE.
*14 FT MINIMUM EOP/18 FT FOC

| MIN. RIGHT TURN RADIUS | |
|---|---|
| SU-30 | 30 FT |
| BUS-40 | 25 FT |
| FIRE TRUCK | 16 FT |
| WB-62 | DETERMINED BY AUTOTURN |
| WB-62FL | DETERMINED BY AUTOTURN |

| MINI-ROUNDABOUT ICD REQUIREMENTS FOR VEHICLE U-TURNS AND LEFT TURNS (LT) | | | | |
|---|---|---|---|---|
| INSCRIBED CIRCLE DIAMETER | DESIGN VEHICLES | | | |
| | SU-30 | BUS-40 | FIRE TRUCK | WB-62 |
| 60 | LT-ONLY | NO | LT-ONLY | NO |
| 65 | LT-ONLY | LT-ONLY | LT-ONLY | NO |
| 70 | LT-ONLY | LT-ONLY | YES | NO |
| 80 | LT-ONLY | LT-ONLY | YES | LT-ONLY |
| 90 | YES | YES | YES | YES |
| 100 | YES | YES | YES | YES |

TABLE NOTE: SPLITTER ISLANDS SHOULD BE MOUNTABLE OR TRIMMED AS NEEDED BASED ON SWEPT PATHS




DESIGN PRINCIPLES:

SINGLE-LANE ROUNDABOUT DESIGN VEHICLES SHOULD INCLUDE WB-62 OR WB-62FL, THE TOWN FIRE TRUCK, AND BUS-40. WB-62/WB-62FL ARE PERMITTED TO USE THE TRUCK APRON, WHILE THE TOWN FIRE TRUCK AND BUS-40 SHOULD BE ABLE TO FULLY TRAVERSE THE ROUNDABOUT WITHOUT USING THE TRUCK APRON.

MINI-ROUNDABOUT DESIGN VEHICLES SHOULD INCLUDE SU-30, BUS-40, AND THE TOWN FIRE TRUCK, ALL OF WHICH ARE PERMITTED TO USE THE TRUCK APRON.

RIGHT TURNING TRUCKS ARE NOT TO USE THE TRUCK APRON ON SINGLE-LANE ROUNDABOUTS. WHERE ENTRY, EXIT, OR CIRCULATING WIDTHS BECOME EXCESSIVE FOR RIGHT TURNS, CONSIDER USING AN EXTERNAL TRUCK APRON. EXTERNAL TRUCK APRONS SHOULD NOT PASS THROUGH CROSSWALKS.

GENERAL NOTES:

1. CHECK LEFT, THROUGH, AND RIGHT TURN MOVEMENTS FOR EACH RELEVANT DESIGN VEHICLE.

2. D1: CIRCULATORY ROADWAY SHOULD BE 18FT TO 20FT MEASURED FROM THE FACE OF CURB

STD. NO. 3.33

TOWN OF KNIGHTDALE
STANDARD DETAILS

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| DESCRIPTION | DATE | |
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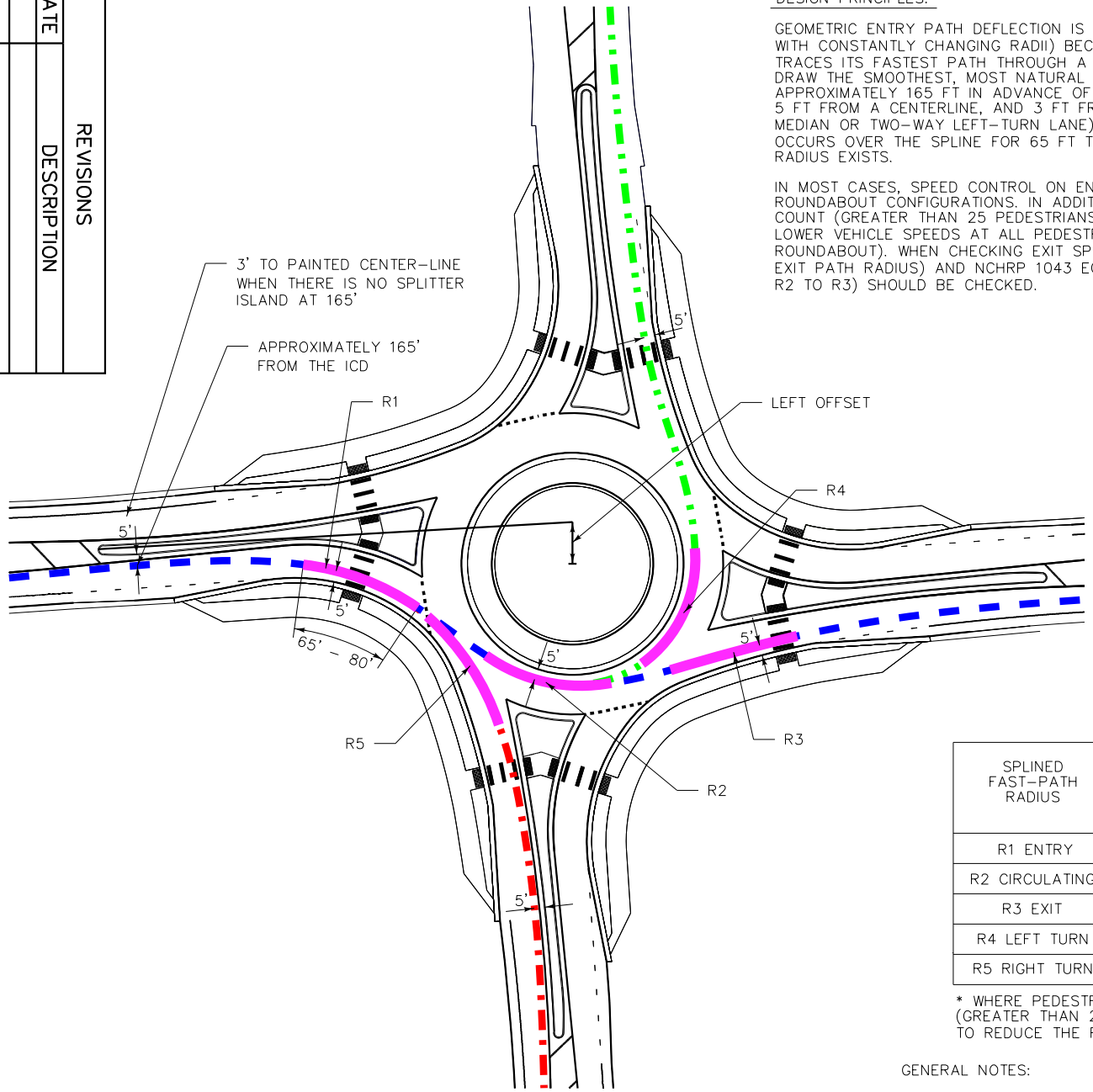
GEOMETRIC SPEED CHECKS
SINGLE LANE ROUNDABOUT

STD. NO. 3.33






DESIGN PRINCIPLES:

GEOMETRIC ENTRY PATH DEFLECTION IS BEST REPRESENTED BY A CONTINUOUS SPLINE (A CURVE WITH CONSTANTLY CHANGING RADII) BECAUSE THIS MOST CLOSELY APPROXIMATES HOW A VEHICLE TRACES ITS FASTEST PATH THROUGH A ROUNDABOUT. A SPLINE ALSO ALLOWS ANALYSTS TO DRAW THE SMOOTHEST, MOST NATURAL VEHICULAR PATH. IT IS DRAWN FROM A STARTING POINT APPROXIMATELY 165 FT IN ADVANCE OF THE ENTRY LINE, WITH AN OFFSET OF 5 FT FROM CURBS, 5 FT FROM A CENTERLINE, AND 3 FT FROM OTHER PAVEMENT MARKINGS (SUCH AS A PAINTED MEDIAN OR TWO-WAY LEFT-TURN LANE). THE CRITICAL ENTRY PATH RADIUS, REFERRED TO AS R1, OCCURS OVER THE SPLINE FOR 65 FT TO 80 FT, NEAR THE YIELD POINT, WHERE THE TIGHTEST RADIUS EXISTS.

IN MOST CASES, SPEED CONTROL ON ENTRY IS THE MOST IMPORTANT FASTEST PATH CRITERIA FOR ROUNDABOUT CONFIGURATIONS. IN ADDITION, IF A LOCATION HAS A SIGNIFICANT PEDESTRIAN COUNT (GREATER THAN 25 PEDESTRIANS PER HOUR), STEPS SHOULD BE TAKEN TO FACLITATE LOWER VEHICLE SPEEDS AT ALL PEDESTRIAN CONFLICT AREAS (INCLUDING EXIT SPEEDS FROM THE ROUNDABOUT). WHEN CHECKING EXIT SPEEDS, BOTH THE PREDICTIVE METHOD (BASED ON THE R3 EXIT PATH RADIUS) AND NCHRP 1043 EQUATION 9.7 (WHICH ACCOUNTS FOR ACCELERATION FROM R2 TO R3) SHOULD BE CHECKED.

| SPLINED FAST-PATH RADIUS | RECOMMENDED RADIUS FOR SINGLE-LANE ROUNDABOUT (FT) | RECOMMENDED RADIUS FOR MINI-ROUNDABOUT (FT) |
|---|---|---|
| R1 ENTRY | 120FT TO 165FT | 100FT TO 165FT |
| R2 CIRCULATING | 70FT TO 120FT | 70FT TO 100FT |
| R3 EXIT | 120FT TO 300FT* | 90FT TO 150FT |
| R4 LEFT TURN | TRUCK APRON R.+5FT | CENTER ISLAND R.+5FT |
| R5 RIGHT TURN | 70FT TO 100FT | 50FT TO 90FT |

* WHERE PEDESTRIAN USE OF AN EXIT CROSSWALK IS FREQUENT (GREATER THAN 25 PEDESTRIANS PER HOUR), ADJUST EXIT RADII TO REDUCE THE R3 TO <200FT.

GENERAL NOTES:

1. R1, R2, R3 PATH TO FOLLOW NATURAL SPLINE.
2. GEOMETRIC ENTRY SPEED USUALLY GOVERNED BY R1 RADIUS, BUT MAY BE GOVERNED BY R5 RADIUS.
3. ON DESIGNS THAT CANNOT ACHIEVE DEFLECTION USING CENTRAL ISLAND AND APPROACH ALIGNMENT OFFSET TO THE LEFT OF CENTER-LINE, ADD REVERSE CURVES ON THE APPROACH SPLITTER ISLAND, SEPARATED BY A SHORT TANGENT 50FT TO 100FT. APPROACH CURVE RADII TO BE SIZED USING AASHTO GREEN BOOK TABLE 3-13, MINIMUM RADII AND SUPERELEVATION FOR LOW-SPEED STREETS IN URBAN AREAS TO MAINTAIN NORMAL CROWN.

TOWN OF KNIGHTDALE
STANDARD DETAILS

| REVISIONS | | |
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| DESCRIPTION | | DATE |
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SIGHT DISTANCE CHECKS
SINGLE LANE ROUNDABOUT

STD. NO. 3.33

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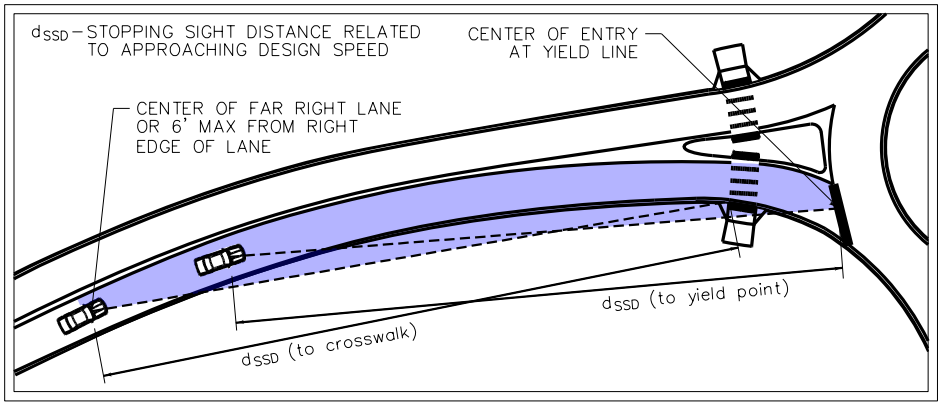
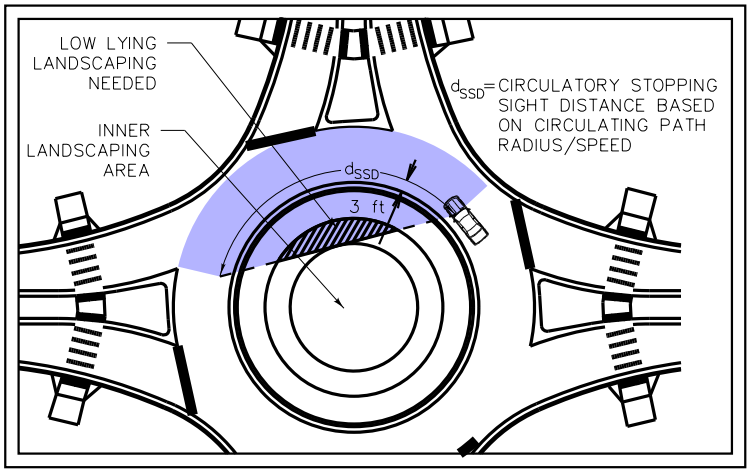
APPROACH STOPPING SIGHT DISTANCE



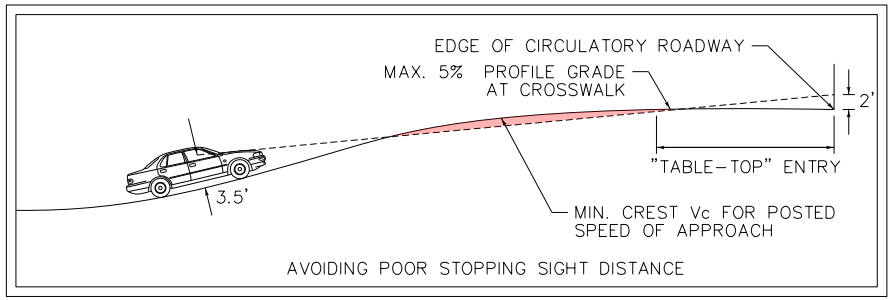

* SSD VALUES BASED ON APPROACH POSTED SPEED AND AASHTO GREEN BOOK CHAPTER 3.2 – SIGHT DISTANCE

CIRCULATING STOPPING SIGHT DISTANCE



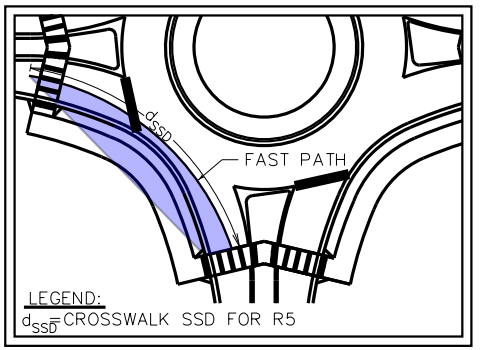

* SSD VALUES BASED ON APPROACH POSTED SPEED AND AASHTO GREEN BOOK CHAPTER 3.2 – SIGHT DISTANCE

VERTICAL SIGHT DISTANCE

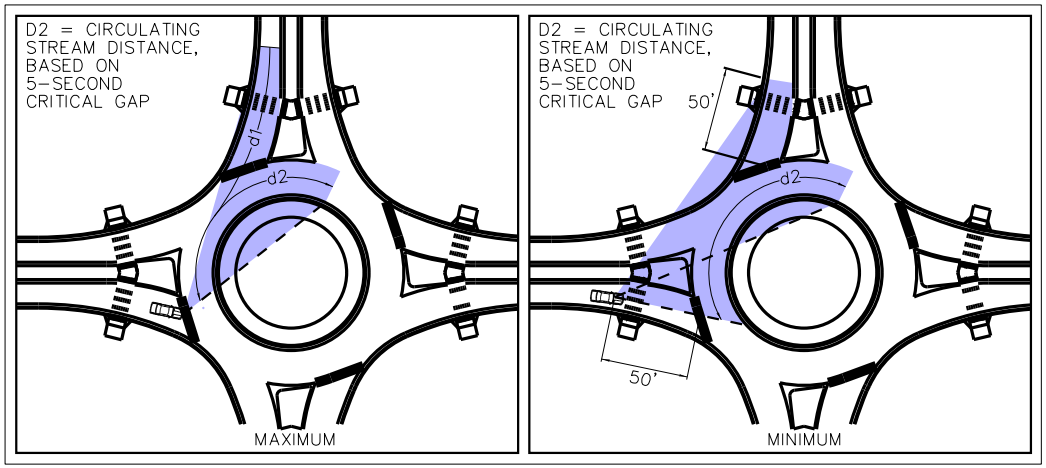



AVOIDING POOR STOPPING SIGHT DISTANCE

STOPPING SIGHT DISTANCE TO THE DOWNSTREAM CROSSWALK




ENTERING AND CIRCULATING INTERSECTION SIGHT DISTANCE



TOWN OF KNIGHTDALE
STANDARD DETAILS

| REVISIONS | DESCRIPTION | DATE |
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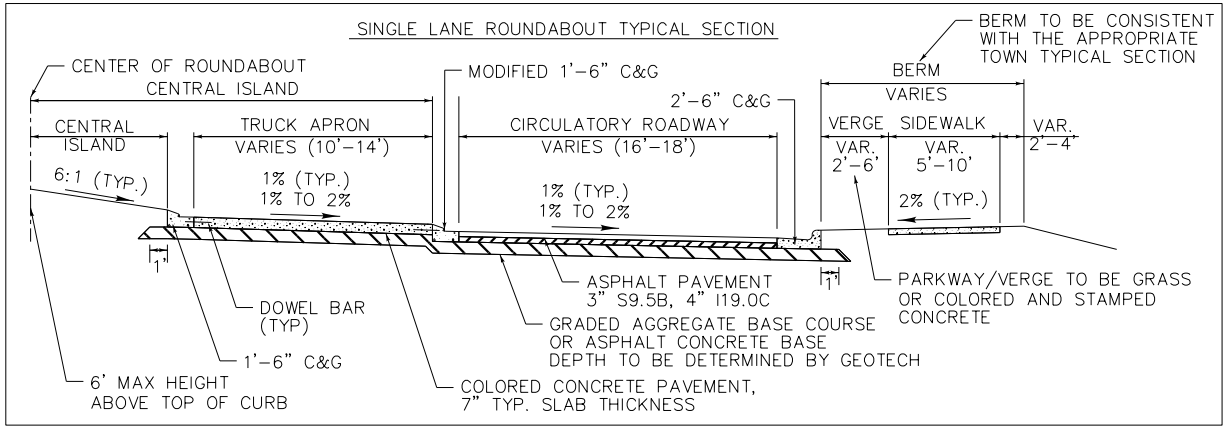
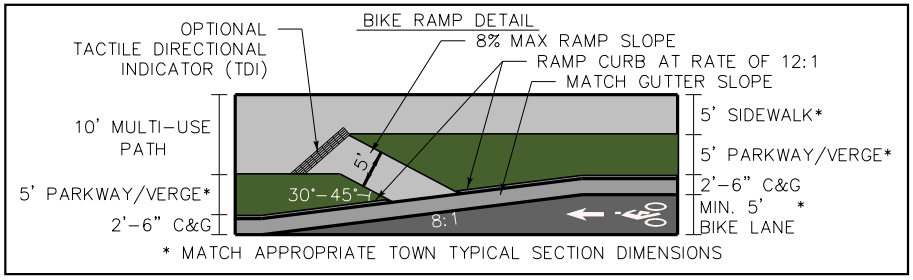
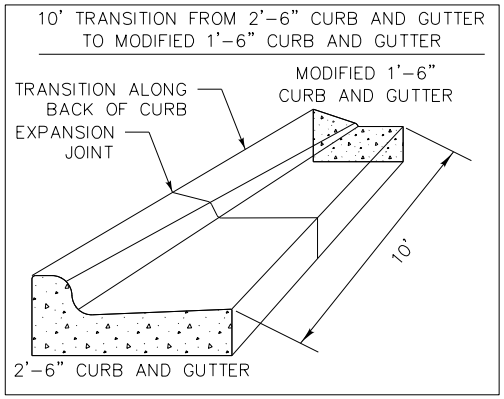
MISCELLANEOUS
ROUNDABOUT DETAILS




COLORED AND STAMPED CONCRETE SPECIFICATIONS:

ALL CONCRETE TRUCK APRONS SHOULD BE COLORED CONCRETE BUT NOT STAMPED.

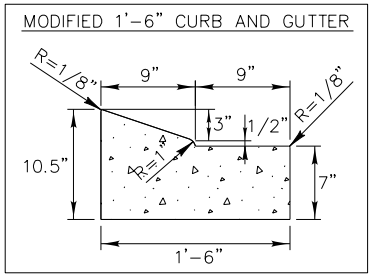
ALL CONCRETE SPLITTER ISLANDS AND CONCRETE VERGES BETWEEN CURB AND PEDESTRIAN SURFACES SHOULD BE COLORED AND STAMPED.

ALL CONCRETE SURFACES THAT ACCOMODATE PEDESTRIAN TRAFFIC (SIDEWALK, MULTI-USE PATH) SHOULD NOT BE COLORED OR STAMPED.

CONCRETE COLOR SHOULD BE FEDERAL STANDARD COLOR 10076 ACCORDING TO AEROSPACE MATERIAL SPECIFICATION STANDARD 595 (AMS-STD-595).

STAMPED CONCRETE SHOULD BE RUNNING BOND OR HERRINGBONE AND IS SUBJECT TO APPROVAL BY THE TOWN OF KNIGHTDALE.

COLORED CONCRETE SHOULD BE AN INTEGRAL CONCRETE MIX (MIXED IN THE TRUCK). SUBMIT COLORED CONCRETE SPECS AND PATTERN SHOP DRAWINGS TO THE TOWN OF KNIGHTDALE FOR REVIEW.

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TOWN OF KNIGHTDALE
STANDARD DETAILS

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OTHER TRAFFIC CALMING MEASURES

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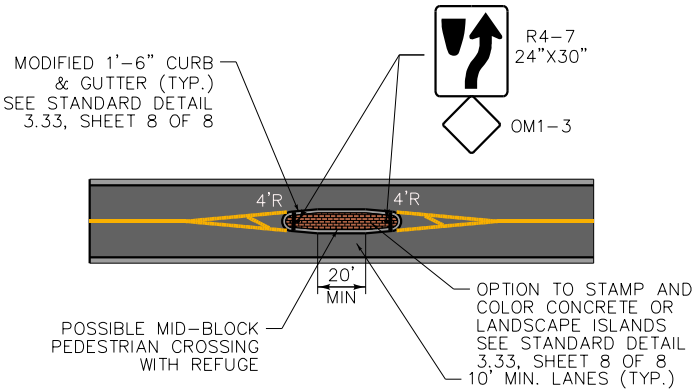
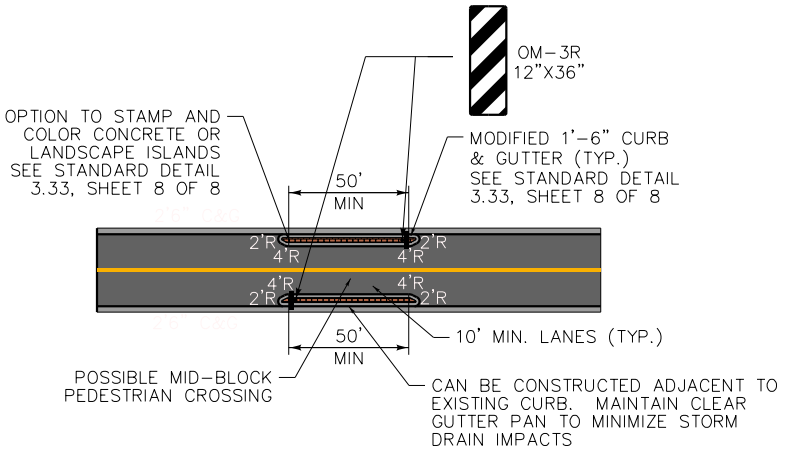
## MEDIANS




WHILE MEDIANS PROVIDE LESS TRAFFIC CALMING PERFORMANCE THAN CHICANES, THEY ARE STILL GOOD TRAFFIC CALMING MEASURES THAT HAVE A WIDER RANGE OF APPLICATIONS SINCE MEDIANS CAN BE LONGER AND REQUIRE LESS TAPER LENGTH.

USE $A=WS^2/60$ TO CALCULATE TAPER LENGTHS – SEE FORMULA BELOW.

## CHOKERS




CHOKERS PROVIDE TRAFFIC CALMING MEASURES THROUGH THE ENCOURAGEMENT OF LOWER SPEEDS THROUGH THE PINCH POINT. SHORTER PEDESTRIAN CROSSING DISTANCES ARE POSSIBLE IF A MID-BLOCK CROSSING IS PROVIDED.

## CHICANES

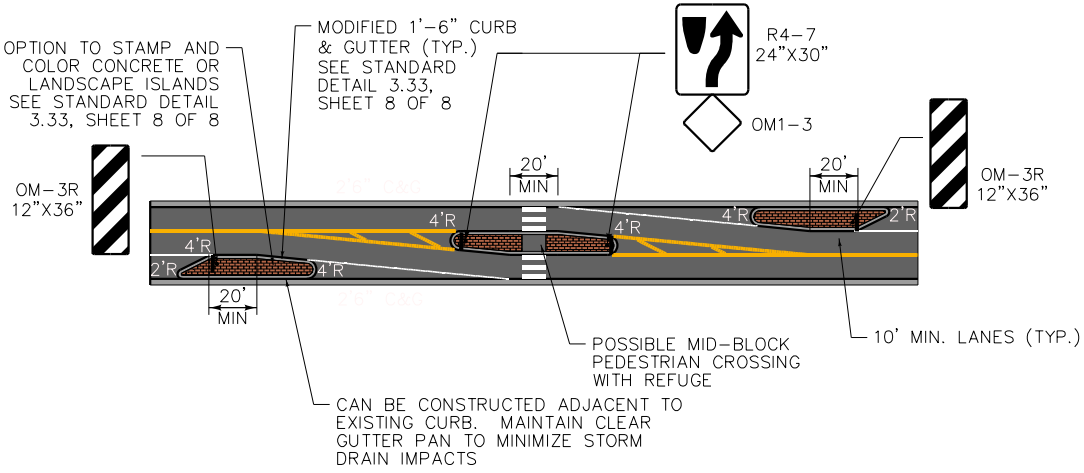
CHICANES ARE APPROPRIATE TRAFFIC CALMING MEASURES FOR COLLECTORS AND LOCAL STREETS.

CHICANES ARE MOST APPROPRIATE FOR ROADWAY FACILITIES WITH POSTED SPEEDS EQUAL TO OR LESS THAN 25 MPH.

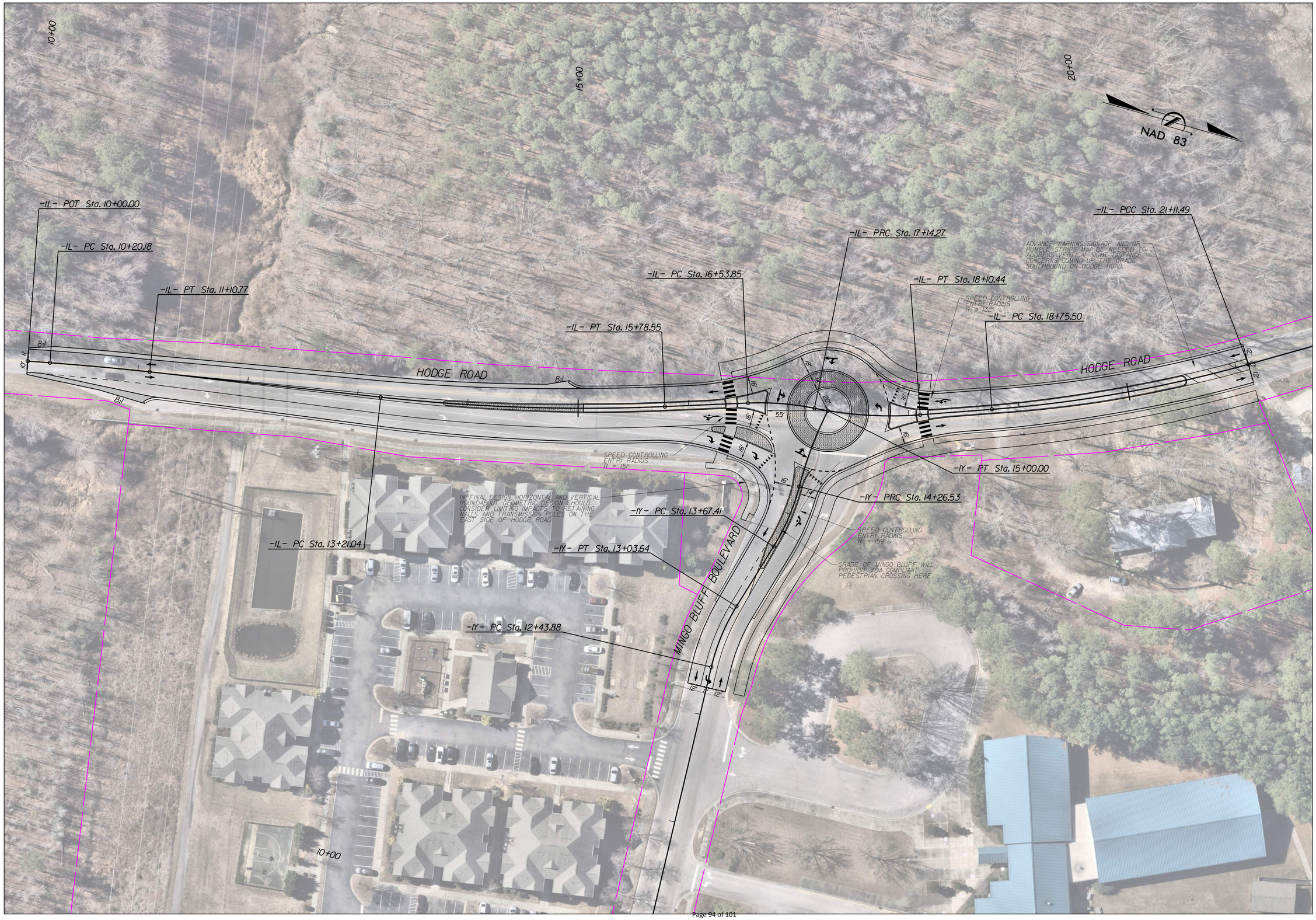
THE DESIGN SPEED FOR CHICANES SHOULD BE THE SAME DESIGN SPEED USED DURING THE ORIGINAL ROADWAY DESIGN. VERIFY THAT ALL PROPOSED TRAFFIC CALMING MEASURES CAN BE SAFELY NAVIGATED BY EMERGENCY VEHICLES.

FOR SIGHT DISTANCE AND VISIBILITY PURPOSES, CHICANES ARE NOT RECOMMENDED FOR INSTALLATION ON ROADWAY SECTIONS WITH GRADES IN EXCESS OF 6%.

USE $A=WS^2/60$ TO CALCULATE TAPER LENGTHS, WHERE
A = APPROACH OR DEPARTURE TAPER LENGTH
W = WIDTH OF LATERAL SHIFT
S = POSTED SPEED
NOTE: USE POSTED SPEED AS OPPOSED TO DESIGN SPEED WHEN CALCULATING TRAFFIC CALMING MEASURE TAPER LENGTHS.




STD. NO. 3.34




| No. | REVISIONS | DATE | BY |
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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

*HYDRAULIC ENGINEER*

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

*ROADWAY ENGINEER*

KHA PROJECT
013169012

DATE
11/7/2024

SCALE 1"=40'
DESIGNED BY: TGS
DRAWN BY: AMM
CHECKED BY: XXX

PLANS BY:
Kimley»Horn
© 2024
421 FAYETTEVILLE STREET
SUITE 600, RALEIGH, NC 27601
PHONE: 919-677-2000
WWW.KIMLEY-HORN.COM
NC LICENSE #: F-0102

CLIENT:
KNIGHTDALE
*start something*

SHEET TITLE:
HODGE ROAD
MINGO BLUFF
BOULEVARD
ROUNDABOUT

PROJECT:
KNIGHTDALE
SAP RBT STDS
KNIGHTDALE, NORTH CAROLINA

SHEET NUMBER
1

K:\RAL_Roadway\016627000 - Knightdale SAP Rbt Stds\Roadway\Pro\016627000_rdy_psh_1_hodge_mlngo.dgn
11/7/2024


| -2L- | | |
|---|---|---|
| PI Sta 14+64.86 | PI Sta 15+51.77 | PI Sta 18+13.78 |
| Δ = 16° 12' 10.8" (RT) | Δ = 16° 50' 05.9" (LT) | Δ = 0° 19' 25.7" (RT) |
| D = 22° 55' 05.9" | D = 16° 22' 12.8" | D = 2° 36' 15.7" |
| L = 70.70' | L = 102.84' | L = 12.43' |
| T = 35.59' | T = 51.79' | T = 6.22' |
| R = 250.00' | R = 350.00' | R = 2,200.00' |

| -2Y- |
|---|
| PI Sta 12+10.25 |
| Δ = 22° 36' 09.7" (RT) |
| D = 10° 44' 58.8" |
| L = 210.26' |
| T = 106.52' |
| R = 533.00' |

| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| | | | |

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HYDRAULIC ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ROADWAY ENGINEER

KHA PROJECT 013169012
DATE 11/7/2024
SCALE 1"=40'
DESIGNED BY: TGS
DRAWN BY: AMM
CHECKED BY: XXX

PLANS BY:
Kimley»Horn
© 2024
421 FAYETTEVILLE STREET
SUITE 600, RALEIGH, NC 27601
PHONE: 919-677-2000
WWW.KIMLEY-HORN.COM
NC LICENSE #: F-0102

CLIENT:
KNIGHTDALE
start something

SHEET TITLE:
MAILMAN ROAD
SMITHFIELD
ROAD
ROUNDABOUT

PROJECT:
KNIGHTDALE
SAP RBT STDS
KNIGHTDALE, NORTH CAROLINA

SHEET NUMBER
2

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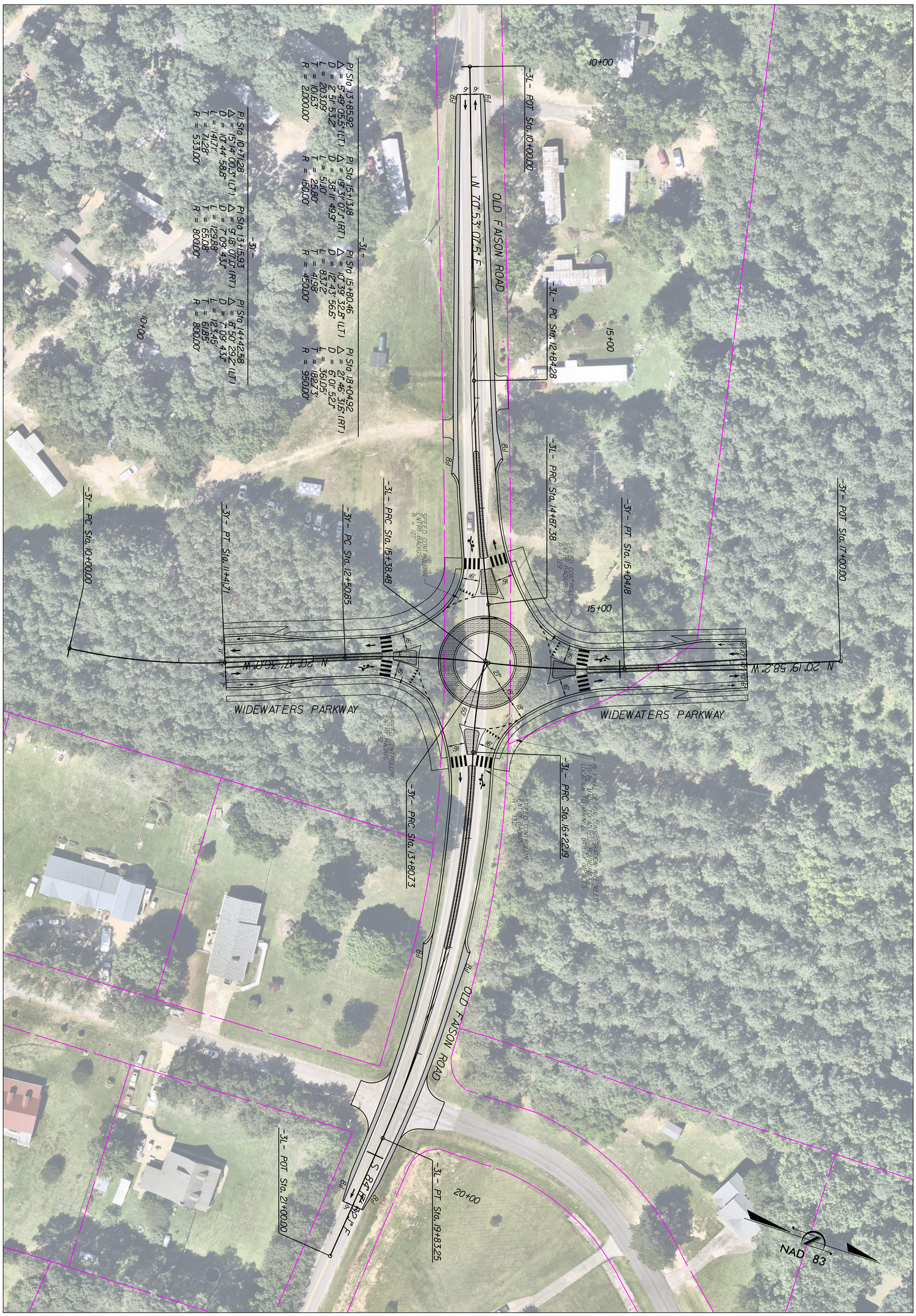



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SHEET NUMBER 3 | PROJECT: KNIGHTDALE SAP RBT STDS KNIGHTDALE, NORTH CAROLINA | SHEET TITLE: WIDEWATERS PARKWAY OLD FAISON RD ROUNDABOUT | CLIENT: KNIGHTDALE start something | PLANS BY: Kimley»Horn © 2024 421 FAYETTEVILLE STREET SUITE 600, RALEIGH, NC 27601 PHONE: 919-677-2000 WWW.KIMLEY-HORN.COM NC LICENSE #: F-0102 | KHA PROJECT 013169012 DATE 11/7/2024 SCALE 1"=40' DESIGNED BY: TGS DRAWN BY: AMM CHECKED BY: XXX | ROADWAY ENGINEER | PRELIMINARY PLANS NOT FOR BID OR CONSTRUCTION | HYDRAULIC ENGINEER | PRELIMINARY PLANS NOT FOR BID OR CONSTRUCTION | No. | REVISIONS DATE BY |

-4L-

| PI Sta 13+56.71 | PI Sta 15+77.07 | PI Sta 16+94.29 | PI Sta 18+22.24 | PI Sta 21+99.57 |
|---|---|---|---|---|
| Δ = 2° 59' 17.0" (LT) | Δ = 11° 29' 30.8" (RT) | Δ = 10° 54' 02.7" (LT) | Δ = 3° 32' 18.8" (RT) | Δ = 0° 24' 40.9" (LT) |
| D = 2° 17' 30.6" | D = 9° 32' 57.5" | D = 9° 32' 57.5" | D = 2° 29' 28.0" | D = 0° 47' 25.0" |
| L = 130.38' | L = 120.34' | L = 114.15' | L = 142.05' | L = 52.05' |
| T = 65.20' | T = 60.37' | T = 57.25' | T = 71.05' | T = 26.03' |
| R = 2,500.00' | R = 600.00' | R = 600.00' | R = 2,300.00' | R = 7,250.00' |

-4Y-

| PI Sta 11+71.32 | PI Sta 13+24.31 | PI Sta 14+47.10 | PI Sta 17+26.05 |
|---|---|---|---|
| Δ = 4° 16' 49.4" (LT) | Δ = 11° 41' 39.8" (RT) | Δ = 11° 44' 04.9" (LT) | Δ = 3° 46' 58.5" (RT) |
| D = 2° 51' 53.2" | D = 11° 27' 33.0" | D = 8° 11' 06.4" | D = 2° 29' 28.0" |
| L = 149.41' | L = 102.05' | L = 143.37' | L = 151.86' |
| T = 74.74' | T = 51.20' | T = 71.93' | T = 75.96' |
| R = 2,000.00' | R = 500.00' | R = 700.00' | R = 2,300.00' |

| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| | | | |

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HYDRAULIC ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ROADWAY ENGINEER

KHA PROJECT 013169012
DATE 11/7/2024
SCALE 1"=40'
DESIGNED BY: TCS
DRAWN BY: AMM
CHECKED BY: XXX

PLANS BY:
Kimley»Horn
© 2024
421 FAYETTEVILLE STREET
SUITE 600, RALEIGH, NC 27601
PHONE: 919-677-2000
WWW.KIMLEY-HORN.COM
NC LICENSE #: F-0102

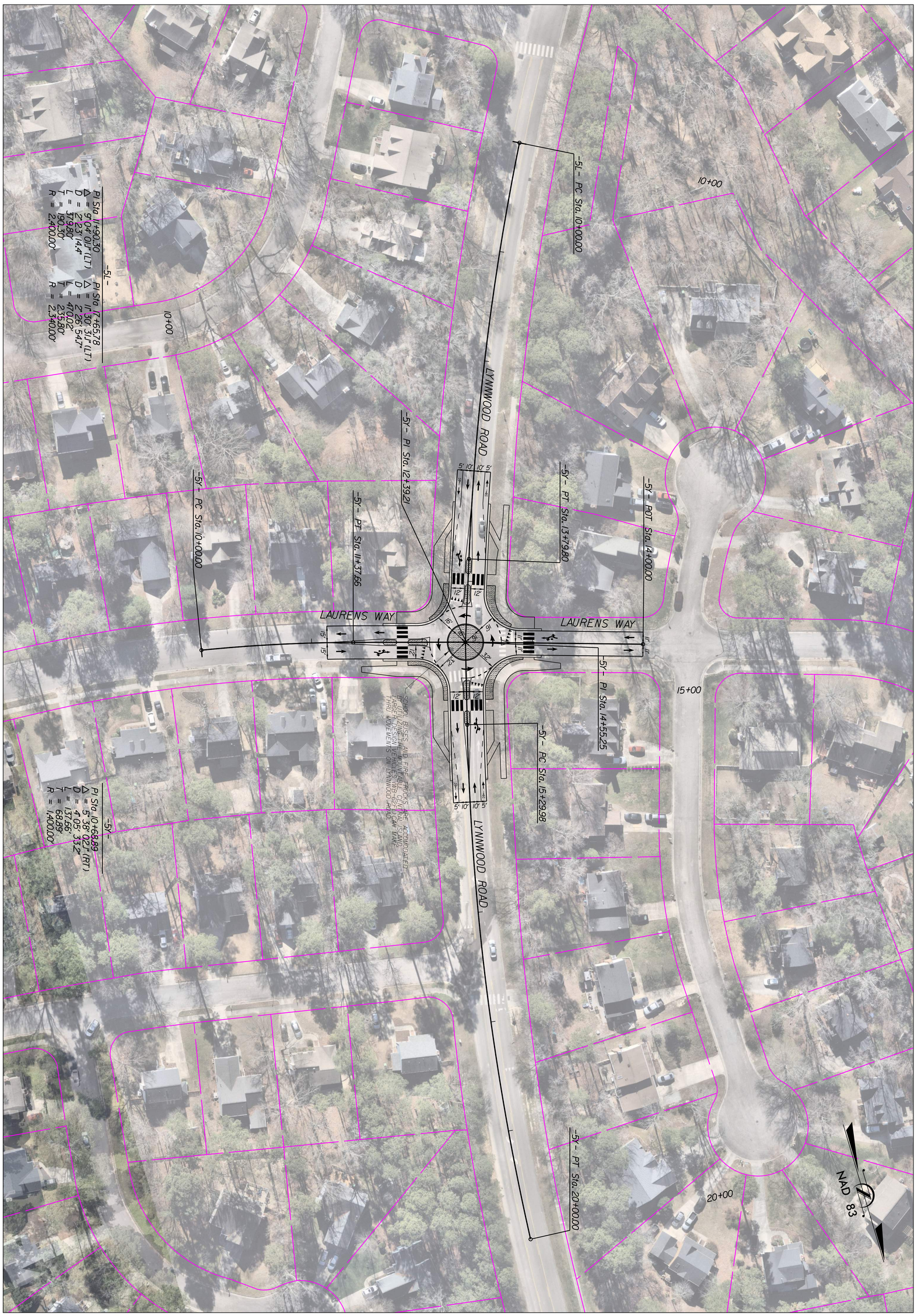
CLIENT:
KNIGHTDALE
start something

SHEET TITLE:
OLD CREWS RD
FORESTVILLE RD
ROUNDABOUT

PROJECT:
KNIGHTDALE
SAP RBT STDS
KNIGHTDALE, NORTH CAROLINA

SHEET NUMBER
4

K:\RAL_Roadway\013662700 - Knightdale SAP Rbt Stds\Roadway\Proj\013662700_rdy_psh_4_oldcrews_foresthille.dgn
11/7/2024






SHEET NUMBER 5

PROJECT:
KNIGHTDALE SAP RBT STDS
KNIGHTDALE, NORTH CAROLINA

SHEET TITLE:
LAURENS WAY
LYNWOOD ROAD
ROUNDABOUT

CLIENT:
KNIGHTDALE start something

PLANS BY:
Kimley»Horn

421 FAYETTEVILLE STREET
SUITE 600, RALEIGH, NC 27601
PHONE: 919-677-2000
WWW.KIMLEY-HORN.COM
NC LICENSE #: F-0102

| | |
|---|---|
| KHA PROJECT | 013169012 |
| DATE | 11/7/2024 |
| SCALE | 1"=40' |
| DESIGNED BY: | TGS |
| DRAWN BY: | AMM |
| CHECKED BY: | XXX |

ROADWAY ENGINEER
PRELIMINARY PLANS NOT FOR CONSTRUCTION
HYDRAULIC ENGINEER
PRELIMINARY PLANS NOT FOR CONSTRUCTION

| No. | REVISIONS | DATE | BY |
|---|---|---|---|

# Implementation Grant Checklist

## Leadership and Goal Setting

- ☑ A high-ranking official and/or governing body in the jurisdiction publicly committed to an eventual goal of zero roadway fatalities and serious injuries
- ☑ The commitment includes either setting a target date to reach zero OR setting one or more targets to achieve significant declines in roadway fatalities and serious injuries by a specific date

## Planning Structure

- ☑ To develop the Action Plan, was a committee, task force, implementation group, or similar body established and charged with the plan's development, implementation, and monitoring?

## Safety Analysis

- ☑ Analysis of existing conditions and historical trends to provide a baseline level of crashes involving fatalities and serious injuries across a jurisdiction, locality, Tribe, or region
- ☑ Analysis of the location where there are crashes, the severity, as well as contributing factors and crash types
- ☑ Analysis of systemic and specific safety needs, as needed (e.g., high-risk road features or specific safety needs of relevant road users)
- ☑ A geospatial identification (geographic or locational data using maps) of higher risk locations

## Engagement and Collaboration

- ☑ Engagement with the public and relevant stakeholders, including the private sector and community groups
- ☑ Incorporation of information received from the engagement and collaboration into the plan
- ☑ Coordination that included inter-and intra-governmental cooperation and collaboration, as appropriate

## Equity Consideration

- ☑ Considerations of equity using inclusive and representative processes
- ☑ The identification of underserved communities through data
- ☑ Equity analysis developed in collaboration with appropriate partners, including population characteristics and initial equity impact assessments of proposed projects and strategies

## Policy and Process Changes

- [x] The plan development included an assessment of current policies, plans, guidelines, and/or standards to identify opportunities to improve how processes prioritize safety

- [x] The plan discusses implementation through the adoption of revised or new policies, guidelines, and/or standards

## Strategy and Project Selections

- [x] Does the plan identify a comprehensive set of projects and strategies to address the safety problems in the Action Plan, with information about time ranges when projects and strategies will be deployed, and an explanation of project prioritization criteria?

## Progress and Transparecy

- [x] A description of how progress will be measured over time that includes, at a minimum, outcome data

- [x] The plan is posted publicly online

## Action Plan Date

- [x] Was at least one of your plans finalized and/or last updated between 2019 and April 30, 2024?

# Implementation Grant Checklist (Other Considerations)

**Other Implementation Grant Considerations***

***As identified in Amendment 1 to the USDOT FY24 Safe Streets and Roads for All Funding Opportunity document***

- [x] Have ownership and/or maintainance responsibilities over a roadway network
- [x] Have safety responsibilities that affect roadways
- [x] Have agreement from the agency that has ownership and/or maintainance responsibilities within the applicant's jurisdiction
- [ ] Must include Eligible Activity C "Carrying out projects and strategies identified in an Action Plan"
- [ ] Ability to Meet Implementation Grant Selection Criteria:
  - Selection Criterion #1: Safety Impact
  - Selection Criterion #2: Equity, Engagement and Collaboration
  - Selection Criterion #3: Effective Practices and Strategies
  - Selection Criterion #4: Other DOT Strategic Goals (Climate and Sustainability, Economic Competitiveness, Workforce)
  - Selection Criterion #5: Supplemental Planning and Demonstration Activities
- [ ] Demonstration of Project Readiness (e.g., consideration of environmental, permitting, and review processes; design; and construction)
- [ ] Implementation Grant Supplement Estimated Budget (including Implementation Cost information)
- [ ] Federal funding requested per person(s) killed or seriously injured from 2017-2021
- [ ] Lead Applicant Unique Entity Identifier (UEI) and System for Award Management Registration
- [ ] Letters of Support (optional)