CHAPTER 3

MULTIMODAL ASSESSMENT AND RECOMMENDATIONS

WHAT'S INSIDE

Introduction

The introduction sets the stage for this multi-part chapter by describing its structure and the role of technology in transportation.

3.1 Transit

This section walks through the transit analysis and recommendations for future study.

3.2 Active Transportation

This section details the on-street bicycle and pedestrian connections that are proposed as part of the CTP.

3.3 Roadway

The content under this heading focuses on roadway and intersection project recommendations.

Introduction

This chapter is the core of the CTP; it contains the outcomes of the planning process found through a true multimodal assessment informed both by data analysis and community desires. The result is a set of findings, best practices, and ultimate recommendations for the transportation system in Holly Springs. Given the CTP’s multimodal emphasis, this chapter is organized by the different modes of transportation with dedicated sub-sections for transit, active transportation, and vehicles.

Emerging Transportation Technologies Vision

Though this chapter is broken up by mode, there are commonalities and themes between them, one of which being the potential application of technology. With *adaptive* as one of the CTP's goals, the Town sought to establish a vision for emerging transportation technologies in Holly Springs.

Intelligent Transportation Systems

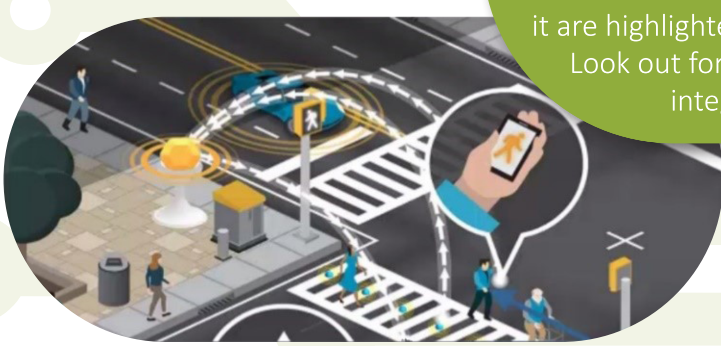
Intelligent Transportation Systems (ITS) is the use of technology to advance safety and mobility in transportation by integrating various communications and traffic management technologies into vehicles and infrastructure. ITS is a constantly evolving field due to the fast-paced nature of technology development, providing an array of possible solutions for a given need. Some of those solutions include connected vehicle applications, advanced signal system operations, active traffic management tools, and parking management solutions.

ITS and the Evolution of Transportation

The goal of an effective ITS deployment should always be centered on the Town’s ability to employ a technology that best addresses a defined need. To support a long-term vision of ITS integration, a phased approach of interim system enhancements, technology expansions, and integration plans would prepare the Town with the appropriate system growth that leverages ITS as stepping stones to achieve a fully realized and integrated solution. The full Emerging Technologies Vision, found in Appendix D, lays out what this phased approach looks like in an Emerging Technologies Toolbox, as described below.

Technology Spotlight

The Emerging Technologies Toolbox is intended to guide the Town in assessing the applicability and maturity of emerging technologies as one step of a phased strategy to meet the Town’s future vision. While the full toolbox is included in the appendix, the recommendations from it are highlighted throughout this chapter in *Technology Spotlights.* Look out for the ***adaptive goal*** to read about how ITS can be integrated into each mode of transportation!



Connectivity of Devices and Infrastructure, Source: USDOT

CHAPTER 3.1

TRANSIT

WHAT'S INSIDE

Introduction

This section opens the chapter by establishing the importance of transit in the Town and region as a whole.

Transit Planning

This section reviews the transit planning efforts that are already established in the region.

Transit Analysis and Propensity

The content under this heading describes the findings of the transit-focused public outreach and data analysis.

Recommendations

Under this heading, the recommendations for transit are identified and described.

Future Study

This section identifies the next steps that need to be taken to further the transit recommendations included in this CTP.

Introduction

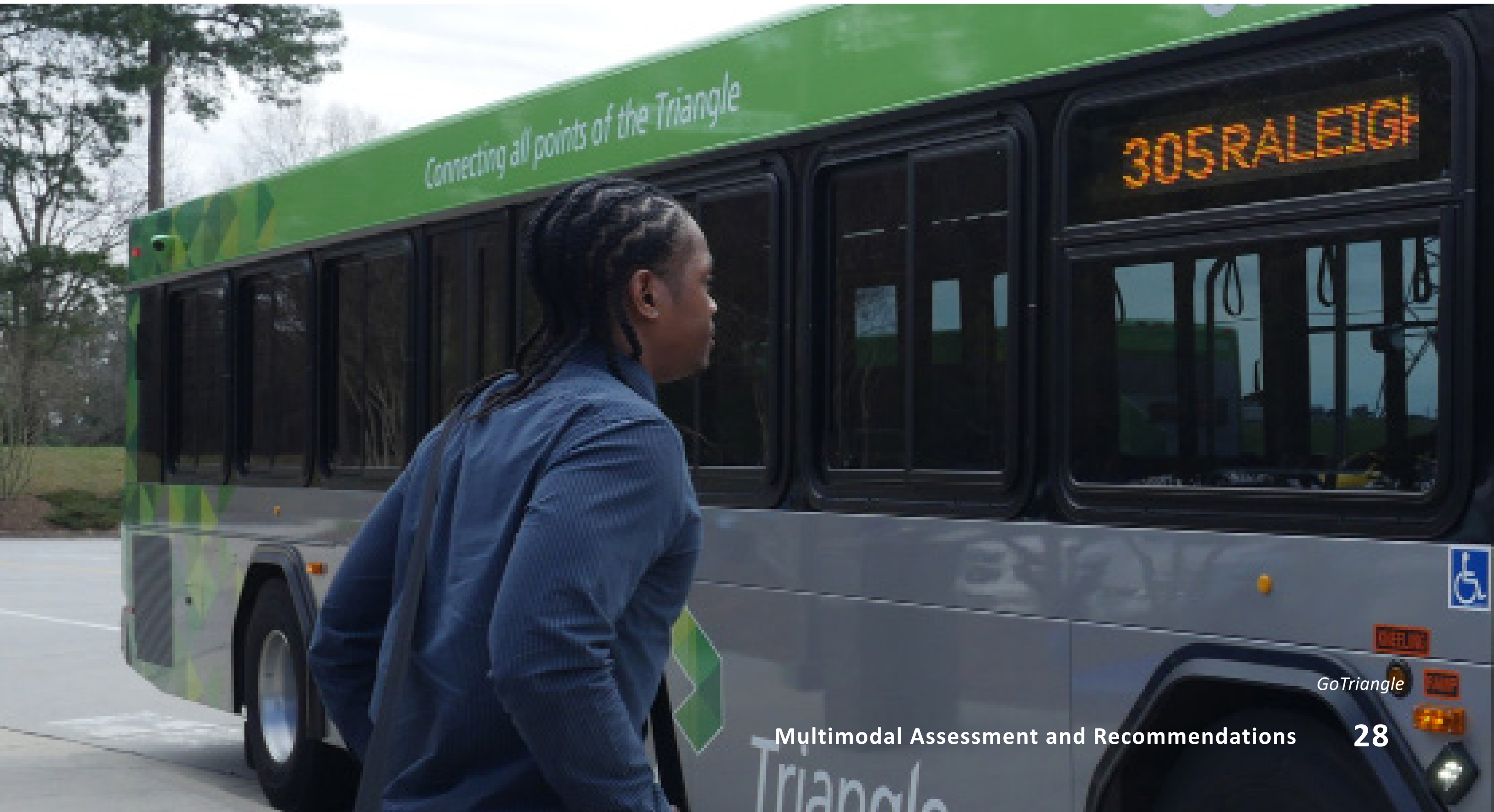
Growing Transit Market

Transit is a growing priority in the Triangle Region of Raleigh, Durham, Chapel Hill, and their surrounding metro areas. As the region becomes more connected in the industries it serves and the job opportunities it provides, the need to be able to travel between the various jurisdictions increases. This growing demand resulted in Wake County implementing a half-cent sales tax–or a 0.50% increase to its sales and use tax –in 2016 to be used for transit related benefits and improvements in the county. The funds anticipated to be collected through this tax were allocated in the 2016 Wake County Transit Plan which set into motion a community-transformative vision for the type and scale of transit services needed in Wake County based on the values and priorities of residents, employers, and regional stakeholders. In October 2021, Holly Springs saw the benefits of this tax with the implementation of GoTriangle's Route 305 as part of the initiative in the Wake County Transit Plan to connect all county jurisdictions through transit.

Why Transit Matters

Transit creates necessary connections between people and places to enhance the quality of life for individuals and families. It provides access and opportunities to employment, healthcare, and other essential life services. At its best, a well connected transit system supports economic wellbeing for individuals and families, reduces congestion through a mode shift away from single-occupancy automobiles, and addresses challenges in mobility for transit-dependent households.

As Holly Springs' population continues to grow, there's an opportunity to enhance the transit system to address current and future challenges in the area with a reliable, fast, and easy to use service. Since transit can take multiple forms, this chapter analyzes transit need in Holly Springs and identifies potential solutions for the Town.



GoTriangle

Transit Planning

Transportation planning does not occur in isolation, meaning that the CTP uses previously adopted plans as the building blocks to the CTP's recommendations. In addition to the Previous Plan Review included in Appendix C, this section takes a look at regional plans specific to transit recommendations as they relate to Holly Springs.

Regional Transit Plans

2019 SWAS

The 2019 Capital Area Metropolitan Planning Organization (CAMPO) Southwest Area Study (SWAS) details the evolution of creating a connected and dynamic regional transit system. The study focused on fixed-route transit systems in the form of traditional, express, and bus-rapid-transit (BRT) options. Recommendations specific to Holly Springs include:

- Conducting a Transit Oriented Development (TOD) Study through NC 55
- Establishing local service from Holly Springs to Angier along NC 55
- Adding stops along NC 55 near Holly Springs Towne Center and the Shoppes at Holly Springs

2021 Wake County Transit Plan

The 2021 Wake County Transit Plan is an update of the 2016 plan mentioned on the previous page. This update prioritizes “Big Moves” to cross over municipal and county lines and provide regional public transportation connections. Big Move 2, as it relates to Holly Springs, was already accomplished with GoTriangle Route 305 providing direct peak-hour service to Town.

2021 FAST Network Study

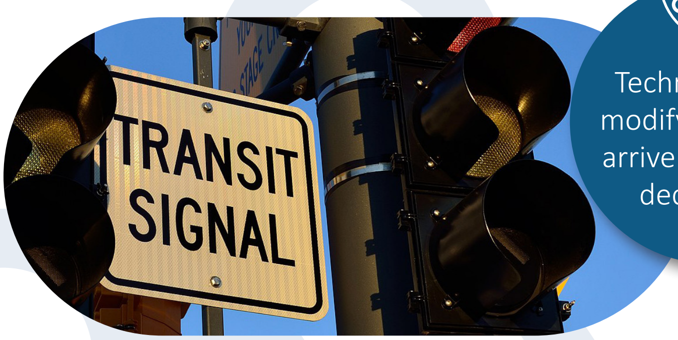
The regional Freeway and Street-based Transit (FAST) network study developed illustrative FAST corridors which are opportune roadways for enhancing transit mobility and access with appropriate infrastructure improvements. The study designates NC 540 as a FAST Freeway in the long-term.

2021 Bus On Shoulder System (BOSS) Study

CAMPO's Bus on Shoulder System (BOSS) Implementation Blueprint identifies roadways for future study to include BOSS lanes, which is a low-cost strategy allowing buses to travel through congested arterial and freeway routes. Corridors recommended for further analysis include NC 55 and Main Street.

2050 MTP

The 2050 CAMPO Metropolitan Transportation Plan (MTP) proposes inter-regional transit improvements to connect Holly Springs to other municipalities. These new transit corridors include fixed-route transit services to Apex, Fuquay-Varina, Cary, and an internal Holly Spring route, with route connections to additional major municipalities. The 2050 MTP proposed transit can be seen on the map on pages 37-38.



Technology Spotlight

Technology can optimize transit with signal priority tools that modify traffic signal timing when buses or other transit vehicles arrive at a light. This prioritizes transit, increasing reliability and decreasing travel time. Transit Signal Priority can increase trust in transit and encourage more ridership.

Transit Analysis and Propensity

Building off previous plans, the transit analysis described in this section examined the existing transit service in Town, local community input, key destinations, existing and predicted travel patterns, and demographic indicators to define needs and identify recommendations.

Key Destinations and Travel Patterns

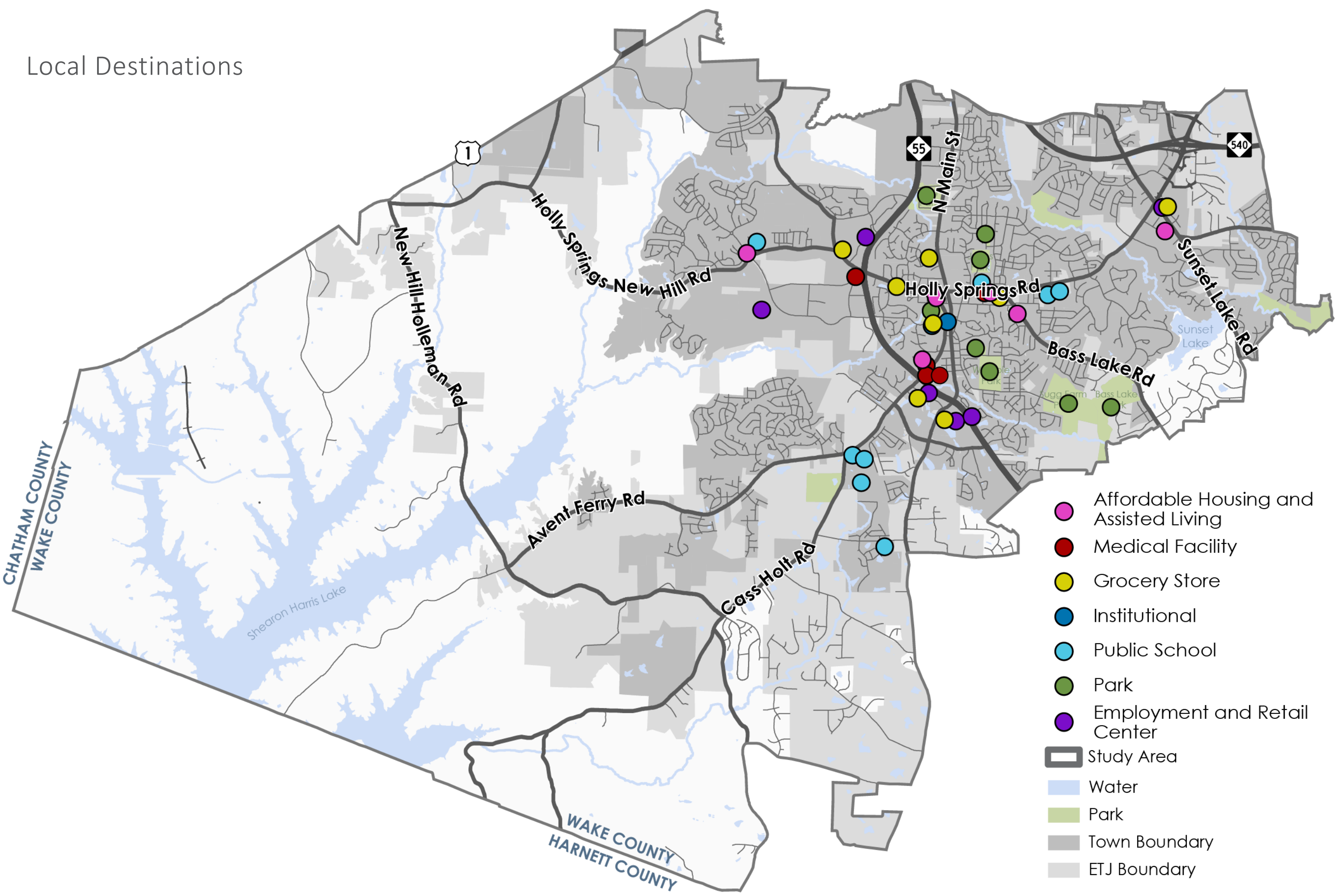
Key to a successful transit system is ensuring that it meets the needs of its riders by providing connections to local and regional destinations that they need to reach. Both qualitative and quantitative data and input sources were used to determine these locations.

Local Destinations

Local destinations are those within Town that residents need to reach. The key local destinations were identified through a combination of engagement feedback and cataloging employment areas, schools, recreation spots, and places that are more likely to have transit-dependent residents such as those living in affordable housing units or assisted-living homes.

Key local destinations include travel to the Downtown Village District, shopping centers, Town Hall, parks, grocery stores, and employment centers and business parks.

Local Destinations



Regional Destinations

Regional destinations are those of a bigger scale when compared to local destinations. These are typically considered other towns or cities, major employers, and travel hubs such as airports. Similar to local destinations, the key regional destinations for Holly Springs residents were identified through community feedback.

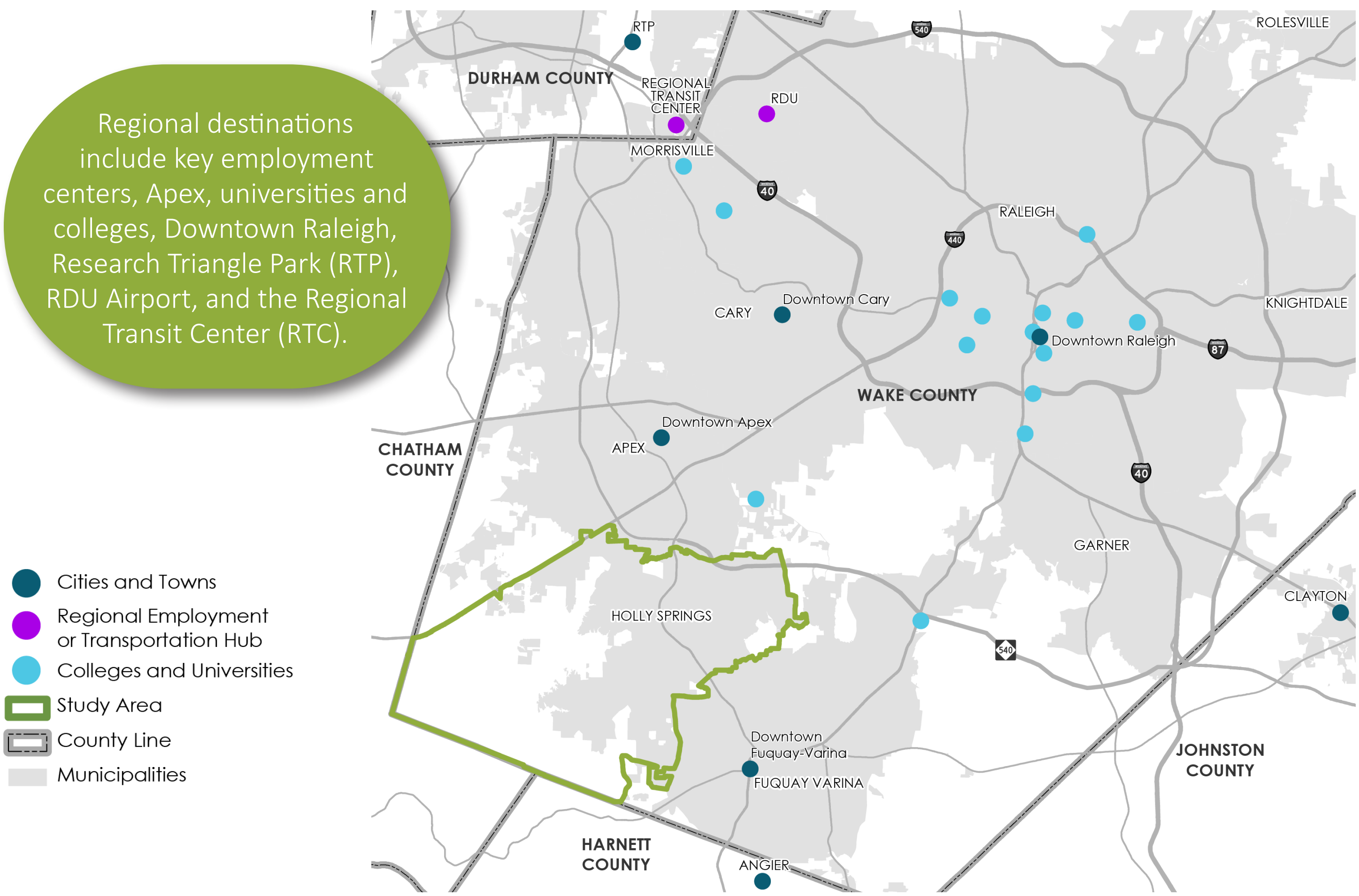
Travel Patterns

Another tool available for determining travel destinations are transportation models. Using the Triangle Regional Model and Traffic Analysis Zones (TAZs), the flow of travel to and from Holly Springs and the greater Triangle Region can be seen through a measure of average daily trips. Looking at these travel flows from the Triangle Regional Model 2013 Base Year Model and the predicted flows of 2045 provides insight into existing transit needs and a glimpse into the future market travel needs.

In 2013, the destinations with 5,000 or more daily trips to or from Holly Springs were Johnston County and Fuquay-Varina. By the year 2045, the average daily trips is expected to have increased by over 200% per destination with increased travel to Harnett County and North Raleigh, as shown in the table below.

Average Daily Trips

Major Destination	Average Daily Trips	
	Base Year 2013	Future Year 2045
Johnston County	12,600	41,190
Fuquay -Varina	10,590	28,270
Apex	10,220	34,750
Central Durham	6,990	22,200
Cary	6,750	35,030
North Raleigh	-	18,180
Harnett County	-	17,890



Transit Propensity

Transit propensity seeks to measure the potential demand for transit in an area, going beyond key destinations by also examining certain demographic characteristics in addition to population and employment density. Demographic characteristics considered for the propensity analysis mirror those used in the 2022 Wake County Bus Plan and were chosen based on their ability to predict transit use. The propensity groups are as follows: demographic cohorts as they relate to race and ethnicity, poverty level, vehicle ownership, and age; and population and employment density.

An adjustment factor was calculated for each propensity group using 2019 ACS 5-year estimates for both North Carolina and Wake County to measure transit demand relative to Holly Springs. The greater the adjustment factor, the more inclined the group is to rely on transit. The final adjusted propensity scores were used to map transit propensity in Holly Springs, as seen below where darker blue represents a higher propensity for people in that block group to take transit.

Propensity Groups

Race/Ethnicity - People in racially underrepresented groups are more likely to take transit.

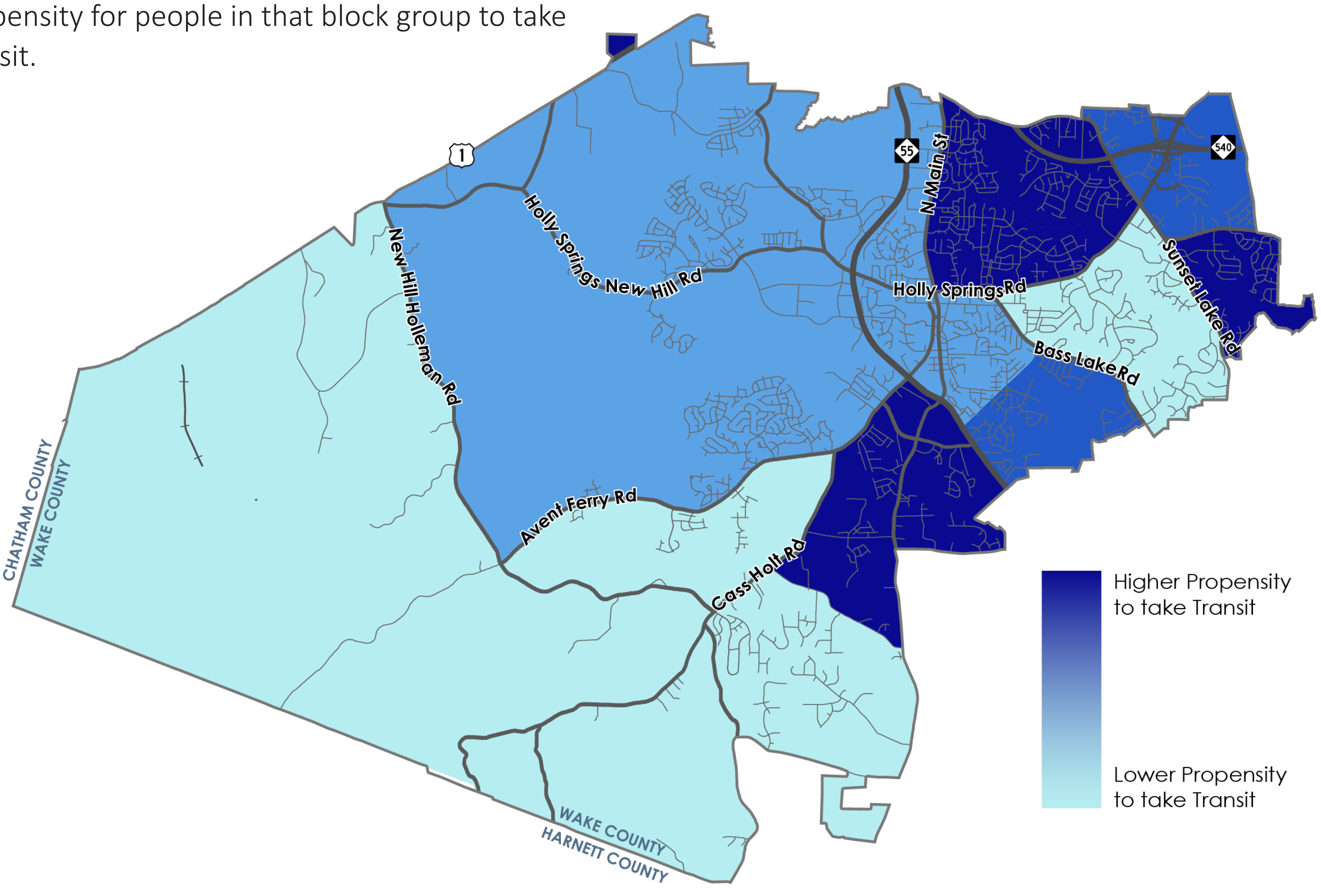
Poverty Level - People in poverty are more likely to take transit.

Vehicle Ownership - Households with fewer or no cars are more likely to take transit.

Age - In Wake County, people ages 20-24 were found most taking transit.

Population Density - Areas with more people per square mile

Employment Density - Areas with more job opportunities



Recommendations

Transit Improvement Phases

The transit analysis ultimately found that Holly Springs would benefit most from a local transit service that provides residents the option to take transit for the purposes of traveling within Town. A local service would provide connections to grocery stores, recreation opportunities, assisted living homes, medical facilities, and other key places that are crucial destinations, especially for transit-dependent populations, and is intended to be an extension of the existing and proposed regional fixed-route service.

While a local service could take many forms, the CTP recommends implementing transit service in a three-phased approach–beginning with microtransit.

Microtransit is a small-scale public transportation service that offer flexible routes and on-demand scheduling.

1

Phase 1
Microtransit–Zone with Points

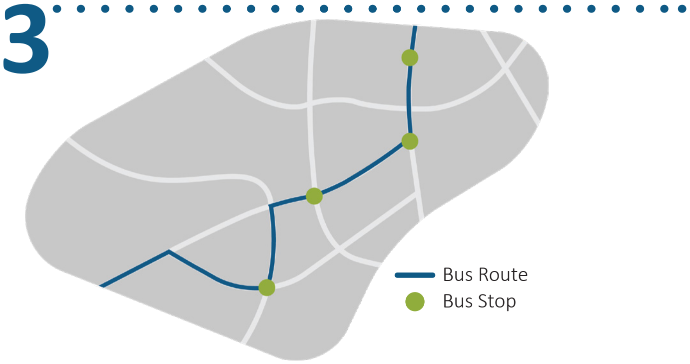
In this phase, a microtransit zone would be established that includes both pick-up and drop-off points within it. People could travel anywhere within the zone using a carpool car or shuttle as long as they are picked-up or dropped-off at one of the points. These points would be designated at key destinations. More details about Phase 1 are on the following page.

2

Phase 2
Microtransit–Zone to Zone with Hubs

In this phase there would be multiple smaller zones with established central pick-up/drop-off points, or hubs. Phase 2 allows for both inter- and intra-zonal travel. To travel between zones, people would need to be picked up or dropped off at a hub. Once inside a zone, riders could be picked up and dropped off anywhere within it.

3



Phase 3
Fixed Route–Bus Route and Bus Stops

The final phase takes the form of a more traditional bus route with fixed bus stops. The fixed bus route allows people to travel throughout Holly Springs while providing connections to the regional transit system. Phase 3 is intented to integrate with the proposed 2050 MTP transit recommendations.

These are illustrative examples only.

Phase 1

The map below shows Phase 1 with a designated on-demand zone and 11 pick-up/drop-off points. The points were strategically chosen to include key local destinations and existing transit stops to connect to the current fixed-route service. These points were selected based on public feedback where people were asked to rank 19 potential pick-up/drop-off locations. Once the top points were identified, the on-demand zone was defined to encompass them. The recommended zone is approximately 4.5 square miles in size and mainly captures pick-up and drop-off points in central Holly Springs.

Data Collection

Phase 1 is intended to run as a temporary pilot program for about six months during which the Town would collect data to inform future phases. Data collection would include identifying the following:

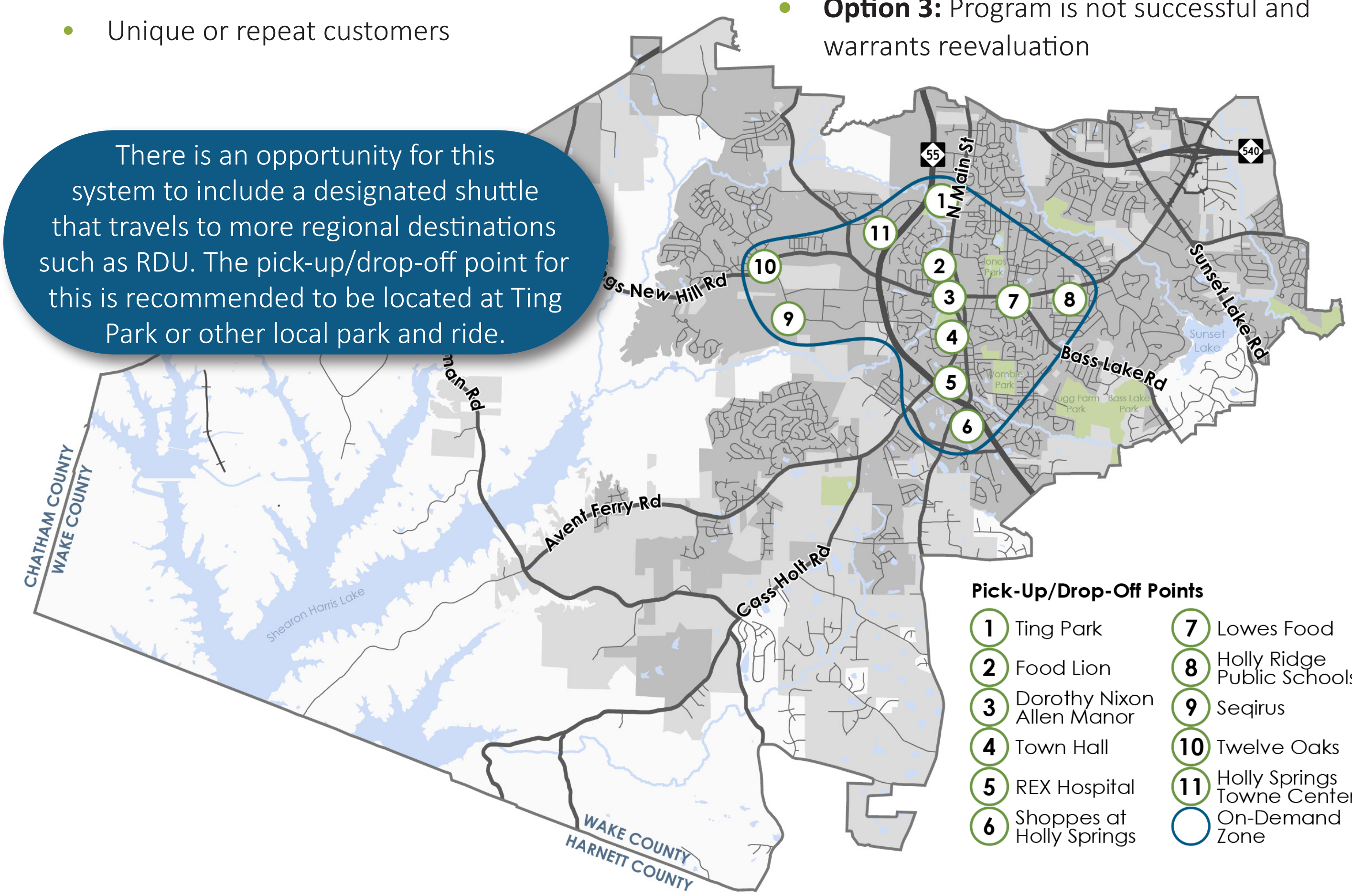
- When people are traveling
- Popular origins and destinations
- Locations not included
- Average trip distance
- Unique or repeat customers

Data Findings

Though the findings of the data could vary and would need to be monitored closely, there are predicted to be three likely outcomes:

- **Option 1:** Data supports the continuation of the same program or similar with some adjustments
- **Option 2:** Data supports advancing to the next phase
- **Option 3:** Program is not successful and warrants reevaluation

There is an opportunity for this system to include a designated shuttle that travels to more regional destinations such as RDU. The pick-up/drop-off point for this is recommended to be located at Ting Park or other local park and ride.



Transportation Demand Management

What is TDM?

Transportation Demand Management (TDM) is about maximizing the efficient use of various transportation options to better utilize a multimodal network. TDM ultimately seeks to understand how people make their transportation decisions for the purposes of encouraging a mode-shift away from the single-occupancy vehicle and towards transit, ridesharing, walking, biking, and even teleworking options.

How TDM Works

TDM often takes shape in the form of strategies that include education and policies that complement infrastructure. These strategies aim to encourage and incentivize the use of alternative transportation modes. These strategies can be both traditional and innovative technology-based services, all with the goal of optimizing every mode in the transportation system.

TDM Strategies

The following TDM strategies are industry best practices that the Town should consider implementing:

Strategy Type	Strategy	Description
Cost-Based	Parking Fees	Price on-street parking fees based on demand.
	Transit Subsidies	Provide transit subsidies by teaming transit agencies up with universities, employers, and even neighborhoods to provide passes for lower fees to be paid by the partner organization.
Supply-Based	Roadway Reductions	Reduce the space on the road provided for cars as an incentive for motorists to shift to other modes. See page 42 for more information about "Rightsizing"
	Parking Reductions	Remove on-street parking and replace with a dedicated transit lane, bicycle lane, footpath, parklet, or other streetscaping (landscaping, lighting, seating, etc.).
Supportive	Trip Planning Assistance	Provide travelers with tools that inform them about traffic and mode choices to allow them to determine the right mode of travel for them based on particular needs. See *Technology Spotlight* below for an example.
	Education and Outreach	Foster awareness through educational programs, workshops, and community-outreach efforts. An example would be a local "Ride Your Bike to School Day."

Institute for Transportation & Development Policy, The BRT Planning Guide, 4th Edition

Technology Spotlight

Technology improves transit by providing real-time information. ITS solutions provide the live scheduling updates that transit riders rely on. While this information is provided by electronic signs at stations, smart phones bring the same information to the palm of our hand with apps that allow for the integration of information and payment options to streamline a trip. This technology is especially important for on-demand microtransit systems where there is no ability to depend on a fixed-route.

Future Study

Next Steps

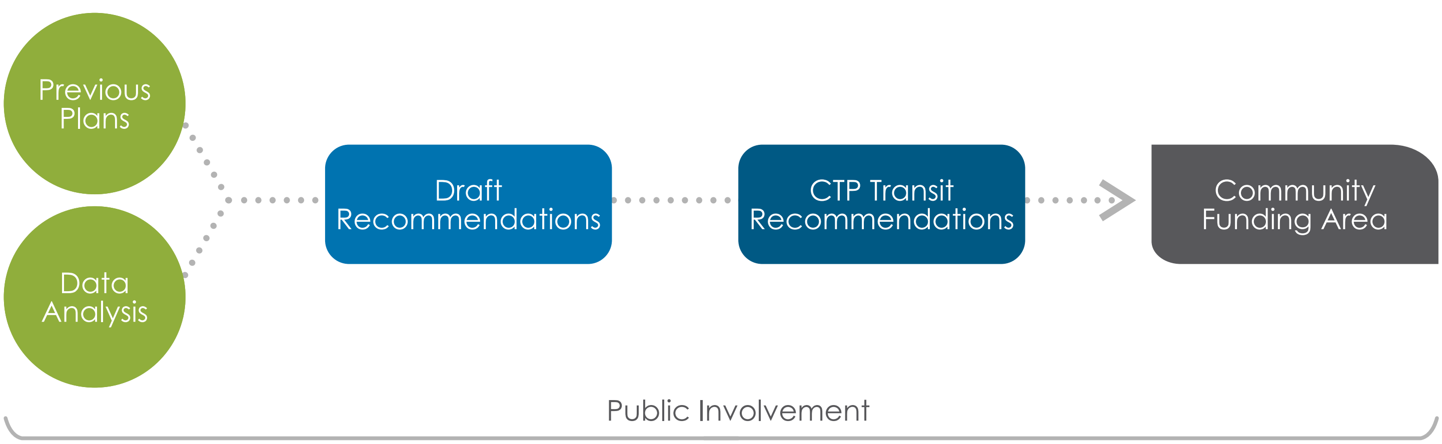
The transit analysis completed as part of this CTP is only the first step in planning a transit solution for the Town. Further study is needed to build upon these findings and add the necessary details to prepare for implementation. One area for expansion, for example, includes identifying partners. Phase 1 would require the help of partners to fund and provide the vehicles and technology needed to implement microtransit. Further study is needed to determine partners but examples include GoCary, Via Transportation, Uber, or Lyft, among others. Additional areas for future study include:

- Developing a service plan
- Building a financial model
- Calculating fares and other fees
- Creating a technology program

Funding Opportunity

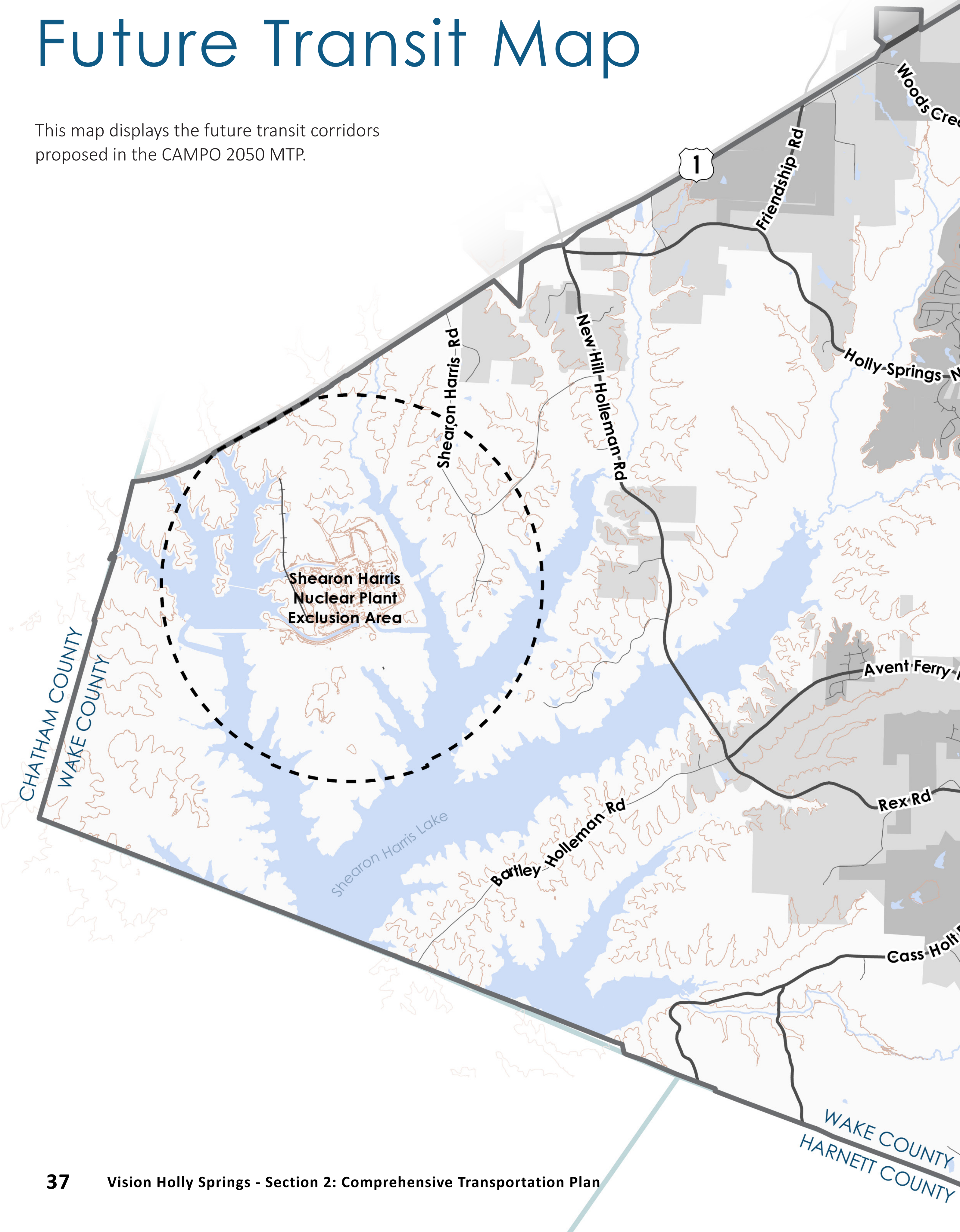
One option to seek funding for future study is for the Town to apply for money through the Community Funding Area, established in the Wake County Transit Plan. The Community Funding Area is a county-wide effort to enhance public transportation in the region. The funding serves as a match to create or accelerate transit services. With Community Funding the Town of Holly Spring will receive further feedback on transit best practices to ensure quality community connections and services.

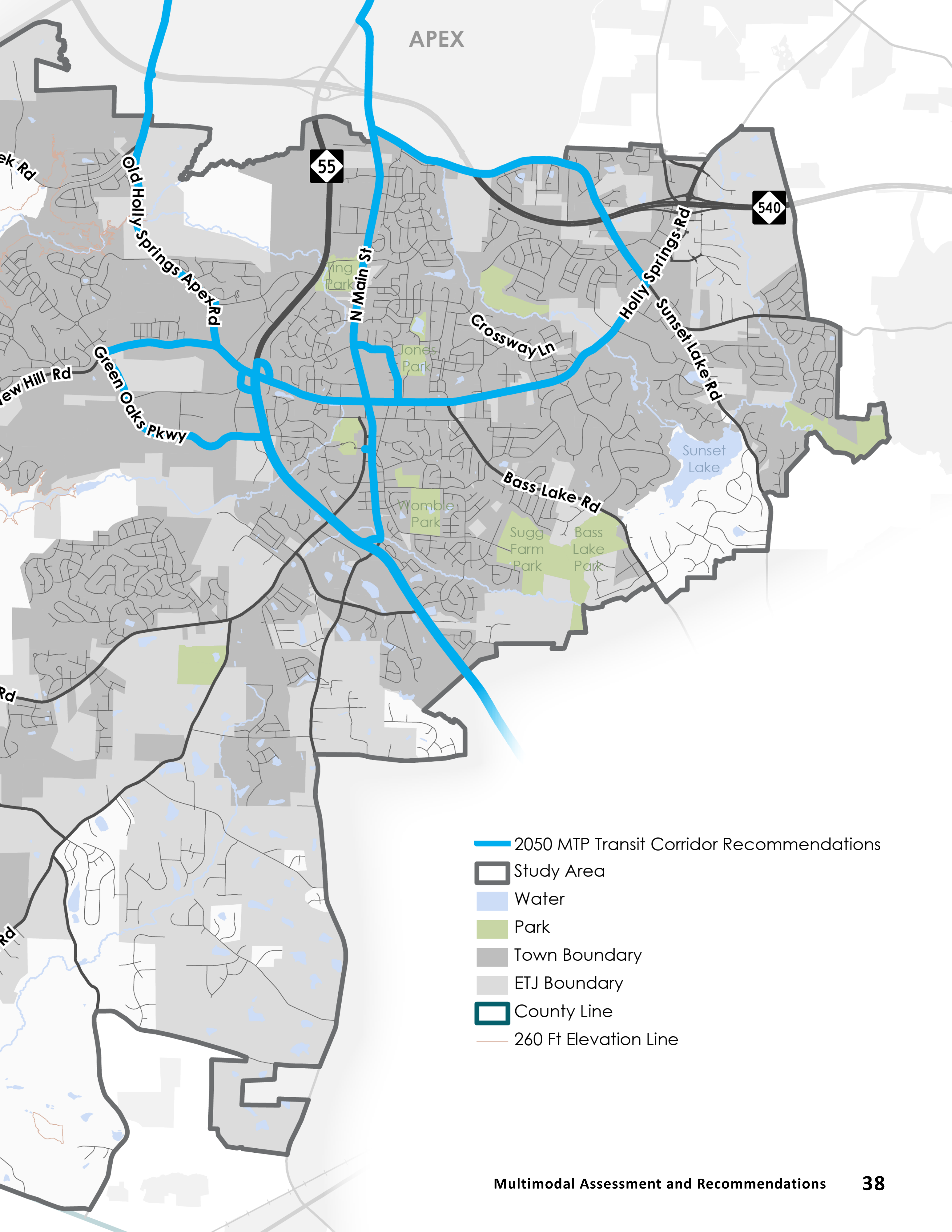
Transit Planning Process and Next Steps



Future Transit Map

This map displays the future transit corridors proposed in the CAMPO 2050 MTP.




APEX
55
540
Old Holly Springs Apex Rd
N Main St
Crossway Ln
Holly Springs Rd
Sunset Lake Rd
Green Oaks Pkwy
Bass Lake Rd
Jones Park
Womble Park
Sugg Farm Park
Bass Lake Park
Sunset Lake
2050 MTP Transit Corridor Recommendations
Study Area
Water
Park
Town Boundary
ETJ Boundary
County Line
260 Ft Elevation Line

CHAPTER 3.2

ACTIVE TRANSPORTATION

WHAT'S INSIDE

Introduction

This section introduces the benefits of active transportation.

Complete Streets

The content under this heading defines the Complete Streets approach and how it may be applied in Holly Springs.

Future Bicycle Network

This section identifies the types of bicycle facilities and the recommendations included in the CTP.

Future Pedestrian Network

This section identifies the types of pedestrian facilities and the recommendations included in the CTP.

Walkshed Analysis

This part explains the closer look at sidewalks the CTP took in the Downtown Village District.

Introduction

What is Active Transportation?

Active transportation refers to methods of transportation that are people-powered, such as walking and biking. Everyone uses active transportation at some point throughout their day, even if it's just to connect to another mode of transportation.

Active transportation provides important health, environmental, and economic benefits for the community, and it is important to provide both physical infrastructure and policies that allow users of all ages and abilities to make use of these options.

Recognizing the importance of providing a complete transportation system, the Holly Spring CTP reviews the Town's existing infrastructure and policies and provides recommendations on future investments that would further encourage use of active modes.

Community Benefits

Active transportation provides a myriad of benefits to the community as a whole, including:

- Improves public health by providing a healthy way to exercise and travel
- Reduces emissions by providing an alternative to car travel
- Promotes economic development by creating vibrant, walkable places
- Reduces household costs by providing a cost-effective travel alternative
- Provides accessible options for people with mobility challenges
- Improves safety by providing dedicated facilities for those choosing to walk or bike

The Projects and the Network

There are two full-page maps included in this section: the ***Recommendations Map: Active Transportation*** and the ***Future Active Transportation Network Map.*** The first map includes the delineated bicycle and pedestrian projects that are prioritized and included in Chapter 4, the *Implementation Plan*. The second map is a comprehensive representation of what the bicycle, pedestrian, and greenway network in Holly Springs is envisioned to be in it's ultimate build out.

This distinction is important because while the vision of the second map can't be achieved through this CTP alone, it includes recommendations from Vision Holly Springs Section 3: Parks, Recreation and Greenways Master Plan and captures the active transportation picture in one map.

Complete Streets

What Are Complete Streets?

Complete Streets is a nationwide policy approach that requires streets to be planned and designed to prioritize safety, comfort, and access to destinations for all people who use the street, regardless of their mode of transportation. Creating Complete Streets helps to ensure our community is accessible and welcoming for our most vulnerable populations, including children, older adults, people living with disabilities, and people who do not have access to a car. Among many benefits, Complete Streets make it easier for pedestrians to cross the street, enable people to walk or bike to jobs, shops, and schools, access transit, and move actively with assistive devices.

What does a Complete Street look like?

A Complete Street is not a single design, but rather a flexible approach to designing a street that best fits the surrounding community. Depending on the needs of each location, a Complete Street may include varying combinations of sidewalks, bike lanes, accessible bus stops, frequent/safe crossings, median islands, pedestrian signals, curb extensions, narrower travel lanes, roundabouts, and more. Under the Complete Streets approach, community needs are key in determining the final street design. As an example, a street near an elementary school or park may be very different from one that passes a major industrial complex.

How do we achieve Complete Street communities?

Transitioning current streets to Complete Streets requires collaboration between the public, government staff, and elected officials. Local transportation agencies must change their current approach to street design to enhance safety and mobility and promote true shared streets between all modes, not just motor vehicles. Applying Complete Streets policies to current streets does not have to be expensive or difficult: routine resurfacing and maintenance activities are excellent opportunities to implement road diets, or to include bike lanes and improved crosswalks where they previously didn't exist.

NCDOT has a Complete Streets Implementation Guide that allocates funding to construct bicycle and pedestrian facilities included in adopted plans, reinforcing the benefit of identifying Complete Street recommendations in the CTP.

Example of a Complete Streets Project in Kernersville. Source: NCDOT

What is Rightsizing?

Rightsizing, often referred to as "Road Diets," is a Complete Streets strategy that makes use of existing roadway right-of-way to transform the roadway into a Complete Street. Rightsizing typically reduces the amount of roadway space devoted to cars along a corridor, and uses leftover space to add bike or pedestrian facilities such as sidewalks, bike lanes, or buffers. Road diets have additional benefits on many roadways, such as reducing the speed of traffic and improving safety for motorists.

Most rightsizing transforms four-lane roads to three-lane roads, but road diets can take a variety of approaches. Road diets can be a cost-effective solution to implementing on-street bike lanes, as most road diets are completed in conjunction with routine resurfacing and reconstruction projects.

Above: An example of a 4- to 3-lane road diet in Charlotte to make space for bike lanes

Implementation

Implementing Complete Streets projects is a multi-step process that sometimes requires communities to re-think how they approach transportation. As part of a comprehensive approach to developing recommendations for Complete Streets, the CTP process involved a review to identify steps Holly Springs should follow to implement quality Complete Streets projects. For the full policy review, see Appendix I.

1. Adopt a Complete Streets Policy
2. Restructure or revise related procedures, plans, regulations and processes
3. Develop new design policies and guides
4. Offer workshops and training opportunities
5. Create a committee to oversee implementation
6. Create a community engagement plan
7. Implement Complete Streets projects

Main Street as a Complete Street

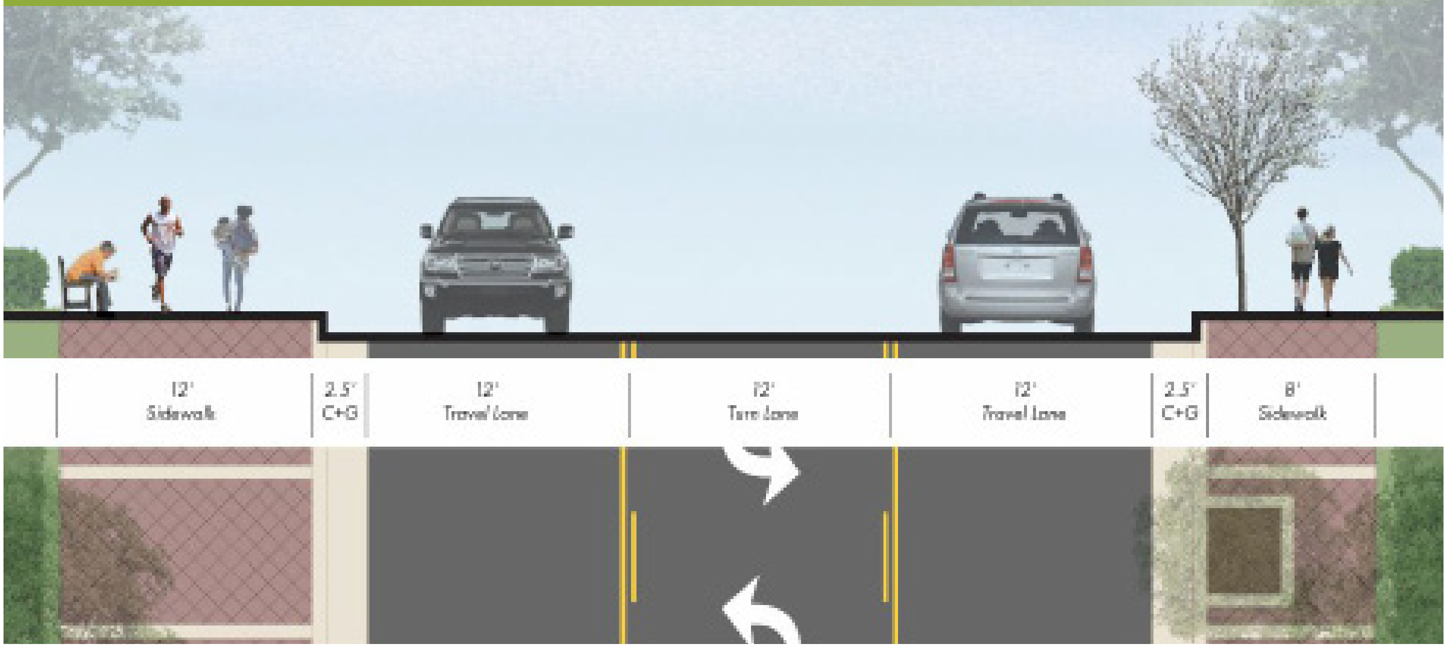
Main Street provides access to the center of the Holly Springs Downtown Village District, the core of the community. In 2024, the Town approved the Downtown Area Plan (DAP) that includes recommendations for future land use and transportation improvements to ensure that the character of Holly Springs is maintained as the community continues to grow. To align with the Town's vision for a vibrant Downtown Village District, the Holly Springs CTP proposes transforming Main Street into a complete street.

Currently, N. Main Street from Holly Springs Road to Rogers Street features two travel lanes, a center turn lane, and sidewalks (as shown at right). The proposed road diet redesign for N. Main Street updates the three lane road into two travel lanes and creates two buffered one-way bike lanes to support bicycling as a viable transportation option in the heart of Holly Springs. This design makes use of the road's existing right-of-way to more appropriately provide a great multimodal experience to support a vibrant commercial district.

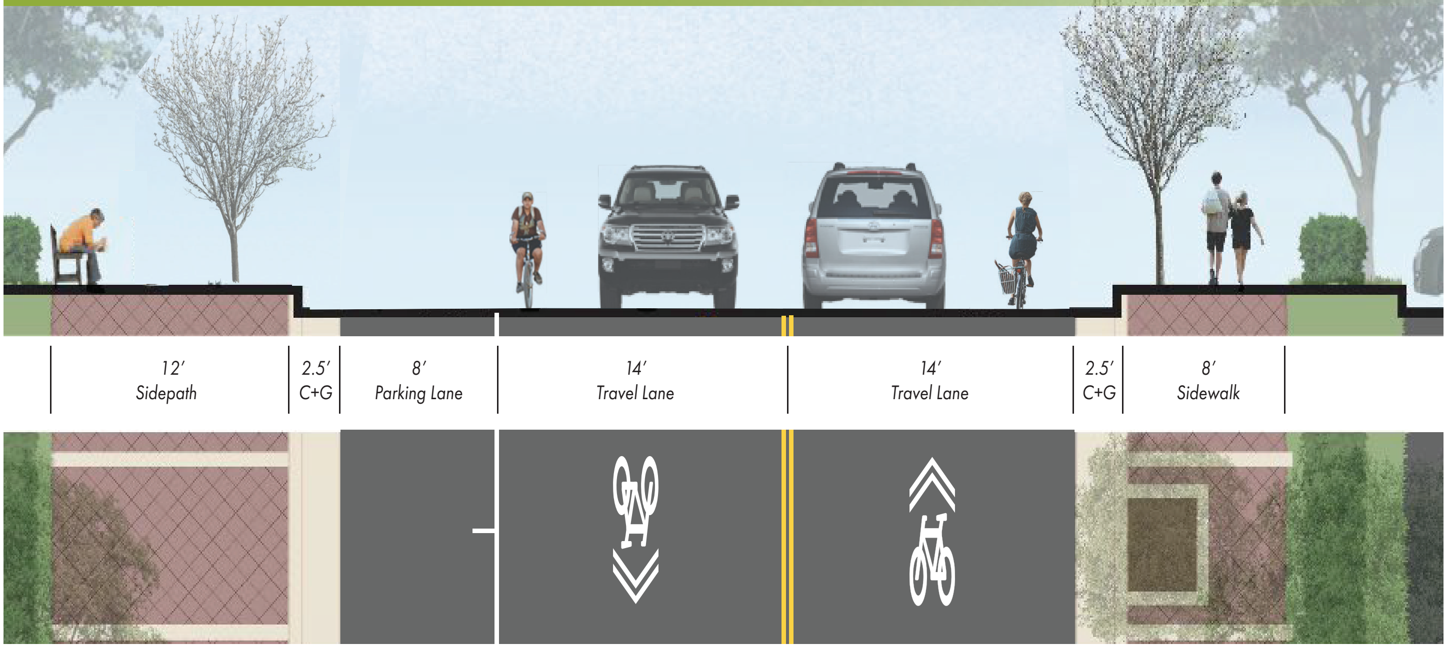
The proposed features of this design include:

- Painted bicycle lane buffers to provide safe separation between vehicles and bicyclists, creating an extra measure of safety and comfort
- Streetscaping improvements and tree-lined medians to provide shade for pedestrians and reduce traffic speed
- Reduction from three lanes to two lanes, along with narrowing the existing travel lanes to slow traffic speeds
- This design and recommendations should be evaluated with the Downtown Area Plan update, including further consideration of where to provide on-street parking.

Existing N. Main Street



Proposed N. Main Street Design



Designed for Everyone and Anyone

Previous recommendations from the 2011 Holly Springs CTP accommodated bicyclists with facilities such as wider outside travel lanes on roadways. While these suggested improvements are useful for experienced riders, the 2022 CTP follows updated best practices by recommending facilities that are safe and welcoming for all users regardless of age and ability.

The Holly Springs CTP generally follows recommendations by the National Association of City Transportation Officials (NACTO) for when and where to implement different types of bike facilities. These facility types provide a wide variety of design options, allowing for roadway designs to adjust to meet the needs of the diverse population in Holly Springs.

Research has shown that cyclists follow a spectrum in terms of their level of experience and comfort using certain facilities. Some are completely comfortable riding on a roadway in mixed traffic, but the vast majority of people are much more comfortable on dedicated facilities that provide physical separation between cyclists and vehicles. These facilities are called "all ages and abilities" facilities, since they cater to the majority of cyclists, including those who might be uncomfortable riding round cars.

What does All Ages and Abilities look like?

Below is an example of two types of facilities that cater to different types of cyclists.

Not Suitable **for All Ages and Abilities**

Suitable **for All Ages and Abilities**

Recommended Bicycle Facilities

The Holly Springs CTP recommends implementing and updating bicycle facilities to four different facility types: sharrows, standard bike lanes, buffered bike lanes, and sidepaths. These facilities allow for a more connected and safer way of bicycle travel that also reduces competition and conflict with automobiles. Vision Holly Springs Section 3: Parks, Recreation and Greenway Master Plan features further information and implementation strategies for all four facility types.

Shared Lane Markings “Sharrows”

Shared lane markings or “sharrows,” are road markings used to indicate a shared traffic lane for bicycles and automobiles. Sharrows are most beneficial on low volume and low speed roads. Typically, the painted lane markings are accompanied with signage to alert both bicyclists and motorists of bikeway routes.

Standard Bike Lanes

Bike lanes allocate an exclusive space for bicyclists with a designated 5- to 6-foot striped lane, pavement markings, and signage to enable bicyclists to ride at their chosen speed without interference from traffic. Conventional bike lanes are located directly adjacent to motor vehicle travel and typically follow the same direction as traffic. Standard bike lanes create a separation between bicyclists and automobiles, but do not have a physical barrier between the two modes.

Buffered Bike Lanes

A buffered bike lane is a conventional bike lane paired with additional buffer space to separate the motor vehicle traffic lane and/or parking lane from the bicyclists. Buffered bike lanes typically use multiple pavement markings to create distinctions between bike and motor travel lanes. Buffered bike lanes can be incorporated on roads with higher travel speeds, higher travel volumes, and anywhere a standard bike lane is considered.

Sidepaths

Sidepaths are physically separated from vehicular travel through vegetated landscape strips, rumble strips, or urban furnishings like streetlights, wayfinding signage, or benches. Sidepaths provide paved off-road routes for users and are designed similar to roadways but feature lower speeds for mainly pedestrian and bicycle users.

Supporting Facilities

In order to maximize the efficiency and safety of bicycle facilities in a community like Holly Springs, bike facilities should be implemented with supporting facilities that complement and support their use. The use of dedicated supporting facilities should coincide with popular land uses around Holly Springs such as: the Downtown Village District, Neighborhood Centers, N. Main Street District, and other mixed-use centers. Examples of supporting facilities and best practices for implementation include:

Bicycle Signage and Markings

Traditional signage and markings for on-street bikeways increases the visibility of shared roads and bikeways to bicyclists and motorists. Wayfinding signs aid bicyclists travel to their destination and helps to familiarize users with the bicycle network. Signage should be located along streets or other facilities that are a part of the bicycle network.

Bicycle Signals

Bicycle signals are similar in use to signals used at pedestrian crosswalks and those used for motorists. Signals are paired with loop detectors, camera detectors, or push buttons. The use of bicycle signals discourages unsafe maneuvers. Dedicated bicycle signals should be used where there is a high volume of bicyclists at peak hours or areas with high bike crashes.

Bike Boxes

Bike boxes enhance the turning ability and visibility of bicyclists to motorists at signalized intersections. By designating a space ahead of stopped traffic, bicyclists intending to turn left can better situate themselves for turns and reduce the risk for right-turning accidents between bicyclists and motorists at high volume intersections. Bike boxes should be located at intersections with dedicated bike lanes where a high turning volume is anticipated.

Bicycle Parking

As more bicycle facilities are constructed, bicycle usage will continue to grow creating an increased demand for bike parking near major destinations. Bicycle parking should be installed in safe and secure areas for both short-term parking needs such as popular shopping or dining locations, and long-term needs such as park and rides, places of employment, and schools.

Recommended Bicycle Network

The Holly Springs CTP identified recommendations to the bicycle network based on the goal of creating an active transportation network that supports mobility for all ages and abilities. The *Recommendations: Active Transportation* map at the end of this chapter details the bicycle projects to enhance travel by bike for users in the Town.

Bicycle network recommendations in the Holly Springs CTP were identified from a review of the current system, community feedback, and the ability for a project to connect to the Town's existing greenway network.

Ensuring that updates to the bicycle network creates connectivity with existing greenways was proposed in the Parks, Recreation and Greenways Master Plan to improve the conditions of active transportation in Town. By connecting bicycle facilities both on and off streets, residents of Holly Springs have enhanced mobility throughout the Town with fewer limitations from gaps in connections between destinations.

Technology Spotlight

In the past decade, several technologies have emerged that allow communities to provide bicyclists and pedestrians a higher quality experience. Examples include counters to allow communities to gather data on how trails and facilities are used, real-time bicycle parking information, and advanced wayfinding systems to assist visitors.

Future Pedestrian Network

Safe and Comfortable

The pedestrian network benefits everyone in the community by providing a safe and comfortable way to get to and from destinations. Even if you don't consider yourself a pedestrian, everyone makes use of sidewalks, crosswalks, and other pedestrian facilities at some time. The CTP recognizes how important walking is to a healthy and vibrant community, and strives to provide a complete pedestrian network that accommodates pedestrians of all ages and abilities.

While sidewalks and crosswalks are the main elements of the pedestrian network, there are many factors that contribute to a comfortable pedestrian atmosphere.

Supporting Facilities

Similar to the bicycle network, a variety of supporting facilities can help encourage more people to walk by creating an attractive and vibrant atmosphere. Benches, lighting, buffers, street trees, and other vegetation helps to create a pedestrian network that is safe, inviting, and comfortable. Wayfinding and signals with pedestrian buttons help to foster a safe and comfortable environment in a new atmosphere. As a whole, these elements are often called "streetscaping." Strategically placing these facilities throughout Holly Springs will benefit the mobility of residents throughout the area. Further guidance can be found in Chapter 5.

Traffic Calming

Traffic calming strategies work to slow vehicle speeds and volumes to create a safer and more inviting street, encouraging more people to walk and improving safety for pedestrians.

The Town of Holly Springs adopted the Neighborhood Traffic Calming and Pedestrian Safety Program policy to guide traffic-calming improvements on town roads and to make a safer pedestrian network. The program outlines traffic calming strategies based on level of investment.

Based on the policy guidelines, a wide variety of treatments may be incorporated in Holly Springs neighborhoods on new and existing roads. Options range from warning signage, pavement markings, roundabouts, and median islands between travel lanes along roads. Traffic calming should be considered when assessing a high-volume or high-speed street for ways to improve the pedestrian experience.

Left: Landscaping and street trees provide a welcoming pedestrian environment. Above: Curb extensions can be an effective traffic calming tool, as well as improve pedestrian safety.

Pedestrian Crossing Toolkit

The Pedestrian Crossing Toolkit for Holly Springs features safety measures to make it easier for people to get around. The recommended tools include changes along roadways and intersections to allow for a more secure pedestrian crossing. By implementing pedestrian-oriented design strategies on roads and at intersections, the Town of Holly Springs provides connections for residents to safely travel to work, school, or for recreation.

Conventional Crosswalks

Conventional crosswalks allow pedestrians to comfortably cross intersections by offering protection and visibility against motorists. Crosswalks can be marked simply with parallel lines, decorative or painted, or offer higher visibility to approaching vehicles with continental or zebra markings.

Midblock Crosswalks

Midblock crosswalks allow pedestrians to cross in places that are not commonly served by the existing traffic network and street design. Midblock crossings are typically accompanied by Rectangular Rapid Flashing Beacons (RRFB) to enhance safety with flashing lights. These types of crosswalks exist at key access points for schools, parks, or other areas that are challenging for high volumes of pedestrians to have comfortable access.

Pedestrian Refuge Islands

Pedestrian refuge "safety" islands allow for protected and comfortable points of rest for pedestrians across large intersections with multiple lanes. Islands reduce the exposure pedestrians face at intersections when the number of travel lanes increases. These are typically implemented when pedestrians have to cross three or more lanes of oncoming traffic.

Curb Extension

Curb extensions can be used to create a more narrow roadway to decrease pedestrian crossing time and distance across travel lanes. Extensions offer additional pedestrian protection as curb extensions increase visibility to drivers, as well as allow for additional streetscape opportunities. Low cost materials such as bollards can be used as a pilot at intersections heavily trafficked by both pedestrians and vehicles.

The *Recommendations: Active Transportation* map at the end of this chapter details the sidewalk projects to enhance travel for pedestrians in the Town.

Walkshed Analysis

A Closer Look at Sidewalk Needs

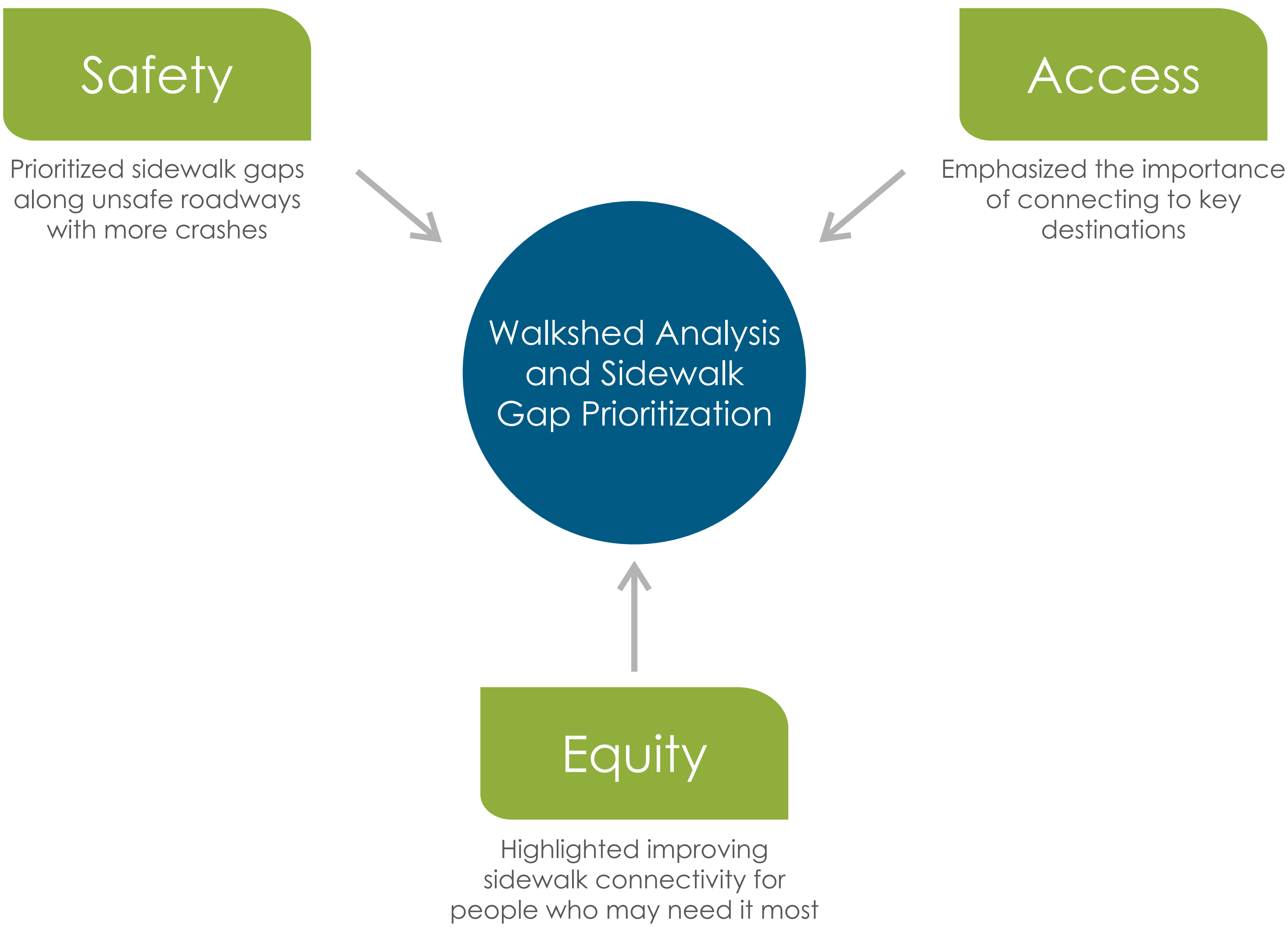
Sidewalks make up the backbone of the pedestrian transportation network, allowing people to move throughout Holly Springs on foot. While the CTP has sidewalk recommendations throughout Town, special attention was paid to the Downtown Village District to identify critical sidewalk priorities that further complete the network.

Gap Identification

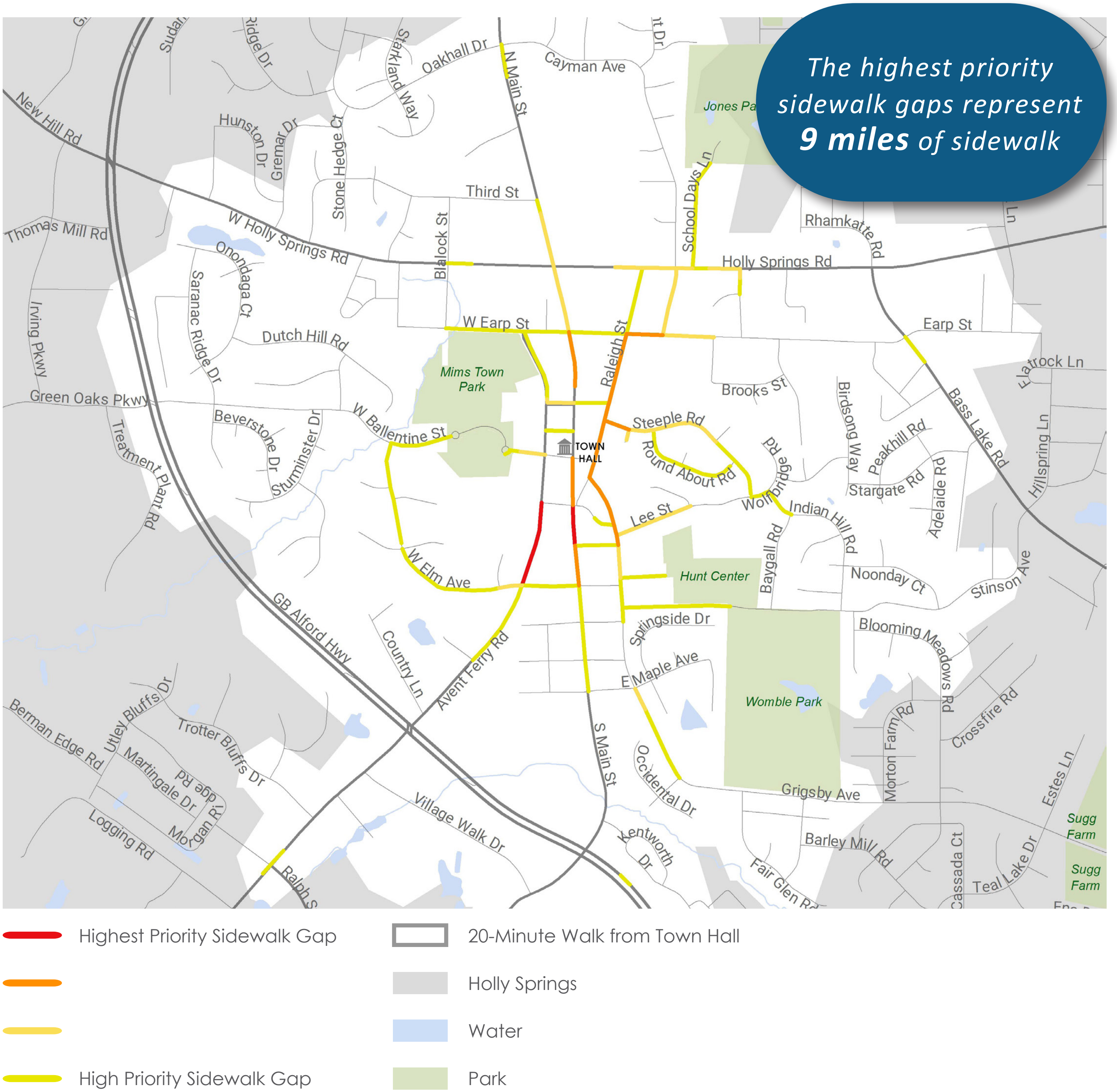
Sidewalk needs were identified along all roadway segments that were reachable within either a 10- or 20-minute walk from Town Hall, which is the center of the Downtown Village District. Depending on the presence of any missing sidewalks, the roadways were either identified as complete or marked as sidewalk gaps.

Gap Prioritization

Once identified, the sidewalk gaps were prioritized based on three categories that address a range local needs: safety, access, and equity.



High Priority Sidewalk Gaps

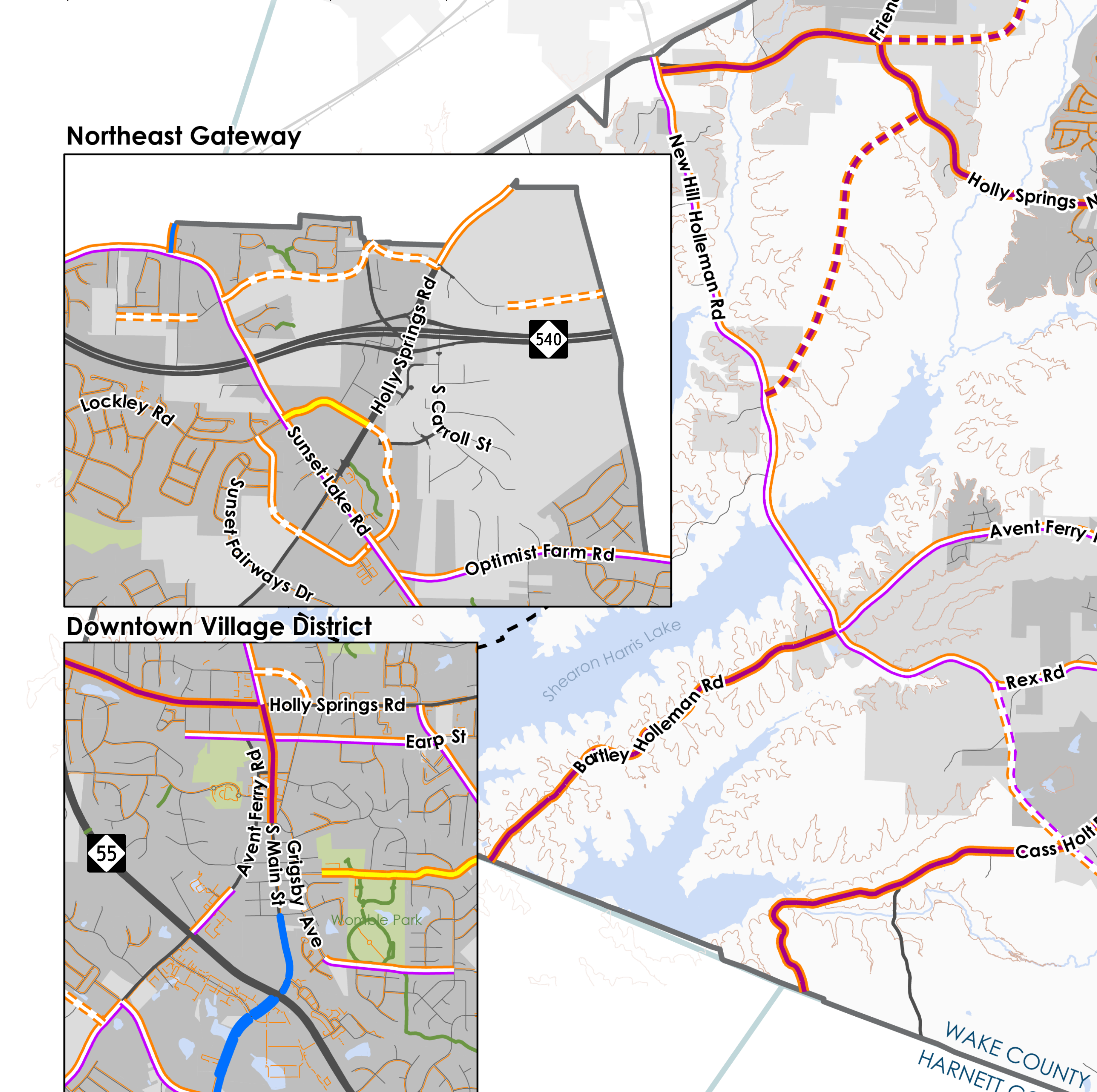


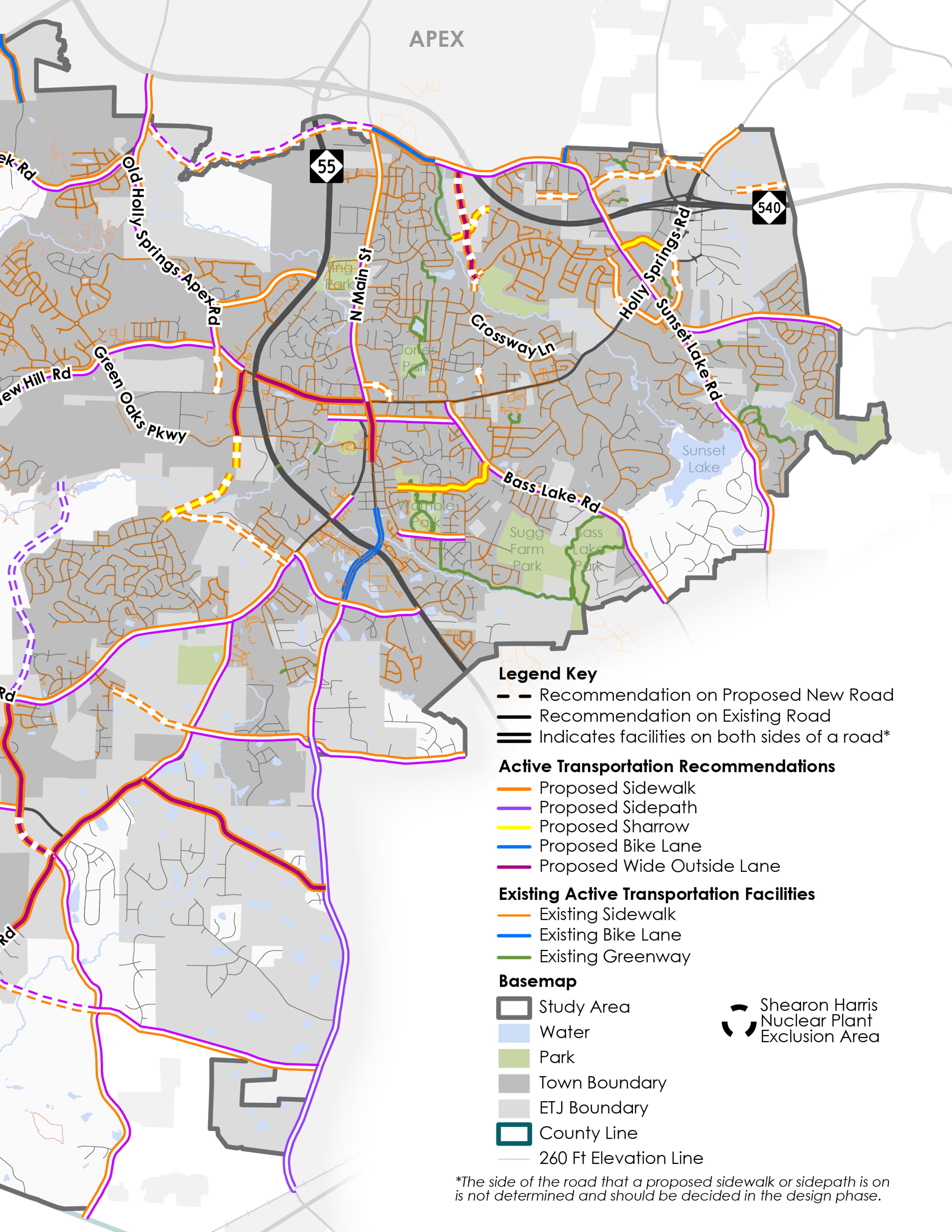
This map visualizes the high-priority sidewalk gaps identified through this analysis. For additional details on the scoring process, results, and final list of projects, see Appendix G.

It's important to note that the priority gap analysis is not reflected on the *Recommendations: Active Transportation* map shown on the next page because the projects on that map followed a separate prioritization process, detailed in Chapter 4.

Recommendations: Active Transportation

This map includes the delineated bicycle and pedestrian projects that are prioritized and included in Chapter 4, the *Implementation Plan*.

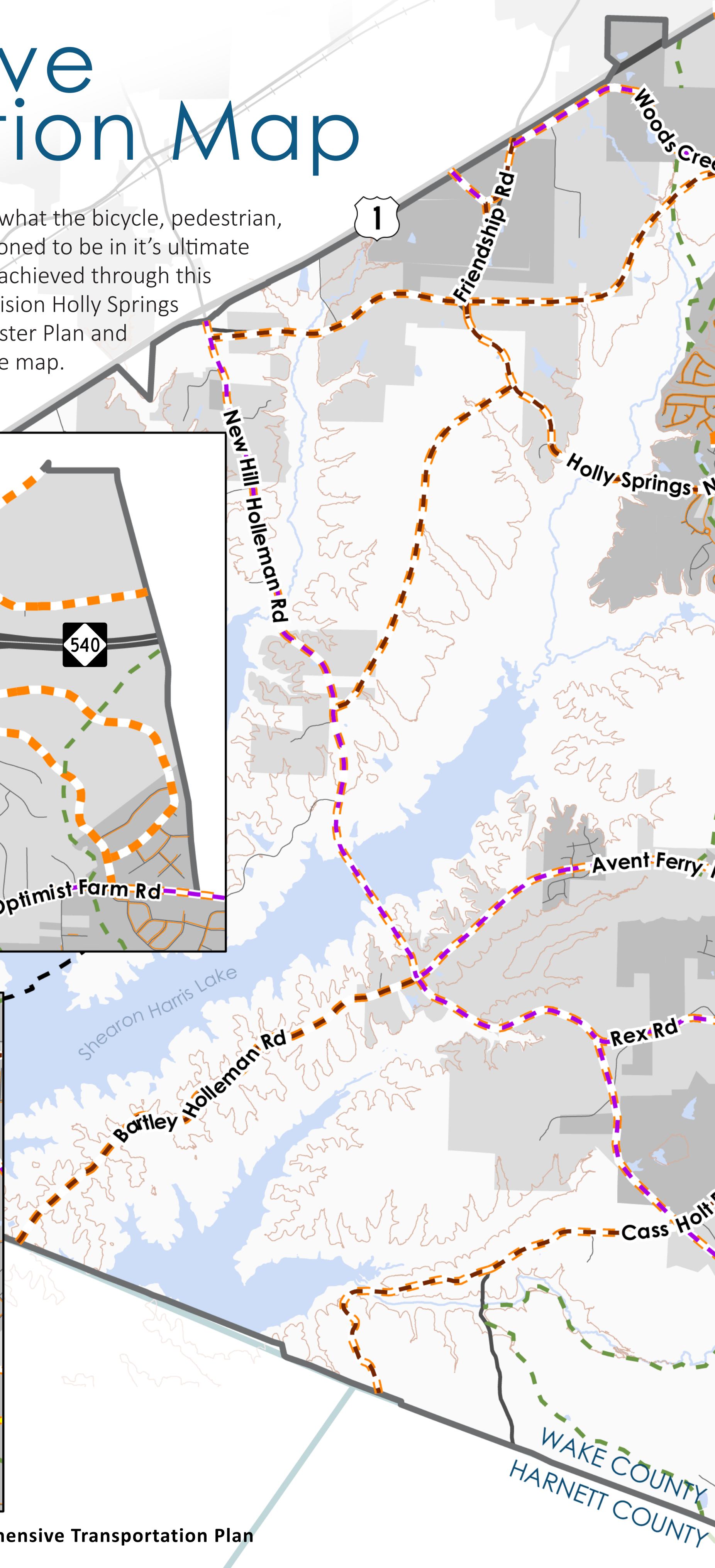




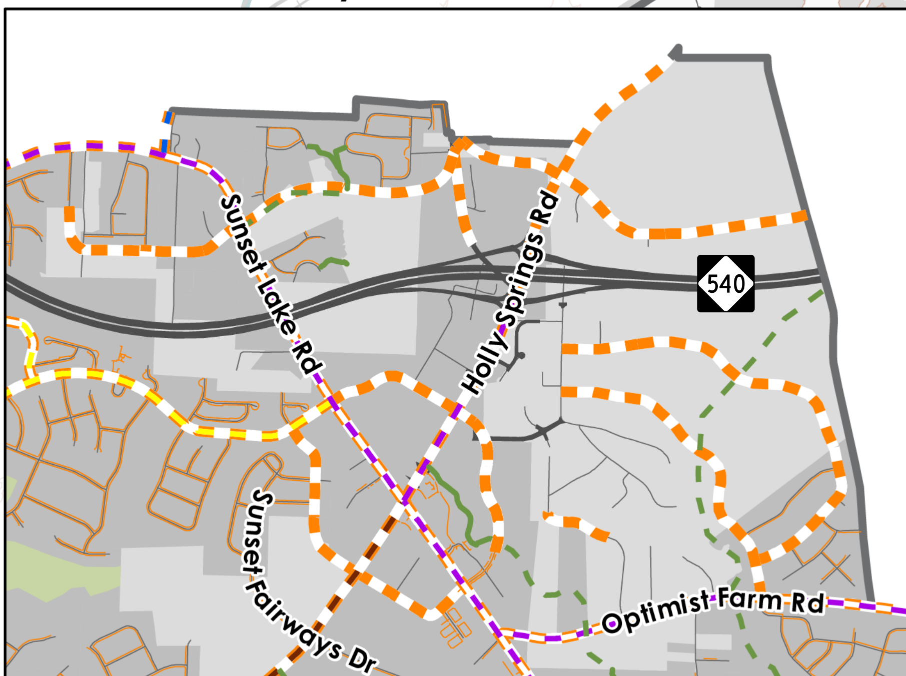
APEX
55
540
Old Holly Springs Apex Rd
N Main St
Crossway Ln
Holly Springs Rd
Sunset Lake Rd
Green Oaks Pkwy
Bass Lake Rd
Jones Park
Sunset Lake
Sugg Farm Park
Legend Key
Recommendation on Proposed New Road
Recommendation on Existing Road
Indicates facilities on both sides of a road*
Active Transportation Recommendations
Proposed Sidewalk
Proposed Sidepath
Proposed Sharrow
Proposed Bike Lane
Proposed Wide Outside Lane
Existing Active Transportation Facilities
Existing Sidewalk
Existing Bike Lane
Existing Greenway
Basemap
Study Area
Water
Park
Town Boundary
ETJ Boundary
County Line
260 Ft Elevation Line
Shearon Harris Nuclear Plant Exclusion Area
*The side of the road that a proposed sidewalk or sidepath is on is not determined and should be decided in the design phase.

Future Active Transportation Map

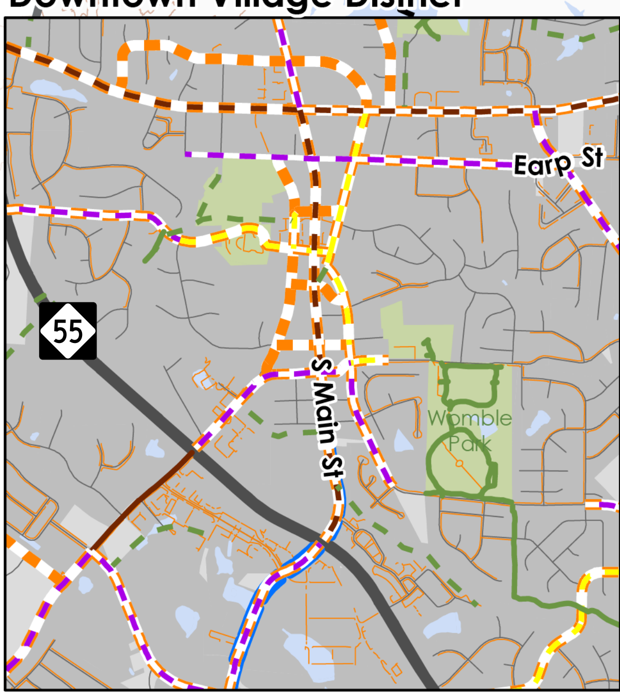
This map is a comprehensive representation of what the bicycle, pedestrian, and greenway network in Holly Springs is envisioned to be in it's ultimate build out. While the vision of this map can't be achieved through this CTP alone, it includes recommendations from Vision Holly Springs Section 3: Parks, Recreation and Greenways Master Plan and captures the active transportation picture in one map.

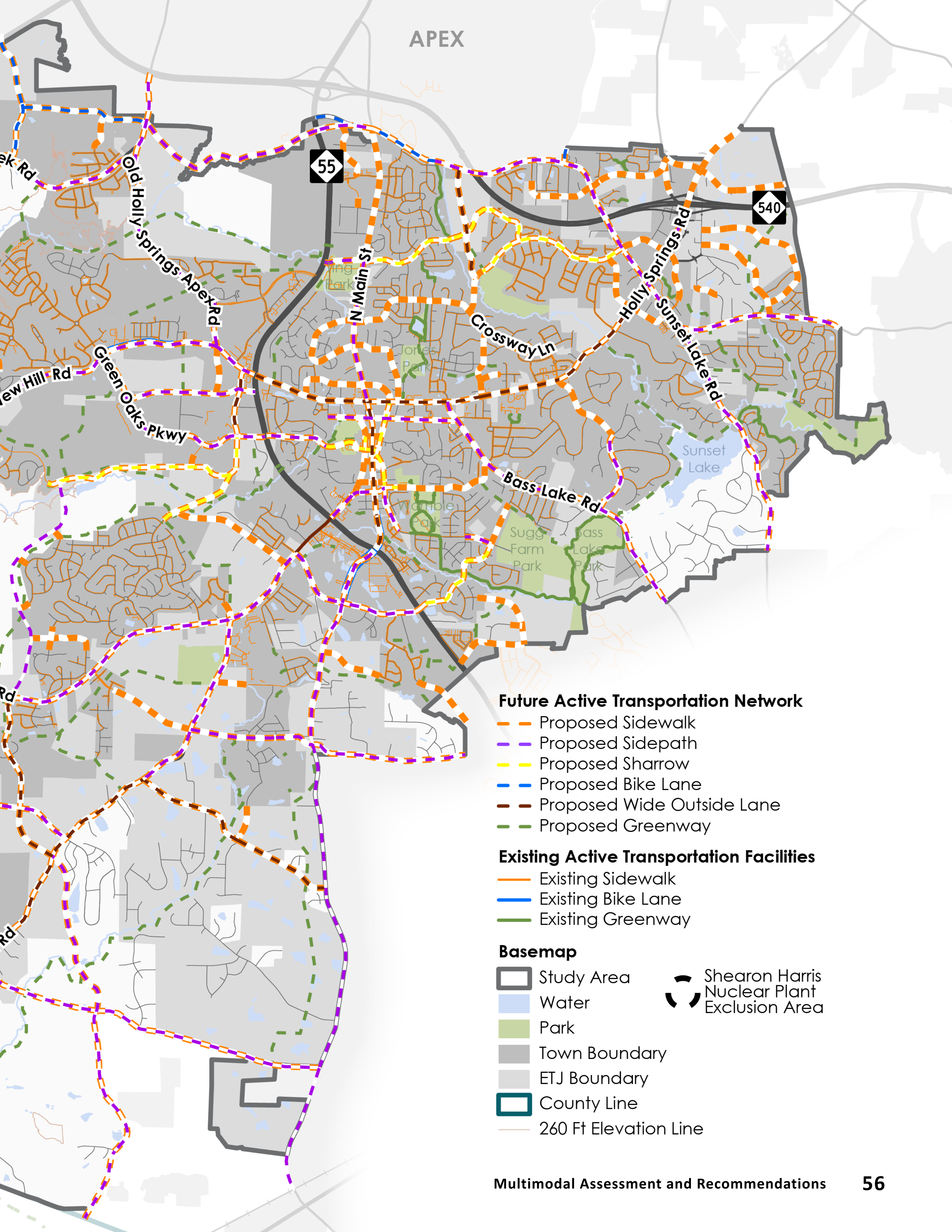


Northeast Gateway



Downtown Village District




APEX
55
540
Old Holly Springs Apex Rd
N Main St
Crossway Ln
Holly Springs Rd
Sunset Lake Rd
Green Oaks Pkwy
Bass Lake Rd
Jones Park
Sunset Lake
Sugg Farm Park
Future Active Transportation Network
Proposed Sidewalk
Proposed Sidepath
Proposed Sharrow
Proposed Bike Lane
Proposed Wide Outside Lane
Proposed Greenway
Existing Active Transportation Facilities
Existing Sidewalk
Existing Bike Lane
Existing Greenway
Basemap
Study Area
Water
Park
Town Boundary
ETJ Boundary
County Line
260 Ft Elevation Line
Shearon Harris Nuclear Plant Exclusion Area

CHAPTER **3.3**

ROADWAY

WHAT'S INSIDE

Introduction

This section outlines the development of the roadway recommendations and provides information on how to read the project tables.

Roadway Network

The content in this section describes the roadway recommendations and the considerations used to create them.

Intersections and Interchanges

This section outlines the site-specific recommendations to address safety concerns and mobility limitations at each intersection and interchange.

Introduction

The final section of Chapter 3 outlines the Town's future roadway network. Foundational to the development of the roadway recommendations was the 2011 CTP. From there the update considered a reconciliation process of previous planning efforts and a review of the Town's existing mobility network. The confirmation and refinement of proposed recommendations were largely associated with guidance from the CTP's Steering Committee and input from members of the public.

Roadway Network

The first part of this section focuses specifically on proposed roadway recommendations. The recommendations are organized by type and include a brief description followed by a map and project table.

Intersections and Interchanges

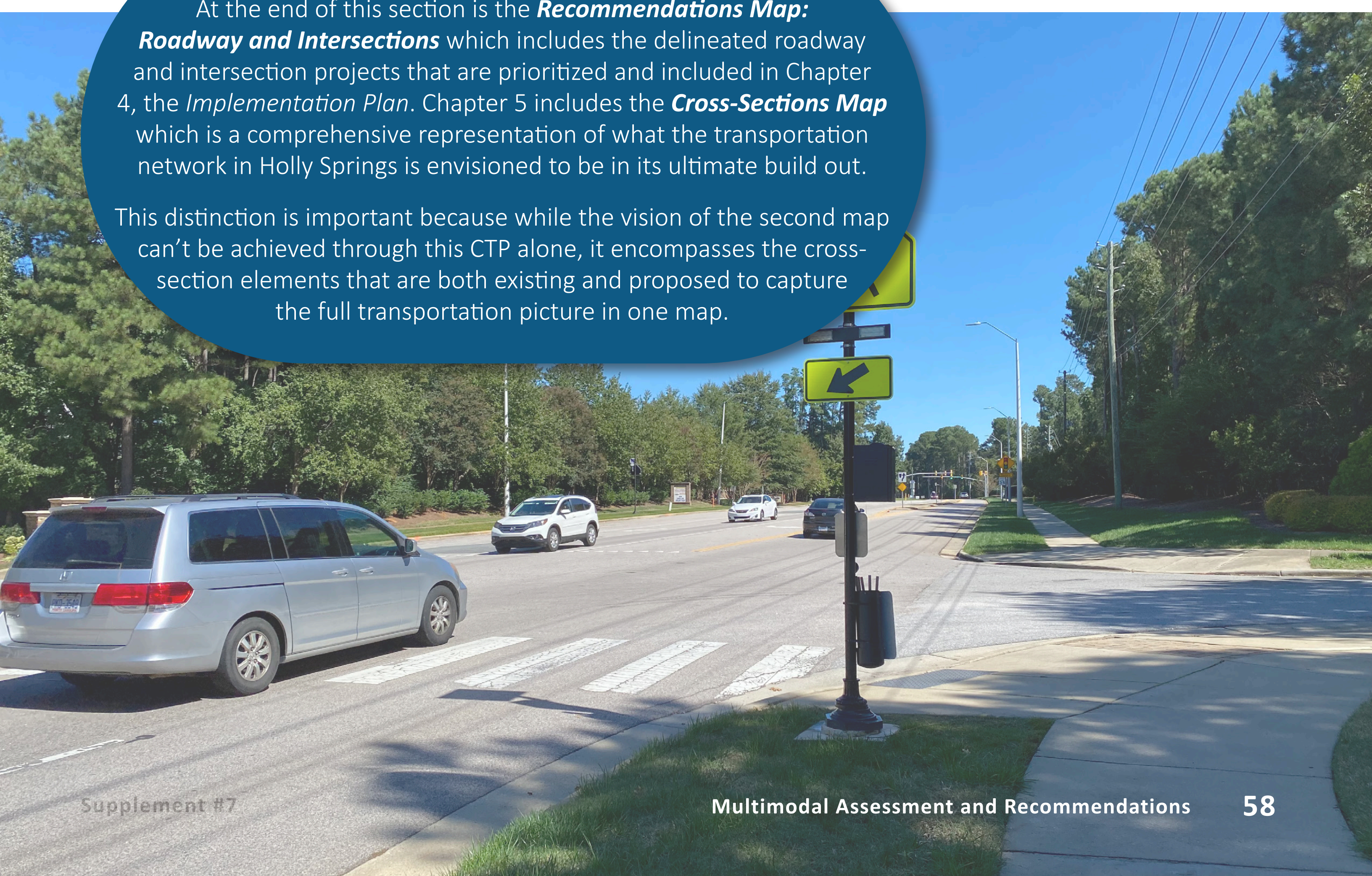
The second part of this section describes the intersection and interchanges recommendations. These improvements aim to enhance safety and capacity while also providing mobility options for all roadway users. This part also spotlights "hotspot" and safety studies which took a deeper dive into analysis needs and drafting conceptual recommendations.

Finally, the chapter concludes with the full roadway network and intersections and interchanges recommendations map.

The Projects and the Network

At the end of this section is the ***Recommendations Map: Roadway and Intersections*** which includes the delineated roadway and intersection projects that are prioritized and included in Chapter 4, the *Implementation Plan*. Chapter 5 includes the ***Cross-Sections Map*** which is a comprehensive representation of what the transportation network in Holly Springs is envisioned to be in its ultimate build out.

This distinction is important because while the vision of the second map can't be achieved through this CTP alone, it encompasses the cross-section elements that are both existing and proposed to capture the full transportation picture in one map.



Roadway Network

Roadway Projects

The proposed roadway recommendations were developed considering safety and congestion data, environmental features, public feedback, and projections from the travel demand model. The future network aligns with the Town's goals as well as the vision for the region.

The following pages identify on-street roadway improvements based on the type of project. The improvements are divided into six categories: center turn lane, road diet, parking, widening, new location, and realignment.

To fulfill the CTP's vision of providing a safe, efficient, connected, and accessible multimodal transportation network, the proposed projects include provisions for bicycles and pedestrians where appropriate.

Center Turn Lane

A center turn lane, or two-way left turn lane, allows vehicles from both directions to turn left in the same lane.

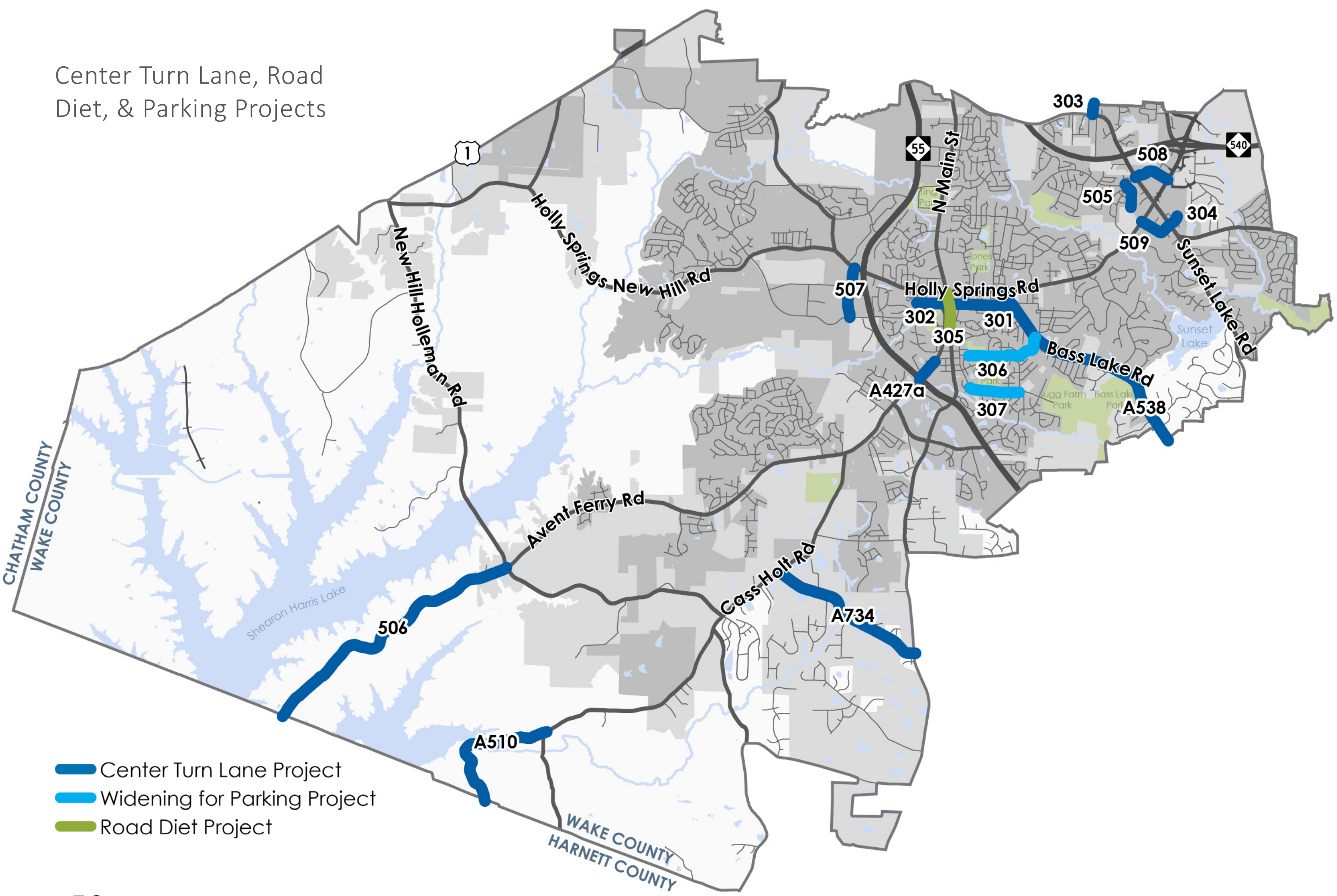
Road Diet

As discussed in the previous section, N. Main Street is proposed to have two travel lanes down from the existing three to slow traffic and create a more pedestrian friendly space.

Parking

Parking projects are for the purpose of providing on-street parking near key destinations such as in the Downtown Village District or near Womble Park.

Center Turn Lane, Road Diet, & Parking Projects



Center Turn Lane, Road Diet, & Parking Project Table

ID*	Facility	From	To	Recommendation	Length (mi)
A427a	**Avent Ferry Road**	GB Alford Highway	W Pine Avenue	Center Turn Lane	0.22
A510	**Cass Holt Road**	Chatham County Line	Sweet Springs Road	Center Turn Lane	1.41
A538	**Bass Lake Road**	Holly Springs Road	Town Limits	Center Turn Lane	2.26
A734	**Rouse Road**	Cass Holt Road	Piney Grove Wilbon Road	Center Turn Lane	1.58
302	**W Earp Street**	Burt Street	Raleigh Street	Center Turn Lane	0.42
303	**Stephenson Road**	Sunset Lake Road	Town Limits	Center Turn Lane	0.11
303	**Stephenson Road**	Sunset Lake Road	Town Limits	Center Turn Lane	0.11
304	**Lassiter Road**	Current Terminus	Sunset Lake Road	Center Turn Lane	0.16
505	**Harvestwood Drive**	Lockley Road	Current Terminus	Center Turn Lane	0.24
506	**Bartley Holleman Road**	Chatham County Line	New Hill Holleman Road	Center Turn Lane	2.78
507	**Irving Parkway**	New Hill Road	Green Oaks Parkway	Center Turn Lane	0.49
508	**Lockley Road**	Sunset Lake Road	Holly Springs Road	Center Turn Lane	0.35
509	**Lassiter Road**	Holly Springs Road	Sunset Lake Road	Center Turn Lane	0.33
305	**N. Main Street**	Holly Springs Road	Rogers Street	Road Diet	0.44
306	**Stinson Avenue**	Grigsby Avenue	Bass Lake Road	Parking	0.77
307	**Grigsby Avenue**	Maple Avenue	Blooming Meadows Road	Parking	0.48

IDs written in **black are included in the CAMPO 2050 MTP; IDs written in **green** are not included in the CAMPO MTP*

Roadway Projects

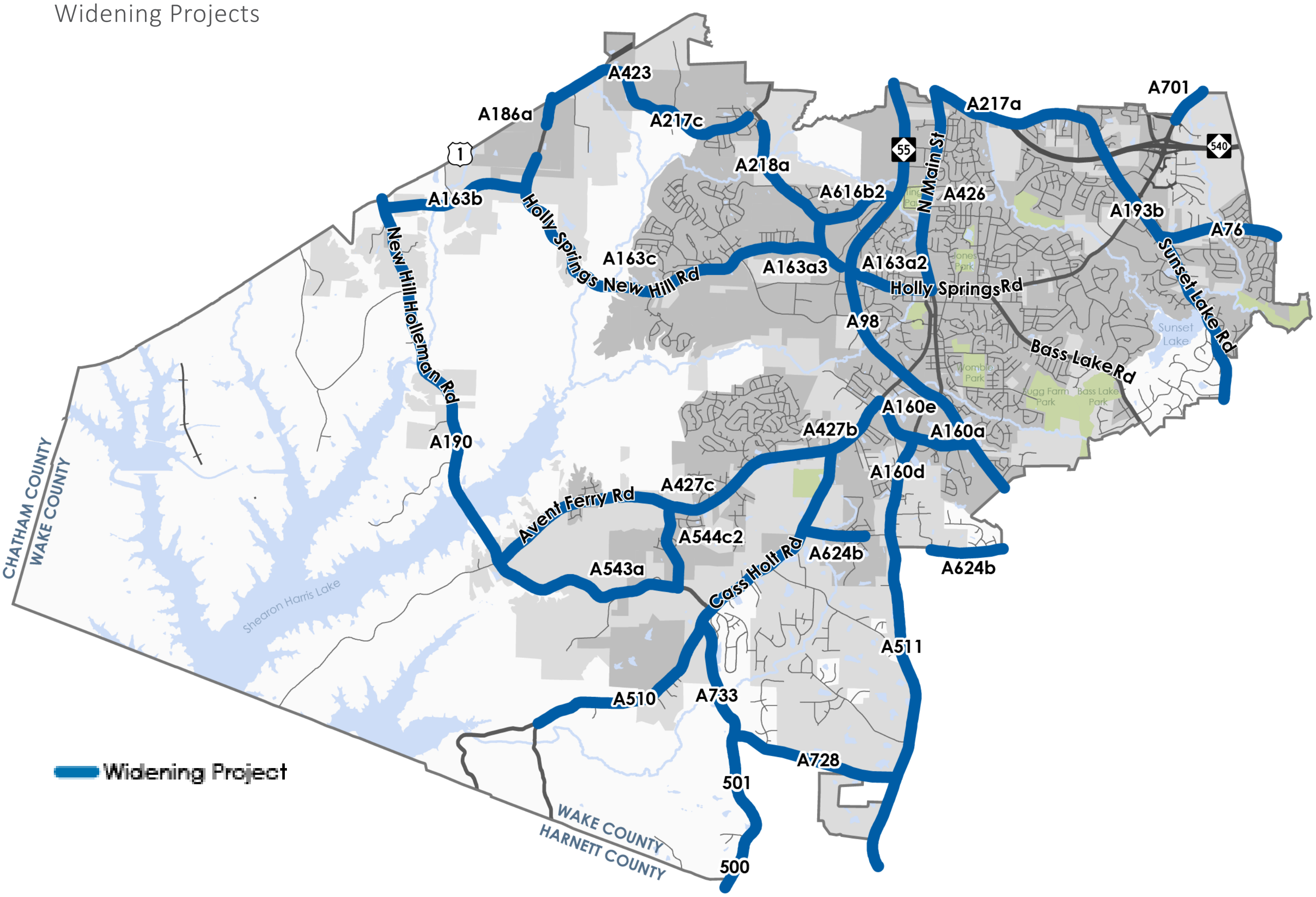
Widening

Widening projects are proposed to expand roadway capacity. In the CTP there are more than 65 widening projects throughout the study area.

Typically, widening projects may address higher volume of traffic along corridors that have high congestion. When roads are widened to accommodate more vehicular traffic, it also presents an opportunity to add improvements for bicycles and pedestrians. Ensuring that roadway facilities are safe for all transportation users is essential to a holistic multimodal network.

The following map and accompanying table include future widening projects of the proposed network.

Widening Projects



Widening Project Table

ID*	Facility	From	To	Length (mi)
A76	**Optimist Farm Road**	Sunset Lake	Town Limits	1.18
A98	**GB Alford Highway**	Northern Town Limits	Southern Town Limits	4.73
A160a	**Ralph Stephens Road**	S. Main Street	GB Alford Highway	0.58
A160d	**Piney Grove Wilbon Road**	Brayton Park Place	Ralph Stephens Road	0.29
A160e	**Ralph Stephens Road**	Avent Ferry Road	S. Main Street	0.53
A163a2	**W Holly Springs Road**	GB Alford Highway	N. Main Street	0.83
A163a3	**New Hill Road**	Old Holly Springs Apex Road	Irving Parkway	0.25
A163b	**Friendship Road**	New Hill Holleman Road	Holly Springs New Hill Road	1.86
A163c	**Holly Springs New Hill Road**	Friendship Road	Old Holly Springs Apex Road	3.55
A186a	**Friendship Road**	New US 1 Interchange	US 1 Highway	0.28
A190	**New Hill Holleman Road**	Friendship Road	Avent Ferry Road	3.88
A193b	**Sunset Lake Road**	Optimist Farm Road	Town Limits	1.78
A217a	**Sunset Lake Road**	Optimist Farm Road	N. Main Street	2.95
A217c	**Woods Creek Road**	Woodfield Dead End Road	Old Holly Springs Apex Road	0.88
A218a	**Old Holly Springs Apex Road**	Old Holly Springs Apex Road Realignment	Holly Springs New Hill Road	1.49
A414b	**Edwards Drive**	Sunset Lake Road	Sunset Pointe Drive	0.08
A423	**Woods Creek Road**	Friendship Road	Woodfield Dead End Road	1.48
A426	**N. Main Street**	Sunset Lake Road	Holly Springs Road	2.02
A427b	**Avent Ferry Road**	Cass Holt Road	Ralph Stephens Road	0.68
A427c	**Avent Ferry Road**	New Hill Holleman Road	Cass Holt Road	3.69
A510	**Cass Holt Road**	Avent Ferry Road	Sweet Springs Road	4.31
A511	**Piney Grove Wilbon Road**	Brayton Park Place	Rail Road (RR)	4.14
A543a	**Rex Road**	New Landfill Drive	Buckhorn Duncan Road	0.83
A544c2	**Buckhorn Duncan Road Ext**	Avent Ferry Road	Rex Road	0.84
A616b2	**Bennet Knoll Parkway**	Old Holly Springs Apex Road	GB Alford Highway	0.81
A624b	**Honeycutt Road**	Cass Holt Road	Roanhigh Lane	0.62
A624b	**Wade Nash Road**	Town Limits	Basal Drive	0.55
A701	**Holly Springs Road**	Kildare Farm Road	Town Limits	0.39
A728	**NC 751 Ext**	Rex Road	Avent Ferry Road	1.13
A728	**NC 751 Ext**	Piney Grove Road	Buckhorn Duncan Road	1.67
A733	**Buckhorn Duncan Road**	Cass Holt Road	Burt Road	2.04
500	**Buckhorn Duncan Road**	NC 751 Ext	County Hollows Lane	0.53
501	**Burt Road**	Country Hollows Lane	Cass Holt Road	0.28

IDs written in **black are included in the CAMPO 2050 MTP; IDs written in **green** are not included in the CAMPO MTP*
***Project listed primarily as Widening and includes Realignment recommendation.*

Roadway Projects

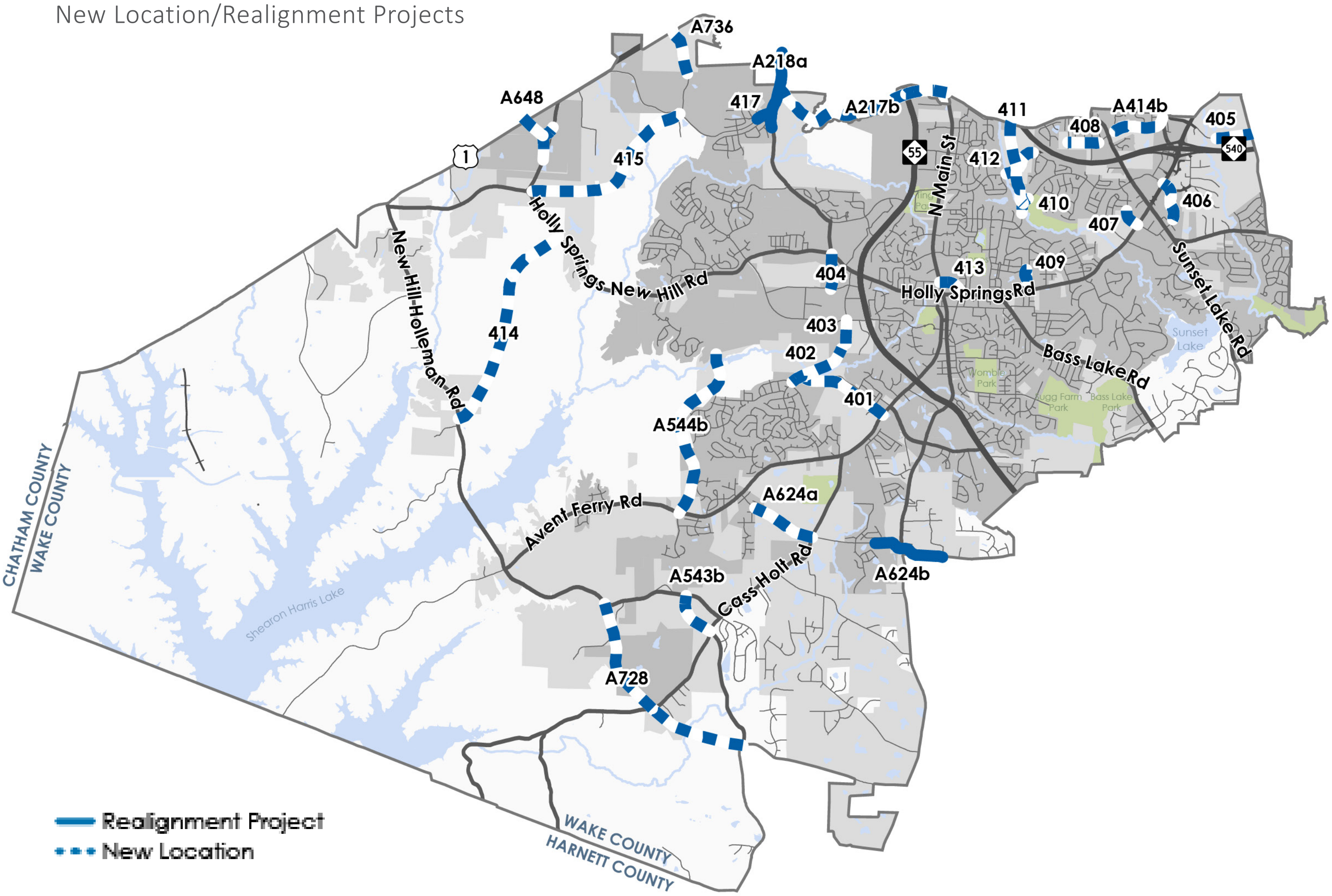
New Location/Realignment

In order to plan for the future, the Town must anticipate new connections to further enhance mobility. The new location and realignment projects can provide vehicular, pedestrian, and bicycle mobility options throughout the study area. New roadways act as linkages between heavily-traveled, existing corridors, providing additional north-south and east-west travel options through Town. The new corridors will provide alternative routes to developing areas, key destinations downtown, and greater connectivity between residential locations.

While realignment projects can bring these same benefits, they also aim to fix issues on existing roads by adjusting the alignment to improve safety or they are planned to create ideal ties into proposed new location roads.

The following map shows future new location and realignment projects of the proposed network.

New Location/Realignment Projects



New Location/Realignment Project Table

ID*	Facility	From	To	Length (mi)
A217b	**Old Smithfield Road Ext**	Old Holly Springs Apex Road	N. Main Street	1.84
A218a	**Old Holly Springs Apex Road****	NC 540	Old Holly Springs Apex Road	0.75
A414a	**Kildaire Farm Road**	Town Limits	Holly Springs Road	0.27
A414b	**Edwards Drive Ext**	Current Terminus	Kildaire Farm Road	0.52
A543b	**Buckhorn Duncan Road Ext**	Rex Road	Cass Holt Road	0.46
A544b	**Avent Ferry Connector**	Avent Ferry Road	Holly Springs New Hill Road	1.79
A624a	**Honeycutt Road Ext**	Cass Holt Road	Tigers Eye Way	0.63
A624b	**Wade Nash Road/ Honeycutt Road Realignment**	Roanhigh Lane	Sand Dune Way	0.70
A648	**New Location Road**	Friendship Road	Proposed US 1 Interchange	0.63
A728	**NC 751 Ext**	Buckhorn Duncan Road	Rex Road	2.14
A736	**Woodfield Dead End Road**	Woods Creek Road	Town Limits	0.94
401	**Logging Road Ext**	Avent Ferry Road	Evergreen View Drive Ext	0.90
402	**Evergreen View Drive Ext**	Current Terminus	Southern Access Road	0.60
403	**Irving Parkway Ext**	Green Oaks Parkway	Southern Access Road	0.23
404	**Old Holly Springs Apex Road Ext**	Holly Springs New Hill Road	Thomas Mill Road	0.34
405	**Sancroft Drive Ext**	Current Terminus	Pierce-Olive Road	0.35
406	**Lassiter Road Ext**	Holly Springs Road	Current Terminus	0.39
407	**Harvestwood Drive**	Current Terminus	Holly Springs Road	0.19
408	**Edwards Drive Ext**	Current Terminus	Heritage Meadows Lane	0.30
409	**Flint Point Lane Ext**	Current Terminus near Masden Road	Current Terminus near Landbridge Lane	0.12
410	**Lockley Road Ext**	Current Terminus	Creekvista Drive Terminus	0.17
411	**New Connection**	Lockley Road Ext	Sunset Lake Road	0.81
412	**Anchor Creek Way Ext**	Current Terminus	Terminus of Mystic Pine Place	0.36
413	**Third Street Ext**	N. Main Street	Holly Springs Road	0.26
414	**New Location Road**	New Hill Holleman Road	Holly Springs New Hill Road	2.12
415	**Woodfield Dead End Road Ext**	Holly Springs New Hill Road	Woods Creek Road	1.78
417	**Woods Creek Road**	Old Holly Springs Apex Road	Old Holly Springs Apex Road Realignment	0.15

IDs written in **black are included in the CAMPO 2050 MTP; IDs written in **green** are not included in the CAMPO MTP*
***Project listed primarily as Realignment and includes Widening commendation.*

Intersections and Interchanges

Intersection Projects

Including improvements for intersections and interchanges is critical to the success of the future transportation network as they are the nodes of transfer between roadway connections. Needed improvements are most often identified due to safety concerns, operational deficiencies, and public experience and feedback.

The following table includes a list of suggested improvement types or treatments to alleviate concerns at intersections or interchanges throughout the study area.

The project table on the following page lists the intersection projects recommended as part of the CTP. While the recommendation types for those intersections are sometimes specified, others remain as "intersection improvement" until further study can determine the best solution.

Standard Intersection Improvements

Improvement	Description
Driveway Consolidation	Curb cuts or driveways that are too close to an intersection should be consolidated or relocated to reduce the number of turning movements or potential crashes.
Improved Crossings	Danger to bicycles and pedestrians can be reduced by providing improved crossing facilities such as high-visibility, painted crosswalks, or median refuge islands. (See page 50 for Pedestrian Crossing Toolkit.)
Improve or Advance Signage	Providing advanced warning signs or installing reflective backplates on traffic signals can reduce crashes related to visibility issues.
Realignment	Roadways should be realigned to meet as close to a 90-degree angle as possible. This not only improves visibility but also the turning radius for larger vehicles or freight trucks.
Restricted Crossing U-Turn Intersection	A restricted crossing U-turn intersection (RCUT) intersection—also known as a super street intersection—restricts left-turn and through movements from the side street approach. The RCUT intersection can greatly improve the safety and efficiency of a roadway.
Roundabout	A Roundabout can reduce the number of serious crashes at intersections with many conflict points between vehicles and pedestrians while improving traffic flow in a circular movement.
Signalization	Some non-signalized intersections may be eligible for a traffic signal based on a signal warrant analysis. Signals may be warranted based on vehicular and pedestrian volumes or crash history.
Turn Lanes	The addition of turn lanes allows space for vehicles waiting to turn and reduces the risk of rear-end crashes.

Technology Spotlight

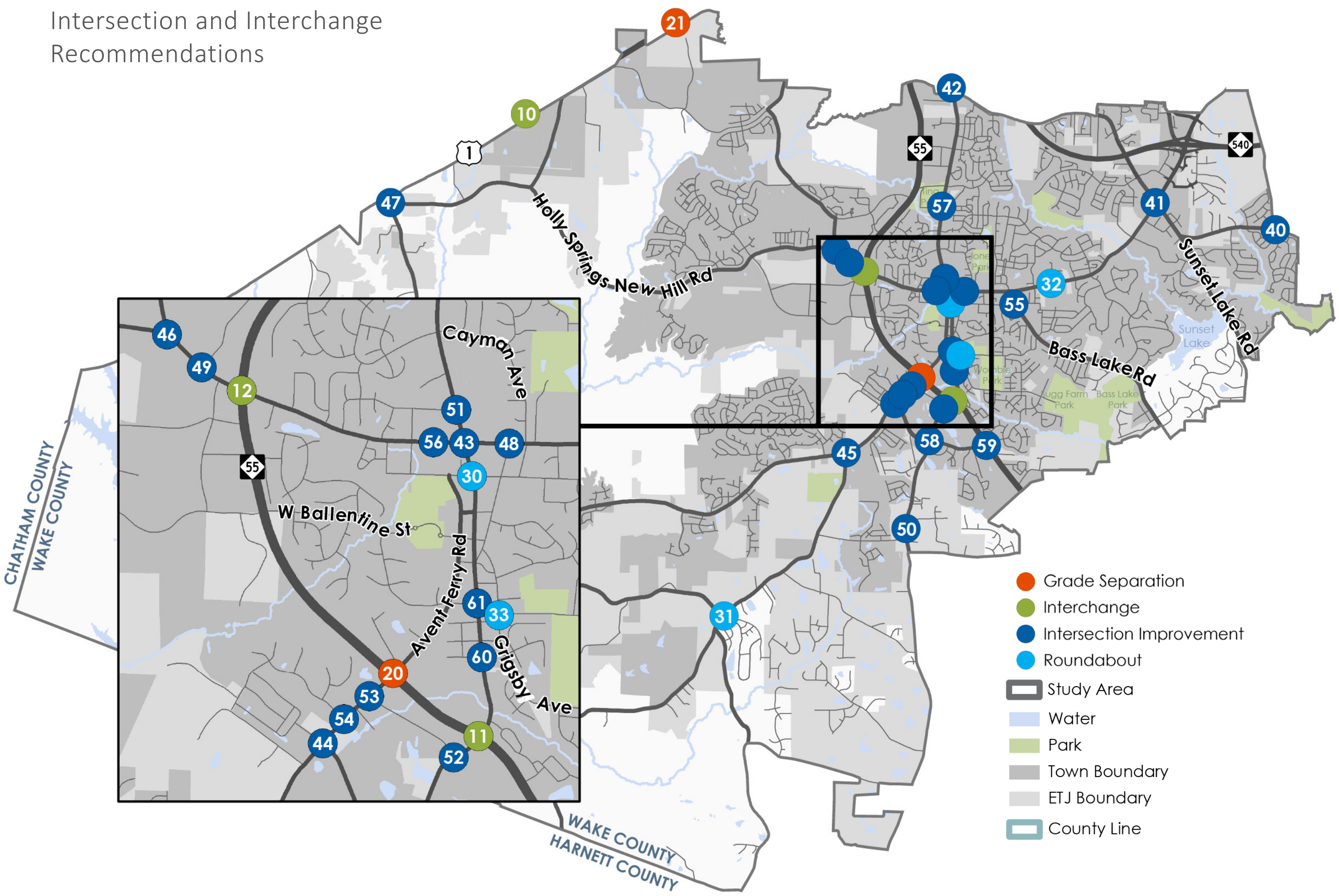
Emergency vehicle preemption (EVP) gives emergency response vehicles the green light upon approaching a signalized intersection while stopping opposing traffic with a red light. EVP prioritizes emergency vehicles to reduce the chance of a crash and decrease emergency response times.

Intersection Project Table

ID	Recommendation	Cross-Street 1	Cross-Street 2	Cross-Street 3
10	**Interchange**	US 1	New Location Road	-
11	**Interchange**	NC 55	S. Main Street	-
12	**Interchange**	NC 55	New Hill Road	W Holly Springs Road
20	**Grade Separation**	NC 55	Avent Ferry Road	-
21	**Grade Separation**	US 1	Woodfield Dead End Road	-
30	**Roundabout**	N. Main Street	Earp Street	-
31	**Roundabout**	Cass Holt Road	Rex Road	-
32	**Roundabout**	Holly Springs Road	Cobble Point Way	-
33	**Roundabout**	Grigsby Avenue	Stinson Avenue	-
40	**Intersection Improvement**	Optimist Farm Road	Pierce Olive Road	-
41	**Intersection Improvement**	Holly Springs Road	Sunset Lake Road	-
42	**Intersection Improvement**	N. Main Street	Sunset Lake Road	-
43	**Intersection Improvement**	Holly Springs Road	N. Main Street	-
44	**Intersection Improvement**	Avent Ferry Road	Ralph Stephens Road	Paddock View Drive
45	**Intersection Improvement**	Avent Ferry Road	Cass Holt Road	Capeside Avenue
46	**Intersection Improvement**	New Hill Road	Old Holly Springs Apex Road	-
47	**Intersection Improvement**	New Hill Holleman Road	Friendship Road	-
48	**Intersection Improvement**	Holly Springs Road	Raleigh Street	-
49	**Intersection Improvement**	New Hill Road	Grand Hill Place	-
50	**Intersection Improvement**	Honeycutt Road	Wade Nash Road	Piney Grove Wilbon Road
51	**Intersection Improvement**	N. Main Street	Third Street	-
52	**Intersection Improvement**	S. Main Street	Village Walk Drive	-
53	**Intersection Improvement**	Avent Ferry Road	Village Walk Drive	-
54	**Intersection Improvement**	Avent Ferry Road	Trotter Bluffs Drive	-
55	**Intersection Improvement**	Bass Lake Road	Earp Street	-
56	**Intersection Improvement**	W Holly Springs Road	Dorothy Nixon Allen Manor Apartments Driveway	-
57	**Intersection Improvement**	N. Main Street	Steedmont Drive	-
58	**Intersection Improvement**	Ralph Stephens Road	S. Main Street	Piney Grove Wilbon Road
59	**Intersection Improvement**	NC 55	Ralph Stephens Road	Teal Lake Drive
60	**Intersection Improvement**	S. Main Street	Maple Avenue	-
61	**Intersection Improvement**	S. Main Street	Elm Avenue	-

Intersection Projects

Intersection and Interchange Recommendations



Hot Spot and Safety Studies

The Holly Springs CTP looked at specific locations where special attention was needed to understand the current conditions and future considerations. The locations were chosen because of existing safety concerns, anticipated development, and needed improvements. The following section includes a project sheet for each location. For the full details of the Hot Spot and Safety Studies, refer to Appendix H and I, respectfully.

Hot Spot Studies

There were four Hot Spot studies created for the CTP. At each location, an in-depth analysis was conducted to identify unique improvements to address concerns heard from the public and the Plan's Steering Committee. The intersections are listed in the order they appear in the document:

1. NC 55 at W Holly Springs Road/New Hill Road
2. New Hill Road at Grand Hill Place and at Old Holly Springs Apex Road
3. Avent Ferry Road at Cass Holt Road/Capeside Avenue
4. N. Main Street at Third Street

Safety Studies

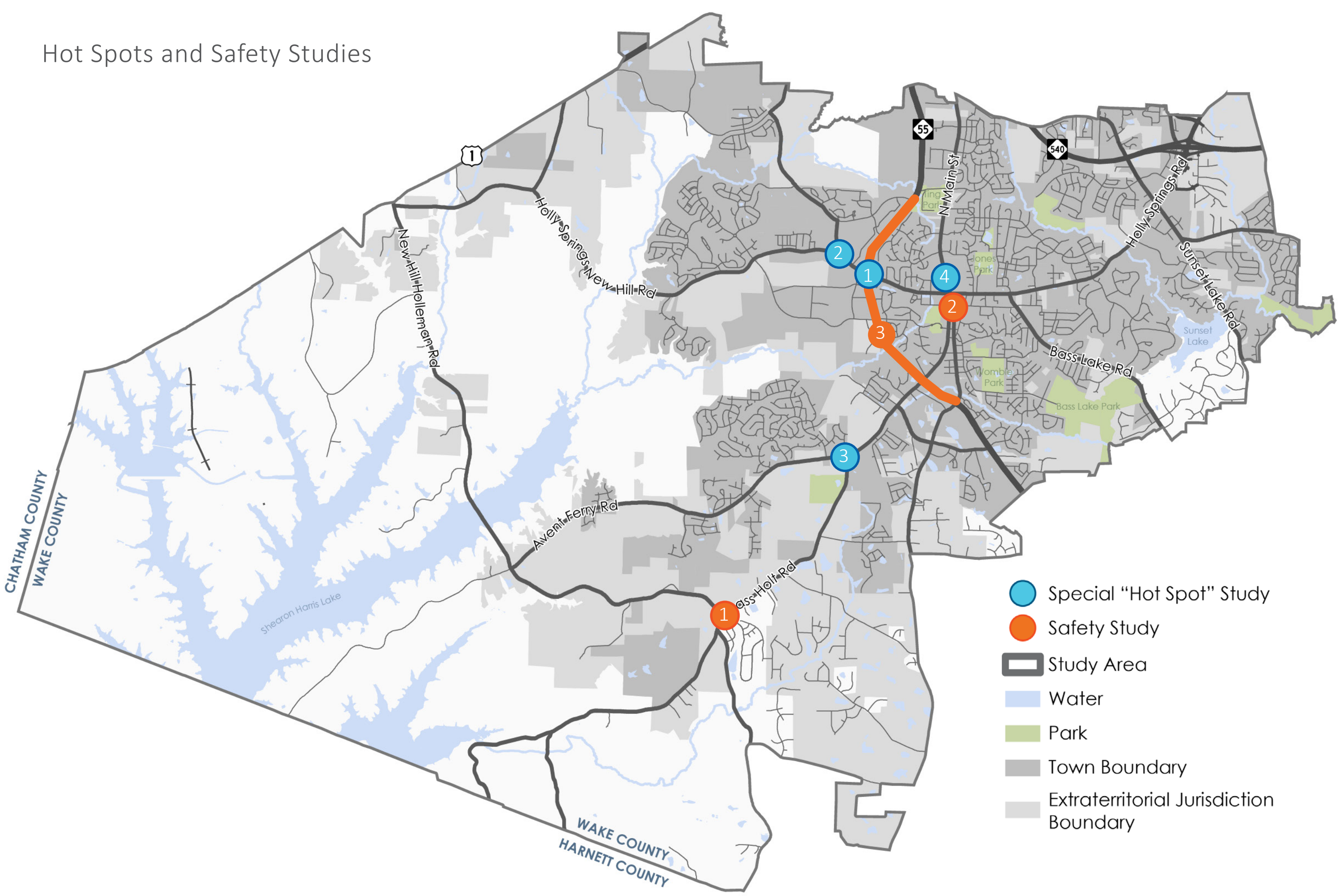
Potential locations of safety concern were first identified using NCDOT crash data and then narrowed to the three selected studies based on input from Town staff, stakeholders, and the public. The following locations are listed they appear in the document:

1. Cass Holt Road at Rex Road
2. N. Main Street at Earp Street
3. NC 55 from Bennet Knoll Parkway to Ralph Stephens Road/Teal Lake Drive

Map and Project Sheets

The figure on the following page shows the location of the Hot Spot and Safety Study locations. The following pages include project sheets for each of the identified locations. Each project sheets provides high-level information on the proposed improvement at each intersection identified by the map below.

Hot Spots and Safety Studies



NC 55 at W Holly Springs Road/New Hill Road

Existing Intersection Configuration

Configuration

The current configuration on NC 55 at W Holly Springs Road and New Hill Road is a traditional synchronized street with signals. This intersection is currently a type of Reduced Conflict Intersection and does not allow for left turns from New Hill Road or W Holly Springs Road.

In 2017, NCDOT drafted a potential interchange configuration for this intersection. A component of the CTP was to propose alternative interchange options for the northeast quadrant and compare potential impacts to the proposed NCDOT interchange.

Considerations

- NCDOT conceptual plans for square-loop intersection improvement
- On-going development near the intersection
- Congestion along W Holly Springs Road

Existing

NC 55 at Holly Springs Road/New Hill Road

Option #1

Improvements

- Tight Diamond Interchange
- Ramps east of NC 55
- Shift the ramp approximately 200 feet west of Earnie Lane

NCDOT Recommendation

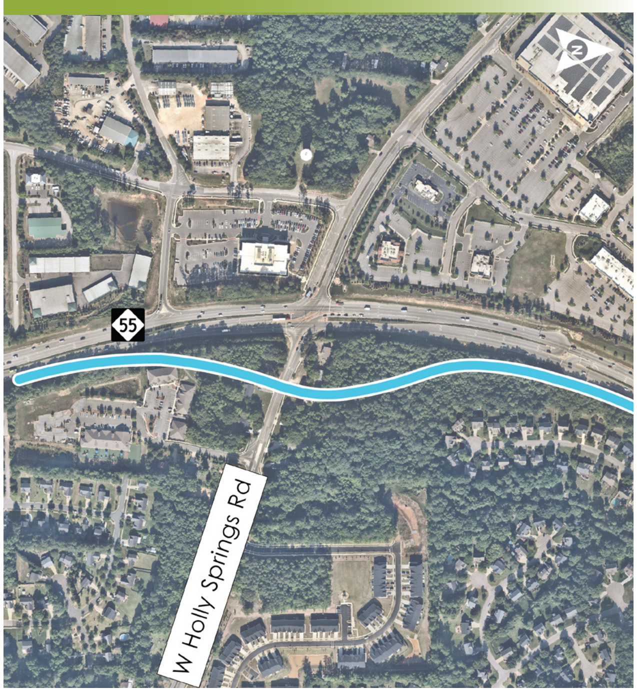
- Potential impacts to businesses south of W Holly Springs Road
- Fewer impacts than NCDOT alignment

Option #2

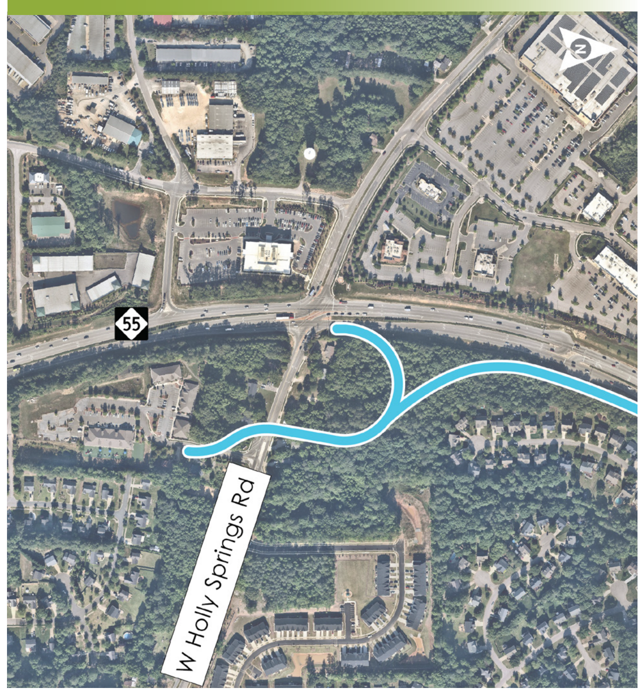
- Quarter Clover Interchange

- Potential impacts to parcel south of W Holly Springs Road
- Fewer impacts to parcels north of W Holly Springs Road
- Earnie Lane retains full access

Option #1



Option #2



The recommendations and designs on this page are conceptual only and not meant to be used for construction purposes. Further analysis and study is needed.

New Hill Road

Existing Intersection Configuration

Configuration

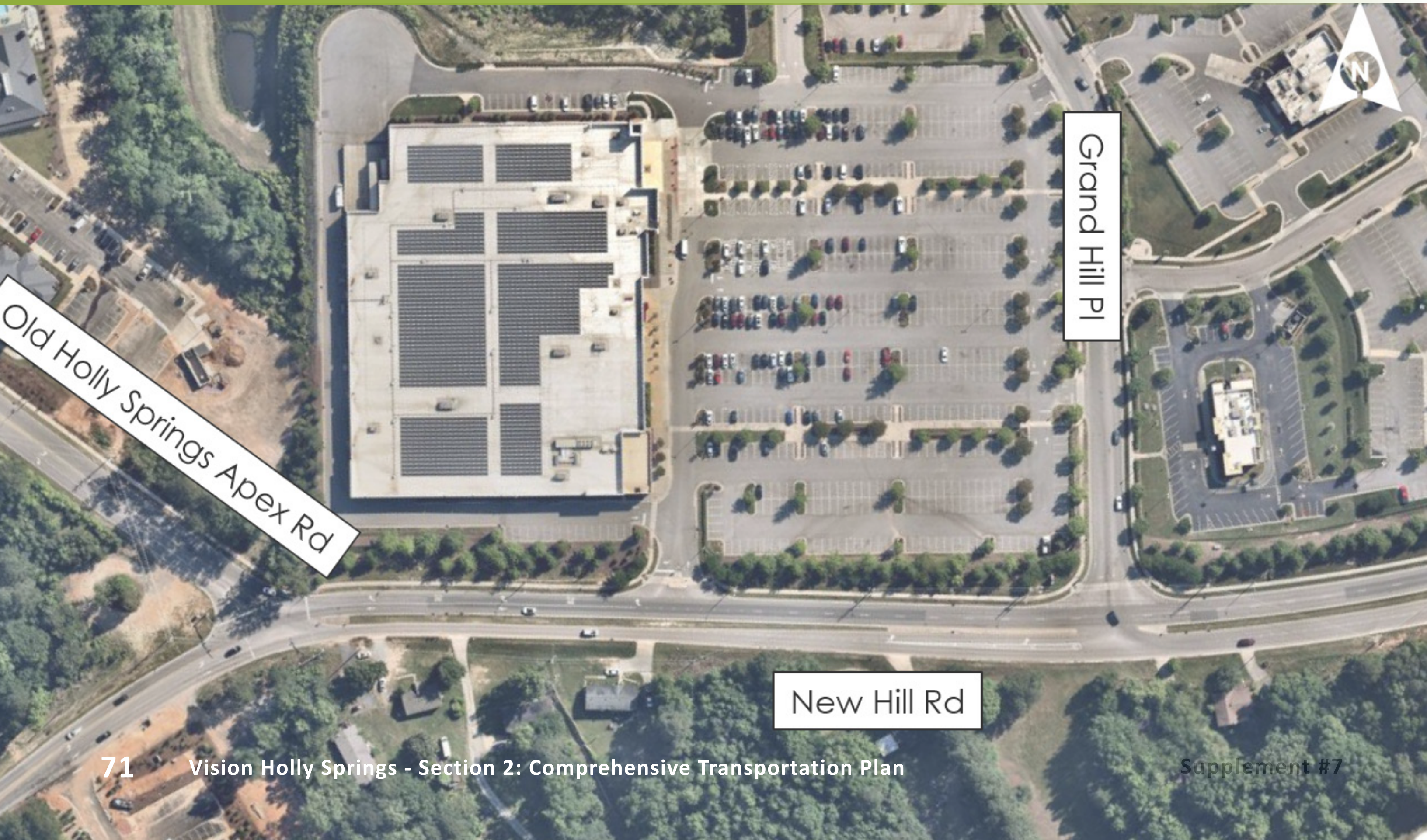
The current configuration at Grand Hill Place at New Hill Road is an unsignalized three-way intersection. At Old Holly Springs Apex Road at New Hill Road is a three-way intersection with a traffic signal.

Due to current and anticipated development, the existing configuration of these locations were flagged as safety concerns.

Considerations

- Existing three-way unsignalized intersection
- Concerns with safety
- Concerns with traffic turning off of Grand Hill Place

Existing



New Hill Road

At Grand Hill Place and Old Holly Springs Apex Road

Grand Hill Place

Near-Term Improvements

1. Add a traffic signal or limit cars from turning left onto New Hill Road

Long-Term Improvement

3. Reconfigure intersection to allow to turn left-in and right-in to Grand Hill Place and right-out only onto New Hill Road

Old Holly Springs Apex Road

2. Allow for U-Turns on New Hill Road at Old Holly Springs Apex Road

4. Four-way intersection with a traffic signal

Estimated Cost: $2,142,000

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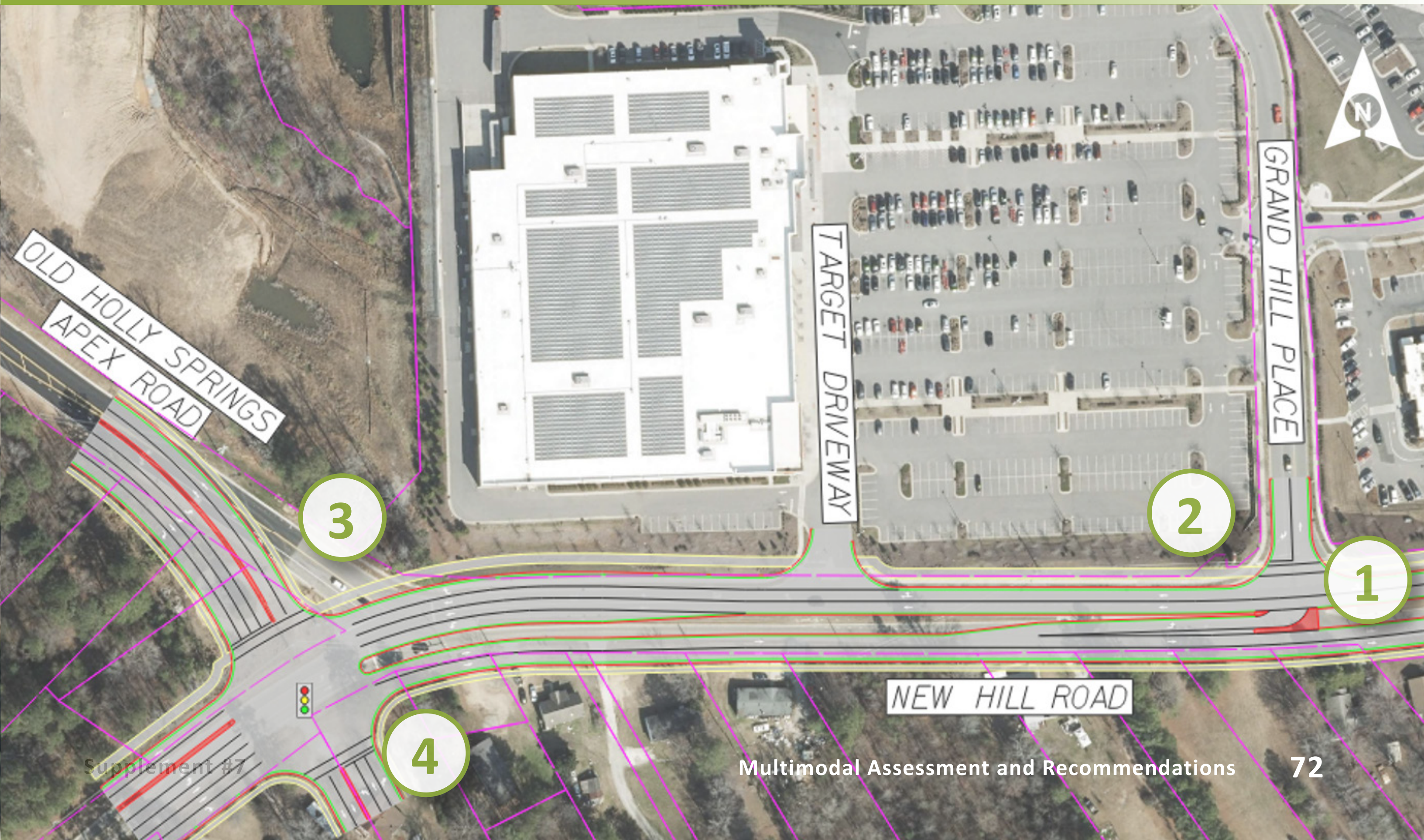
Proposed



Avent Ferry Road at Cass Holt Road and Capeside Avenue

Configuration

This intersection is currently a four-way offset intersection with a traffic signal at Avent Ferry Road and Cass Holt Road and a stop sign on Capeside Avenue.

Considerations

- High congestion because of the nearby schools
- Offset intersection design can cause safety issues

Improvements

Near-Term

1. Only allow cars to turn right into and out of Capeside Avenue

Long-Term

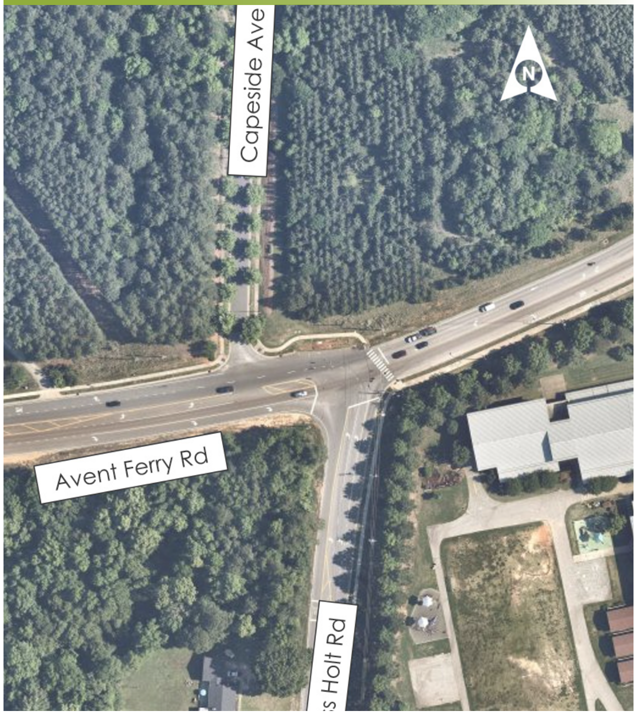
2. Realign either Capeside Avenue or Cass Holt Road to create a traditional, four-way intersection with a traffic signal

Estimated Cost: $1,341,000

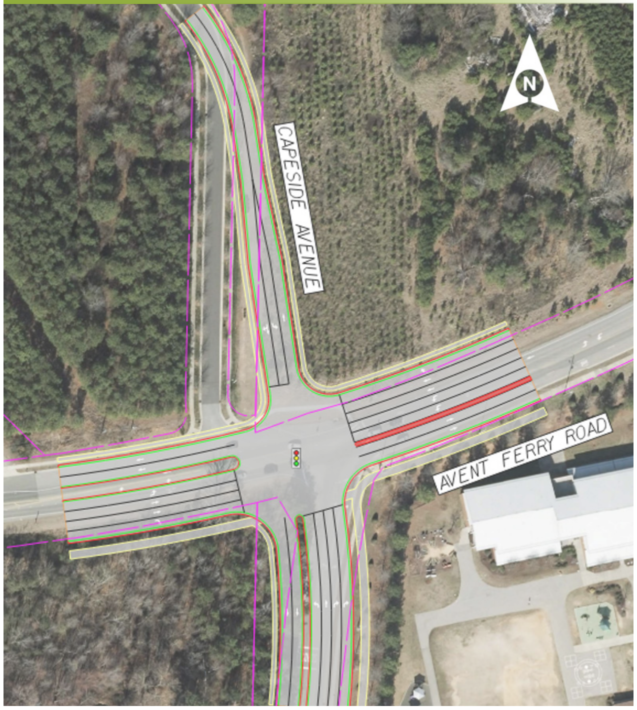
The recommendations and designs on this page are conceptual only and not meant to be used for construction purposes.

Further analysis and study is needed.

Existing



Proposed (Long-Term)



N. Main Street at Third Street

Configuration

The current intersection at N. Main Street and Third Street is a T-intersection where the roads meet. Third Street has a stop sign to turn onto N. Main Street.

Considerations

- Maintain Post Office access
- Potential connection to Raleigh Street
- Spacing of intersection on N. Main Street and impacts to traffic

Estimated Cost: $10,000

Improvements

Near-Term

1. Convert to allow cars to turn left-in and right-in to Third Street and right-out onto N. Main Street
2. Convert to allow cars to turn left-in and right-in to Raleigh Street and right-out onto Holly Springs Road

Long-Term

3. Study the potential for a roundabout on N. Main Street, north of Third Street

Proposed (Near-Term)

Cass Holt Road at Rex Road

Configuration

The location intersection is currently a four-way intersection with stop signs on both sides of Rex Road. There are no bicycle or pedestrian facilities.

Considerations

This intersection is identified by NCDOT as a high-severity crash location.

Improvements

Near-Term

- Remove sign obstructions (for example, by trimming trees)
- Add 'Intersection Ahead' signs
- Add stop sign and stop bar enhancements
- Add rumble strips or pavement markings

Long-Term

- Improve the visibility of the intersection
- Consider a single-lane roundabout

Proposed (Near-Term)

N. Main Street at Earp Street

Configuration

N. Main Street at Earp Street is currently a four-way intersection with stop signs on both sides of Earp Street. This intersection has provisions for pedestrians with both sidewalks and crosswalks.

Considerations

This intersection was identified as having high frontal impact crashes and an increase in crashes from 2018 to 2019.

Improvements

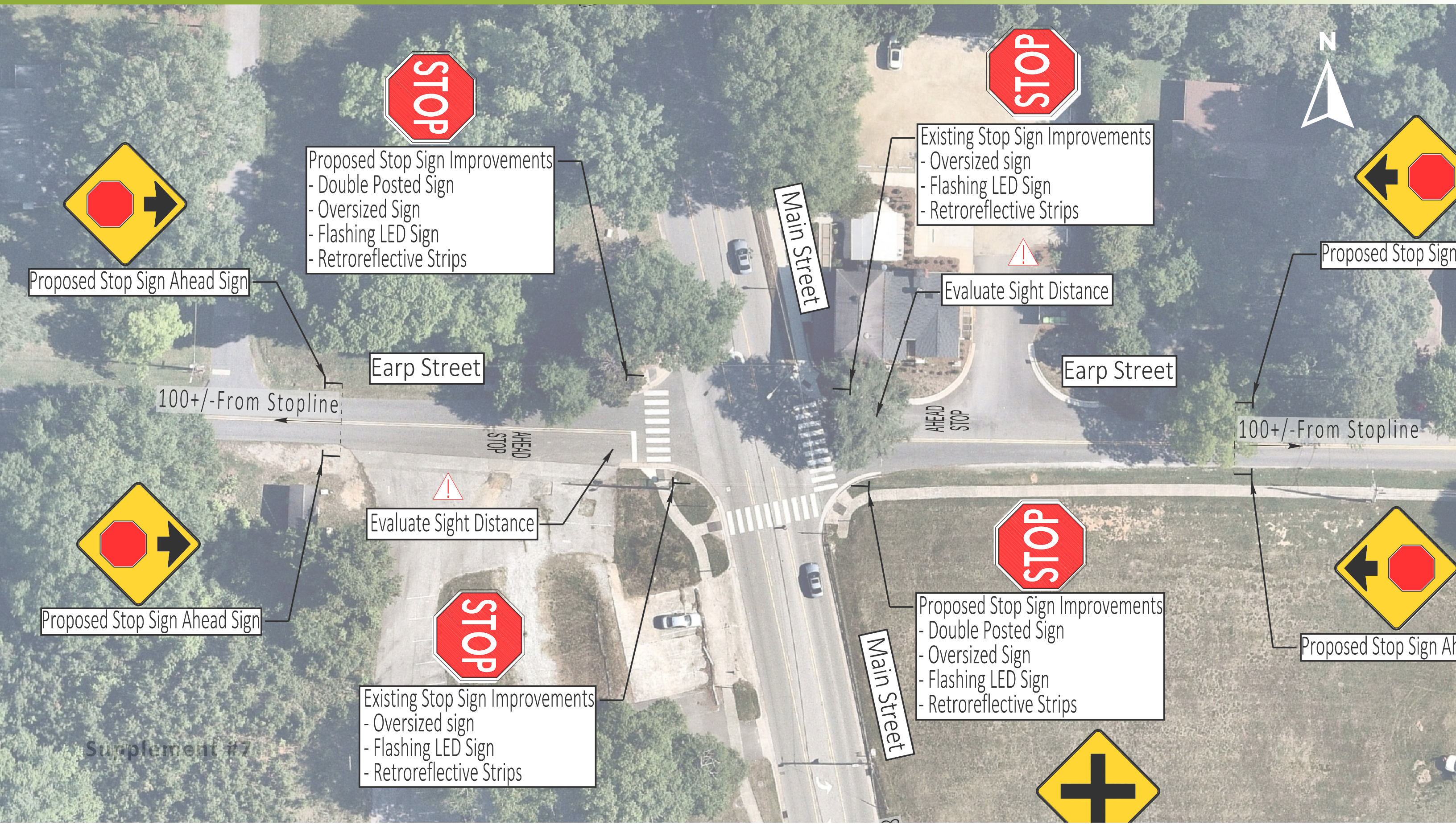
Near-Term

- Remove sign obstructions (for example, by trimming trees)
- Add 'Intersection Ahead' signs
- Add stop sign and stop bar enhancements
- Add rumble strips or pavement markings
- Evaluate reducing speed limit to 25 miles per hour

Long-Term

- Consider a single-lane roundabout

Proposed (Near-Term)



NC 55

From Bennet Knoll Parkway to Ralph Stephens Road/Teal Lake Drive

Configuration

This segment of NC 55 is about three miles long. It's a four-lane median divided roadway and operates as a synchronized street, type of Reduced Conflict Intersection, meaning it provides U-Turn options in place of conventional intersections.

Considerations

This segment of NC 55 and was chosen to be a Safety Study because the public identified NC 55 as a safety issue for pedestrians, particularly when tying to cross the road.

Best Practices

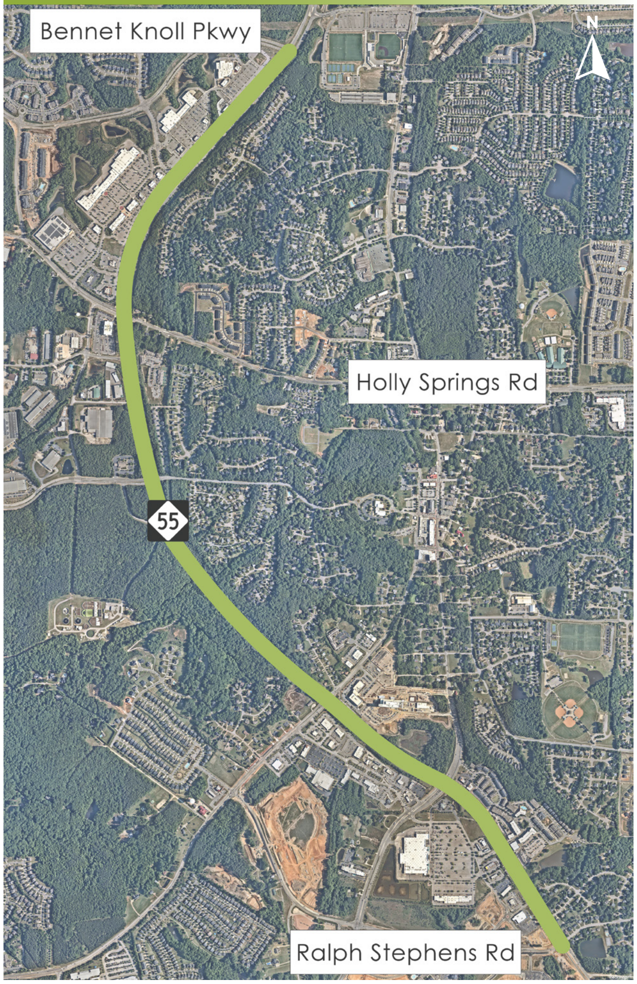
Near-Term

- Add high-visibility crosswalks
- Add set-back stop bars in slip lanes
- Add pedestrian crossing signs
- Prohibit cars from turning right on red

Long-Term

- Monitor need for pedestrian facilities
- Add pedestrian refuge island
- Add pedestrian accommodations such as crosswalks, push-buttons, and signals

Existing

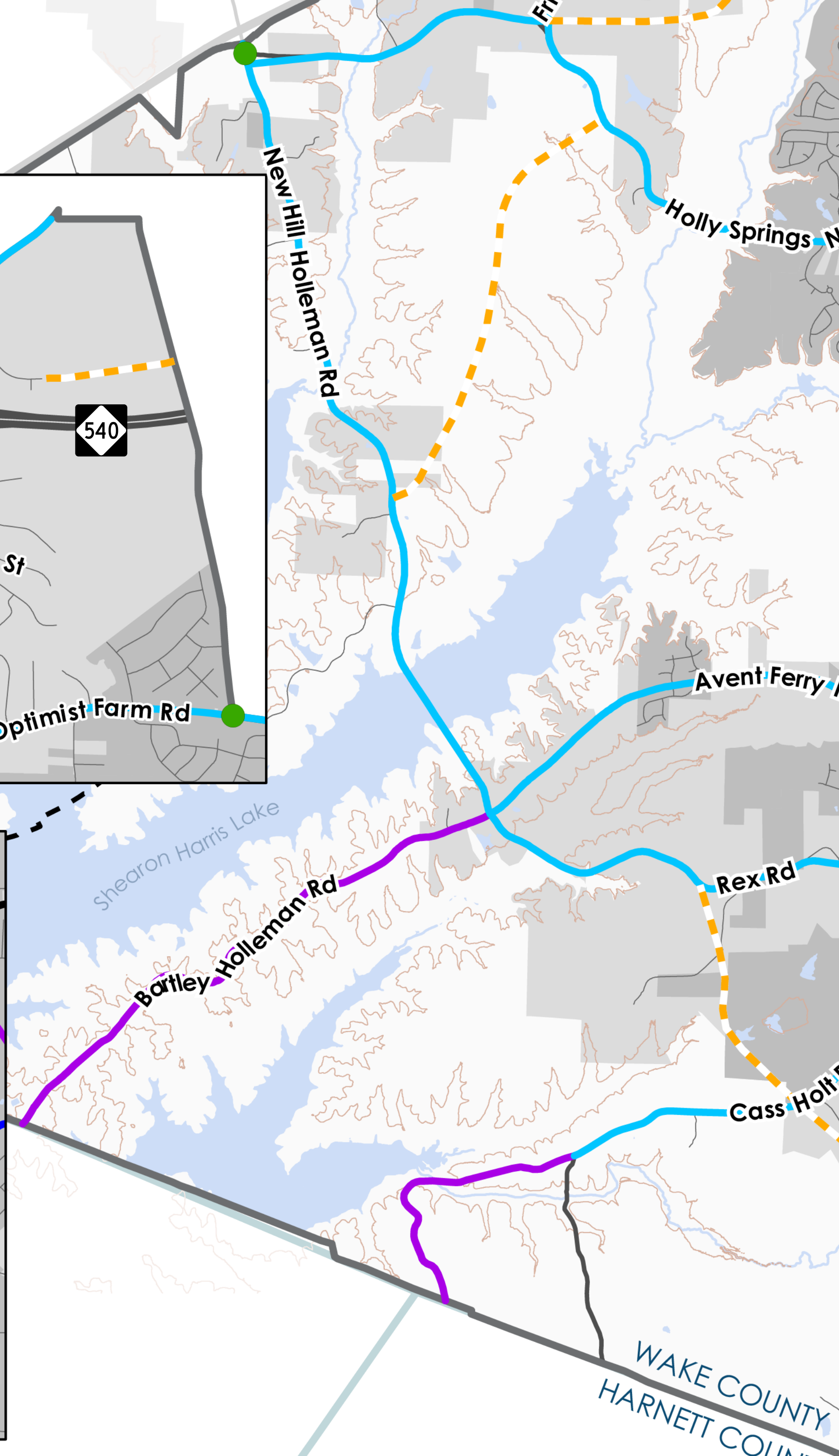


Commitment to Safety

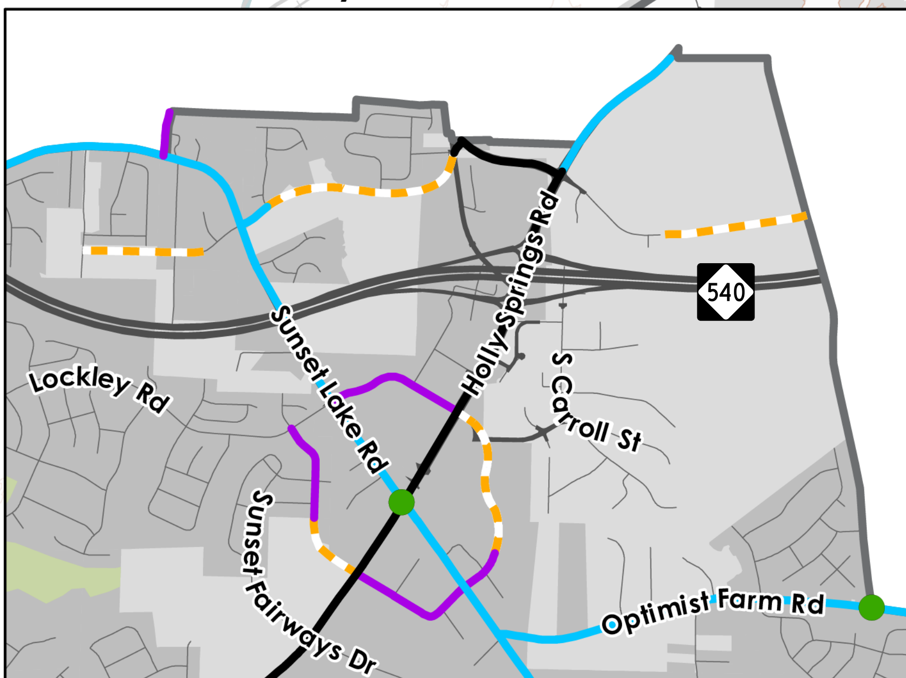
The Hot Spot and Safety Studies highlight a commitment to improving facilities for all users throughout Holly Springs. The Town will continue to commit resources to enhance safety for residents and visitors alike. For more information on pedestrian safety and improvements, refer to the Pedestrian Crossing toolkit on page 50 and Appendix I.

Recommendations Map: Roadway & Intersections

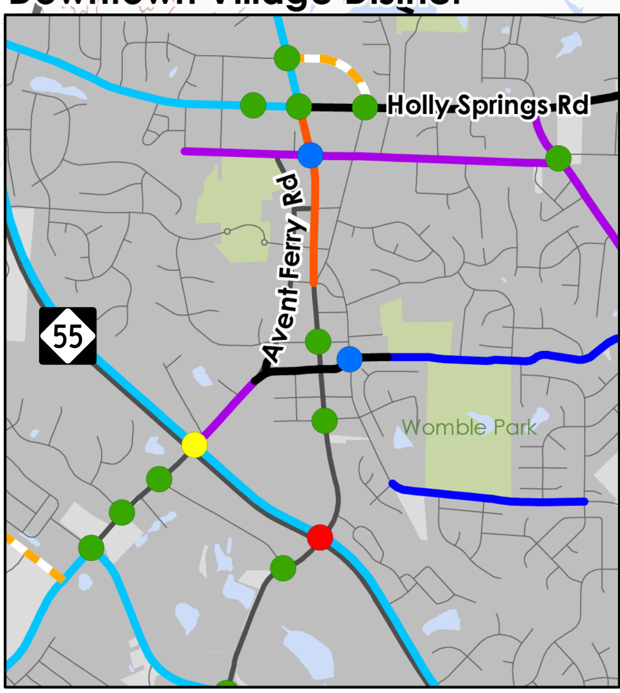
This map includes the delineated roadway and intersection projects that are prioritized and included in Chapter 4, the *Implementation Plan*.

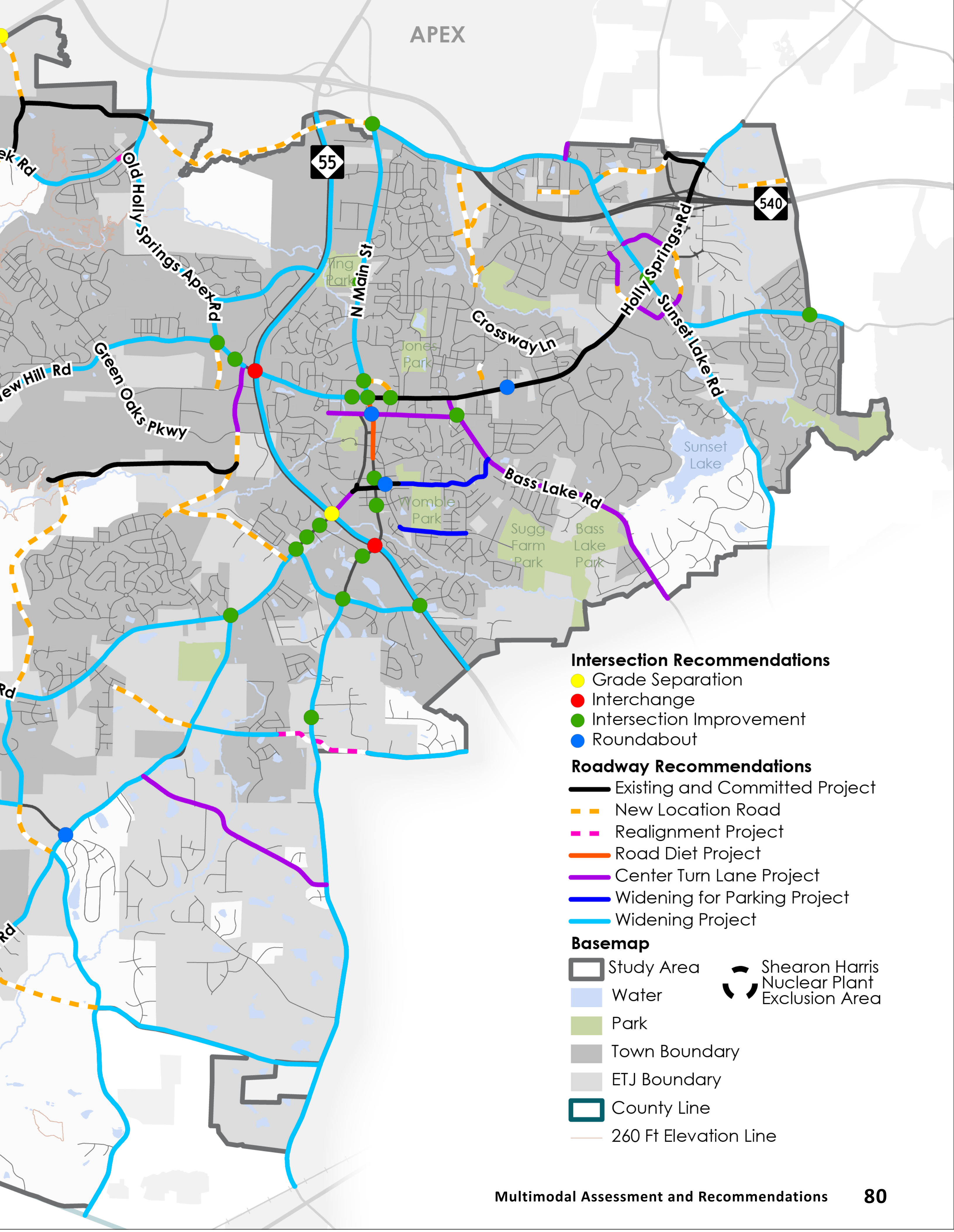


Northeast Gateway



Downtown Village District




APEX
Old Holly Springs Apex Rd
Green Oaks Pkwy
N Main St
Crossway Ln
Holly Springs Rd
Sunset Lake Rd
Bass Lake Rd
Jones Park
Womble Park
Sugg Farm Park
Bass Lake Park
Sunset Lake
55
540
Intersection Recommendations
Grade Separation
Interchange
Intersection Improvement
Roundabout
Roadway Recommendations
Existing and Committed Project
New Location Road
Realignment Project
Road Diet Project
Center Turn Lane Project
Widening for Parking Project
Widening Project
Basemap
Study Area
Water
Park
Town Boundary
ETJ Boundary
County Line
260 Ft Elevation Line
Shearon Harris Nuclear Plant Exclusion Area