

HOT SPOT FEASIBILITY ANALYSIS BIKE/PEDESTRIAN NETWORK GAP STUDY

EXISTING CONDITIONS TECHNICAL MEMO - FINAL

JULY 2022



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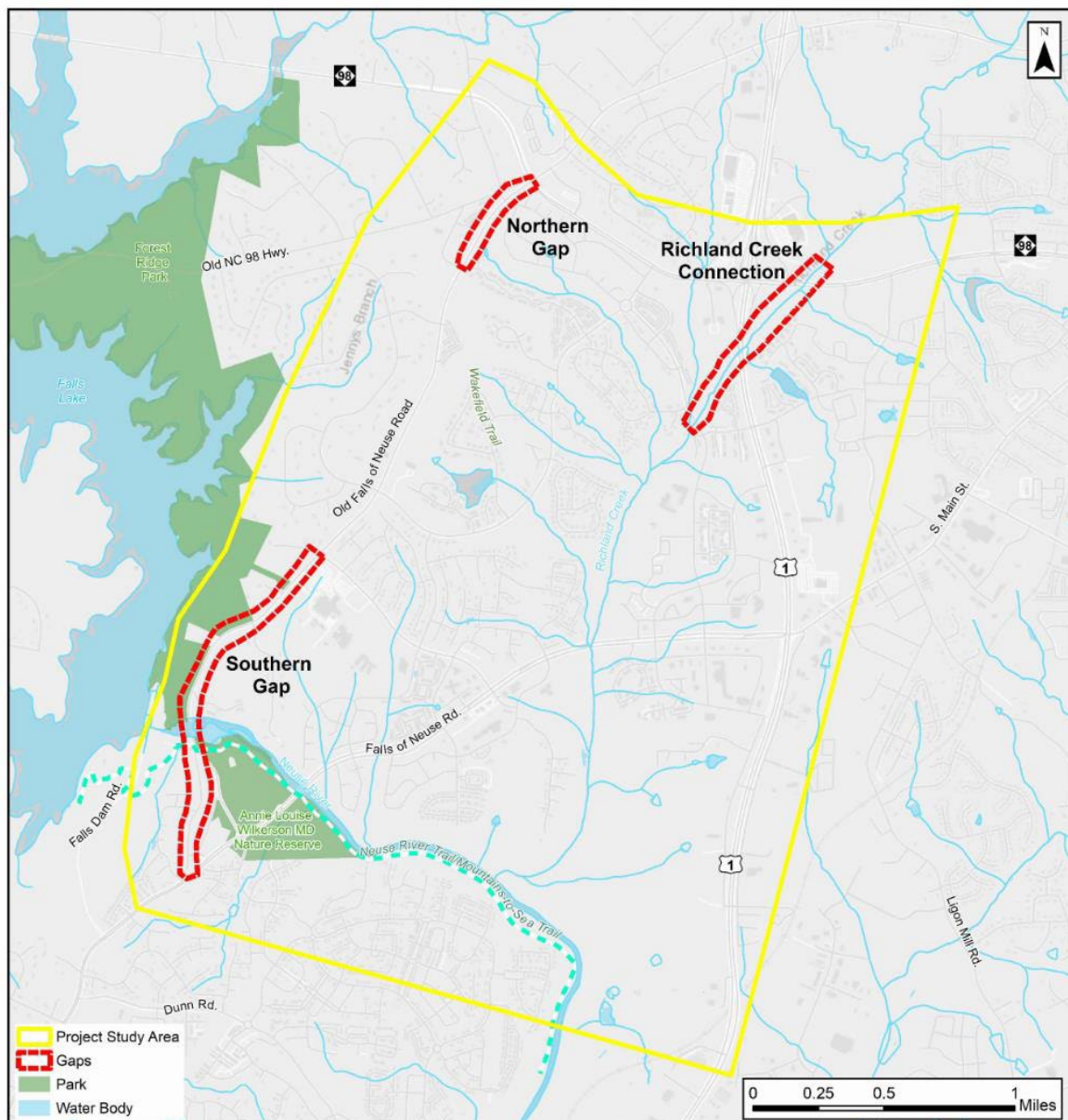
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1 Introduction and Project Description

To address the rapidly growing area and increasing demand for multi-modal amenities, the Capital Area Metropolitan Planning Organization (CAMPO) is assessing and providing an implementation plan for bicycle and pedestrian improvements at three locations (see **Exhibit 1**) in a multi-jurisdictional area:

- Northern Gap (located south of the intersection of Old Falls of Neuse Road & NC 98);
- Southern Gap (located along Old Falls of Neuse Road between Wakefield Pines Drive and Falls of Neuse Road); and
- Richland Creek Connection intersecting with US 1/Capital Boulevard at the border of Raleigh City limits and the Town of Wake Forest.

Exhibit 1: Project Study Area and Gaps



This Existing Conditions Technical Memorandum will focus on the bicycle and pedestrian network around Old Falls of Neuse Road between NC 98 (Durham Road) and the Neuse River. The area contains several gaps in the bicycle networks of the City of Raleigh and the Town of Wake Forest, particularly in the connection of the Neuse River Trail in Raleigh to the NC 98 (Durham Road) multi-use path in Wake Forest. Human and environmental resources are also examined, as bicycle facilities are frequently informed by the location of community resources. Additionally, the Existing Conditions Technical Memorandum will assess existing conditions using historic turning volumes and trends at the Northern Gap, Southern Gap, and Richland Creek Connection.

2 Existing Conditions

2.1 Human and Natural Environment

2.1.1 Water Resources

Numerous water features are within the vicinity of the Project Study Area (PSA). A portion of Falls Lake is located to the west of the PSA. Falls Lake is an approximately 12,500-acre reservoir spanning across Durham, Wake and Granville Counties. To restore water quality in the lake, an NC DEQ Strategy is in place to reduce the amount of pollution entering the lake from upstream. Restoration and protection of the lake is essential because it serves as a water supply for many communities, as well as a popular recreation area. However, nutrient-related pollution has caused water quality problems in Falls Lake. Since 2008, the reservoir has exceeded the state's chlorophyll-a standard, which measures the impacts of nutrient pollution on the lake. The Falls Lake Nutrient Management Strategy was implemented in 2011 to reduce nutrient inputs to the lake from wastewater discharges, stormwater runoff from new and existing development, and agricultural sources.¹ The area within Falls Lake Watershed boundary, as depicted in **Exhibit 2** aims to keep the area as natural as possible; it is essential that public and private improvements within and near the watershed be designed to minimize impacts to water quality.

The Neuse River is another major water resource that runs east to west towards the southernmost portion of the PSA. The Neuse River spans 275 miles and is the longest river entity contained entirely in North Carolina. There are numerous unnamed tributaries stemming from the Neuse River throughout the PSA. Jenny's Branch is the only named tributary stemming from the Neuse River.

Richland Creek bisects the PSA from north to south, coinciding with the Neuse River at its southernmost terminus.

2.1.2 NWI Wetlands

National Wetlands Inventory (NWI) wetlands are present throughout the PSA. There is a high concentration of NWI Wetlands surrounding Falls Lake, the Neuse River and Richland Creek.

2.1.3 FEMA Floodplains

Exhibit 2 depicts FEMA flood zone AE, which represents a 1% annual chance of flooding, or are subject to a 100-year flood. Zone AE presents the highest probability of flooding. Flood zone AE surrounds Falls Lake, the Neuse River, Richland Creek, and several tributaries.

¹ <https://deq.nc.gov/about/divisions/water-resources/water-planning/nonpoint-source-planning/falls-lake-nutrient-strategy#overview-background--maps>

2.1.4 Historic Resources

A desktop review of the North Carolina State Preservation Office historic resources in the project area revealed several Historic Resources within the PSA, including four National Register Historic Districts, listed below:

- Falls of Neuse Manufacturing Company (Listed 1983)
- Purefoy-Dunn Plantation (Listed 1988)
- Thompson House (William Thompson House) – current site (Listed 2005)
- Wakefield Dairy Complex (Listed 2003)

Additionally, there are five National Register Sites within the PSA; some of these coincide with the National Register Historic Districts:

- Falls of the Neuse Manufacturing Company (Site ID: WA0189)
- Purefoy-Dun Plantation (Site ID: WA0221)
- Thompson House (William Thompson House) (Site ID: WA8357)
- Wakefield Dairy Complex (Site ID: WA1448)
- Powell House (Site ID: WA 0040)

In addition to the National Register districts and sites, there are 63 Surveyed Only sites, two State Listed sites, and four Determination of Eligibility of sites.

2.1.5 USTs, Hazardous Materials

According to the North Carolina Department of Environmental Quality (NCDEQ), there are 16 USTs and two Hazardous Waste Sites within the PSA.

2.1.6 Parks and Recreational Facilities

2.1.6.1 Parks

Parks and Recreational facilities are located throughout the PSA. Forest Ridge Park is located at the western edge of the PSA and is located adjacent to Falls Lake. The park is made up of approximately 590 acres and includes mountain biking and multi-use trails, fishing amenities, a playground, a 9-hole disc golf course, a wildlife garden and recreational nature programs that focus on fitness and nature education for children.

The Annie Louise Wilkerson MD Nature Reserve is located south of Forest Ridge Park adjacent to Falls Lake. In 2006, 157 acres was gifted to create a designated nature preserve. The primary purpose of the nature preserve is to educate the public on nature and wildlife. The park offers community programs such as bird watching, astronomy nights, nature play and arts classes to groups. Additionally, the park offers loaner equipment such as binoculars, nature play areas, hiking and wildlife watching and native plant gardens.

2.1.6.2 Trails and Greenways

Within Forest Ridge Park, there are paved and unpaved trails that traverse the park. There are 3 miles of single-track mountain bike trails including both a 2-mile loop and a 1-mile loop, 1.25 miles of unpaved multi-use trails, 4 miles of natural surfaced hiking trails, and additional paved trails.

The Annie Louise Wilkerson MD Nature Reserve contains three loop trails, under one-half mile in length, the Epps Forest Loop, The Hidden Rocks Trail, and the Pond Loop. In addition, the Mountains-to-Sea Connector links the preserve's trails to the Mountain-to-Sea Trail.

In addition to the trails within the parks, there are several existing greenways that bisect the PSA. The Neuse River Trail is an approximately 35-mile-long paved greenway located along the banks of the Neuse River from Falls Lake Dam to the Town of Clayton, North Carolina. The Neuse River Greenway trail is part of the Capital Area Greenway system as well as the North Carolina Department of Transportation (NCDOT) Mountains-to-Sea Trail, which traverses across North Carolina from the Great Smokey Mountains to the Outer Banks. It is open to cyclists and pedestrians, and it is the longest greenway trail in North Carolina.

The Wakefield Trail bisects the PSA from north to south and follows this existing Duke Energy Progress power easement from Old Falls of Neuse Road to Dunard Street and runs parallel to Wakefield Plantation Country Club. The trail is unpaved from London Bell Drive to Dunard Street and is just under 1.5 miles in length.

2.1.7 Community Facilities

Numerous community facilities exist within the PSA and include ten places of worship, six public schools, one private school, eight childcare facilities, one medical facility and seven cemeteries.

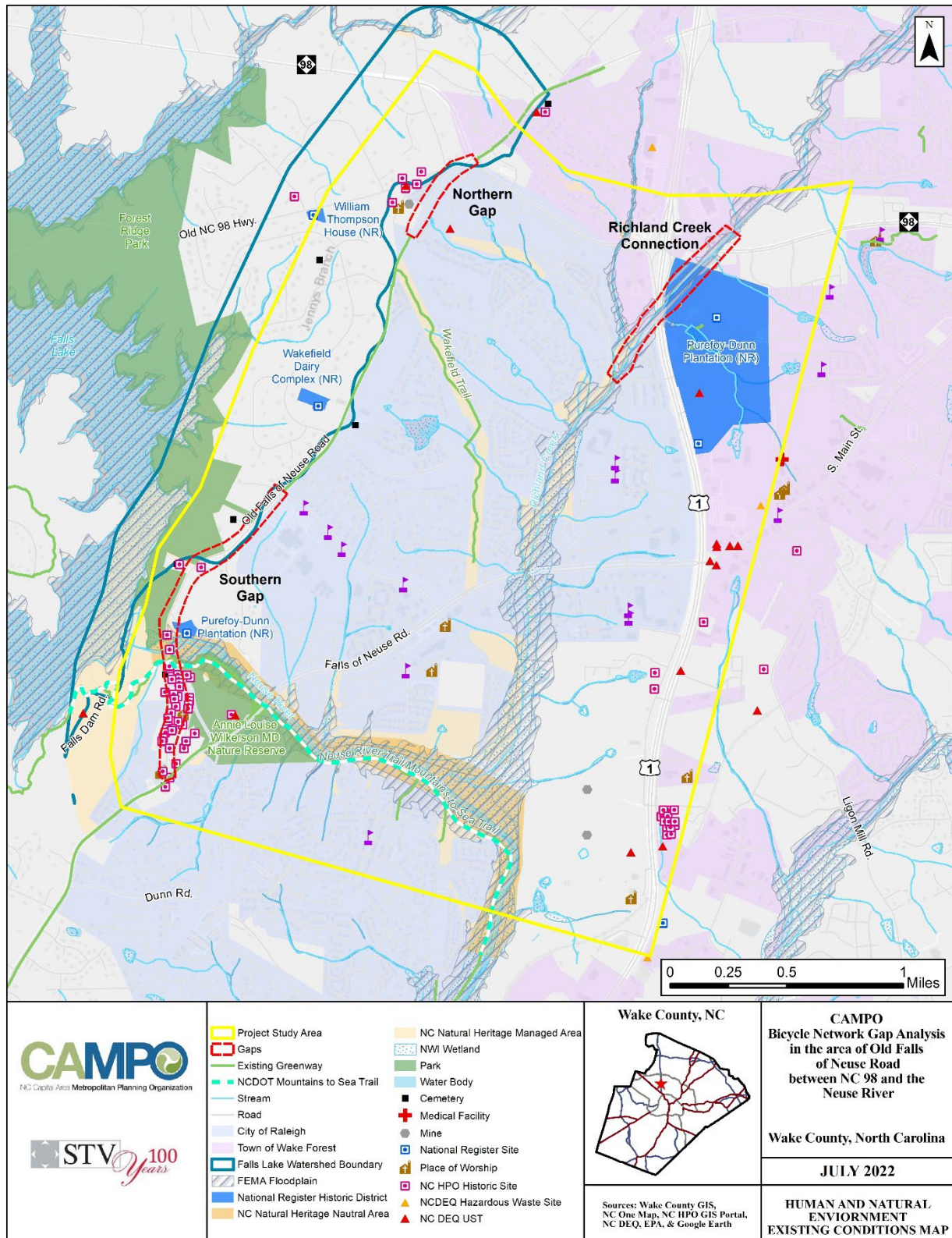
Additionally, two mines are located within the PSA and include the Wakefield Prospect, which produces mica, and the Raleigh Quarry, which produces crushed and broken stone.

The North Carolina Natural Heritage Program is a program of the Division of Land and Water Stewardship within the North Carolina Department of Natural and Cultural Resources. The North Carolina Natural Heritage Program maintains a database of natural and managed areas throughout the state. The National Heritage Program determined that the Upper Neuse River Floodplain qualifies as a natural area; natural areas are determined to document areas throughout North Carolina for rare animals, plants, wetlands, riparian areas, and plant communities. This area surrounds the Neuse River towards the southernmost portion of the PSA.

The North Carolina Natural Heritage Program also accounts for Managed Areas, which is any land that is owned by a local, state, or federal governmental entity including parks, easements, greenways, or mitigation sites. The Wakefield Trail, Falls Lake, Forest Ridge Park, the Neuse Trail as well as numerous easements and government-designated open space parcels are considered managed areas and are located throughout the PSA.

Human and environmental resources within the PSA can be seen in **Exhibit 2**.

Exhibit 2: Human and Natural Environment



2.2 Local Plans and Policies

2.2.1 City of Raleigh BikeRaleigh Plan

Description

The BikeRaleigh Plan, adopted in 2016, is the City's primary guiding resource for its bicycle and pedestrian framework. The common themes throughout the plan include the provision of a network that allows people of all ages and abilities to bicycle comfortably and safely across Raleigh. The purpose of the plan is to improve cycling conditions to bring multimodal benefits, fitness, and enjoyment to the City's network.

Relevancy

According to the 10-Year Priority Plan chapter of the BikeRaleigh Plan, a multi-use path along Old Falls of Neuse Road from Wakefield Pines Drive to Garden Hill Drive is proposed. This would provide a connection between the existing Neuse River trail along the Neuse River to the south and the section of the Neuse River trail that runs along Old Falls of Neuse Road.

2.2.2 Town of Wake Forest Comprehensive Transportation Plan

Description

The Wake Forest Comprehensive Transportation Plan was initially published in October 2019 and updated in December 2021. The Comprehensive Transportation Plan is a vision for the future of multimodal transportation, a guide for future roadway, transit, bicycle, and pedestrian network for the City of Wake Forest. The plan is not fiscally constrained and identifies existing land use and transportation conditions as well as transportation needs and solutions for the next 20 to 25 years.

Relevancy

Chapter 4 of the plan describes the existing, under construction, designed, and proposed bicycle and pedestrian networks in the neighboring Town of Wake Forest. The Future Greenway Network map shows a proposed greenway along Richland Creek towards the northeast corner of the PSA, which intersects NC 98 and US 1/Capital Boulevard and eventually joins the existing Neuse River Trail in the City of Raleigh. The plan also shows the origins and destinations for bicycle and pedestrian travel patterns, obtained from comments from the public in 2018. There are concentrations of destinations, especially for bicyclists, towards the outer limits of Raleigh, south of NC 98, along Old Falls of Neuse Road, as well as nearby Wakefield High School.

2.2.3 CAMPO 2050 Metropolitan Transportation Plan

Description

The CAMPO 2050 Metropolitan Transportation Plan (MTP) is the guiding document for future investments in roads, transit services, bicycle and pedestrian facilities and related transportation activities and services to match the growth expected in the Research Triangle Region. The plan focuses on:

- New and expanded roads where needed, and re-designed roads for safer, better multimodal travel;
- Local and regional transit facilities and service, including rapid bus and rail lines;
- Aviation and long-distance passenger and freight rail services;
- Bicycle and pedestrian facilities, both independent projects and in concert with road projects;

- Transportation Demand Management: marketing and outreach efforts that increase the use of alternatives to peak period solo driving;
- Technology-Based Transportation Services: the use of advanced technology to make transit and road investments more effective—including the advent of autonomous and connected vehicles.

Relevancy

The MTP proposes to widen Old Falls of Neuse Road from New Falls of Neuse Boulevard to NC 98 Bypass. The current facility is a minor throughfare; the future facility would be a major thoroughfare. This project is also included in the Comprehensive Transportation Plan. The MTP also indicates a widening of US 1/Capital Boulevard to a six-lane freeway from Falls of Neuse Road to NC 98. (Durham Road). A frontage road runs from Caveness Farms Avenue to the south, parallel to Richland Creek, and terminates at US 98 (Durham Road). The project is funded in the NCDOT STIP and is identified as U-5307C. The horizon year for this project is 2040.

2.2.4 WalkBikeNC

Description

WalkBikeNC is North Carolina's Bicycle and Pedestrian Plan. It was adopted by the NCDOT Board of Transportation in December 2013. The five pillars of the plan include safety, health, economy, mobility, and environment. The plan serves as a guide for state agencies, local governments, and private sector interests to develop a transportation system that safely accommodates walking and bicycling across North Carolina

Relevancy

The plan cites dramatic population growth in the greater Triangle region and a subsequent need for increased bicycle and pedestrian facilities. The Mountains-to-Sea State Trail is also mentioned in the plan and is a unit of the North Carolina State Parks system. The Neuse River Greenway is part of the Mountains-to-Sea Trail, running from the base of Falls Lake Dam through Raleigh and connecting to Clayton in Johnston County. It is 35 miles in length and requires no street crossings.

2.2.5 Raleigh Comprehensive Plan

Description

The 2030 City of Raleigh Comprehensive Plan, updated in 2019, establishes a vision for the City, provides policy guidelines for growth and development and contains action items directed to implement the overall vision.

Relevancy

The plan cites the City of Raleigh's extensive parks, recreation and greenway system that encompasses 8,800 acres of land out of Raleigh's 90,000 acres within the municipal boundary. Offering multimodal transportation design, including pedestrian walkways, bikeways, public transportation, roadways, railways, and aviation is a priority. The plan emphasizes that street patterns of newly developed areas should provide multimodal alternatives within the City of Raleigh.

2.2.6 PLANWake Comprehensive Plan

Description

Adopted in 2021, Wake County's PLANWake Comprehensive Plan directs growth to existing towns, supports the development of connected and walkable transit-supportive centers and works with rural landowners to protect open spaces, farms, and forests.

Relevancy

The plan does not specify any future or existing bicycle or pedestrian facilities. However, it does say bicycle and pedestrian infrastructure must support transit systems to achieve a transit-focused community vision.

2.2.7 Town of Wake Forest Community Plan

Description

Revised in March 2022, the Town of Wake Forest Community Plan is Wake Forest's new comprehensive land use plan that creates a long-term vision for the Town to implement over the next 10 to 20 years.

Relevancy

The project area is within a Watershed Protection Overlay Zone. The Richland Creek Watershed Protection Overlay Zone is intended to preserve water quality in the Town's water supply watersheds to provide safe drinking water. They establish regulations that ensure the availability of public water supplies for present and future residents.

2.2.8 Wake County Greenway Plan

Description

The Wake County Greenway System Plan was prepared for Wake County Parks, Recreation and Open Space (PROS) with the help from residents, business leaders, developers, and government staff in 2017. The vision of the plan is to create a connected and comprehensive greenway trails system that enhances the quality of life throughout Wake County. The plan focuses on establishing greenway connections using natural corridors (such as those along waterways) rather than manufactured corridors (such as roadways). Goals of the plan include:

- Improving access to outdoor recreation for health and wellness,
- Increasing connectivity for multi-modal transportation,
- Supporting economic development and capitalizing on trail-based tourism,
- Protecting waterways, wildlife habitat, and natural areas along greenways.

Relevancy

The greenway system recommendations of the Wake Forest Open Space and Greenways Plan are broken down into two primary phases for future development: Phase 1 - Smith Creek and Dunn Creek Corridors (key north/south corridors that connect Wake Forest with the Neuse River), and Phase 2 - Richland Creek, Sanford Creek, and the NC 98 Bypass Corridors. The plan shows the 147 miles of proposed trail, made up of over 30 project segments, including Project 2B- *Richland Creek Greenway*.

2.2.9 Capital Area Greenway Master Plan

Description

The Capital Area Greenway Master Plan (updated 2022) is a policy document designed to assist the City of Raleigh with direction and implementation of the Capital Area Greenway (CAG) program. The two primary elements included in the CAG Plan are trails (linear parks that may be paved or unpaved) and open space corridors (greenway corridors that are exclusively located along streams). The existing CAG system includes 117 miles of trails and 371 miles of corridors.

Relevancy

The Neuse River Trail, Richland Creek trail, and Wakefield Trail are existing components of the CAG system, and the Neuse River Trail is part of the NCDOT Mountains-to-Sea Trail.

2.2.10 WalkRaleigh/ Raleigh Comprehensive Pedestrian Plan

Description

WalkRaleigh offers resources for residents and visitors to find trails, petition for new sidewalks, report sidewalk issues, stay up to date on upcoming pedestrian projects, and more pedestrian related content. WalkRaleigh adopted the 2013 Raleigh Comprehensive Pedestrian Plan, which promotes a walkable Raleigh by recommending safe, convenient pedestrian facilities and connections to key destinations. The plan (which serves as a companion to Raleigh's 2009 Bicycle Transportation Plan) helps to guide investments in sidewalks and crossings to improve the quality of life and safety of the existing pedestrian network; and identify ways to increase the awareness and benefits of walking. A review of existing conditions for the pedestrian network and pedestrians' experience using that network revealed four key recommendations:

- Install sidewalks where there are gaps,
- Maintain sidewalks where they exist,
- Make it easier (and safer) for pedestrians to cross the street, and
- Change motorists' behavior with respect to pedestrians (especially at intersections).

Relevancy

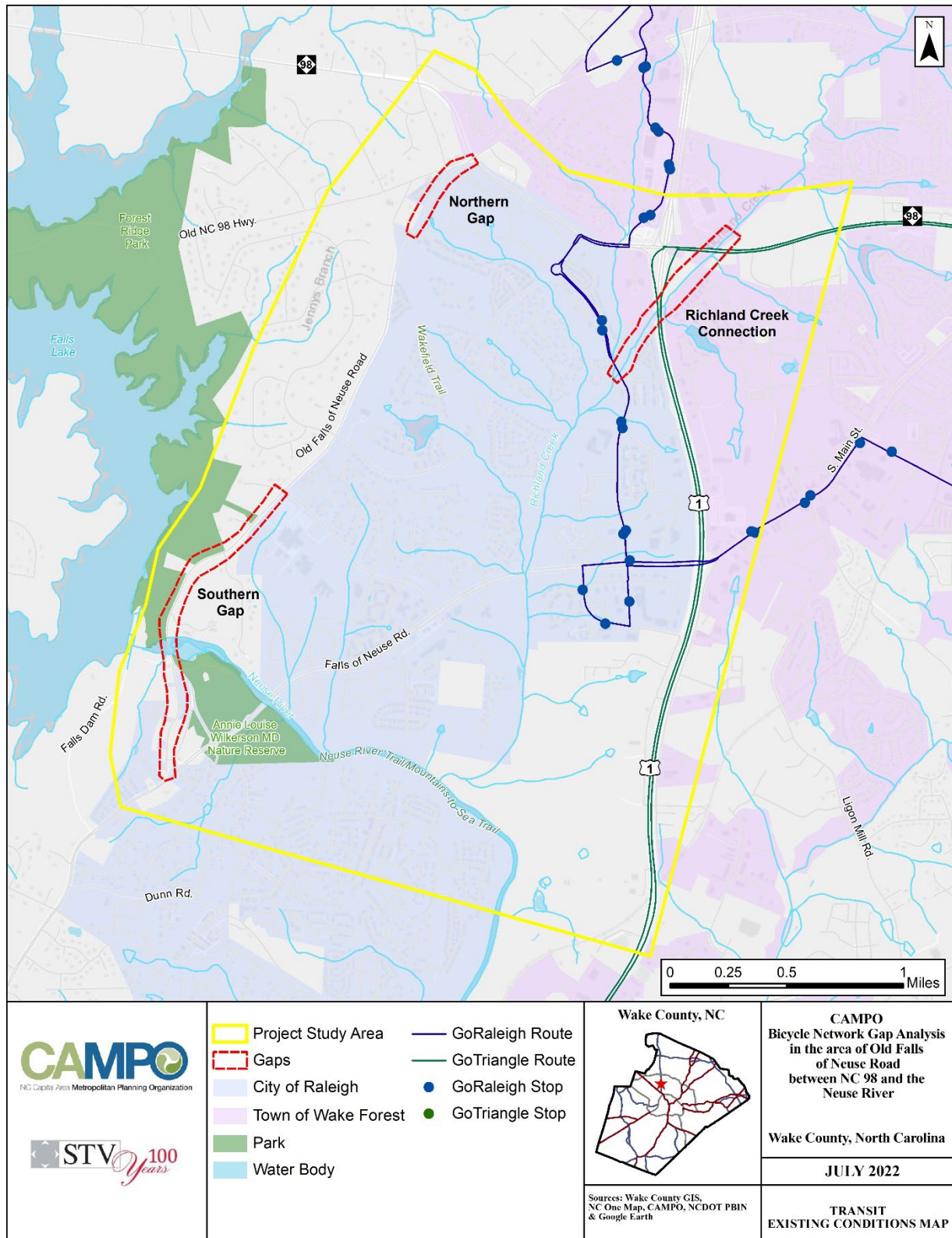
According to the plan, Community Walk respondents identified four intersections and routes within the PSA that need improvements due to inaccessibility, uncomfortableness, or difficulty to use:

- The intersection at NC 98 & Wakefield Plantation Drive
- The area nearby US 1/Capital Boulevard and the Shoppes at Wake Forest
- The intersection at Wakefield Pines Drive & Wakefield Middle School
- The neighborhood of Glen Stone at Wakefield Plantation

2.3 Existing Transit

Within the PSA, there is one GoRaleigh route, the Wake Forest Loop, with stops along Retail Drive, Forest Pines Drive, Common Oaks Drive, and Falls of Neuse Road as shown in **Exhibit 3**. There are no other transit routes with stops within the PSA.

Exhibit 3: Existing Transit Map



2.4 Existing Bicycle and Pedestrian Network

Existing conditions within the PSA for bicycle and pedestrian facilities were analyzed to identify network improvements that could be made, particularly within and nearby the three gaps studied in this analysis: Northern Gap, Southern Gap, and Richland Creek Connection. The lack of bicycle and pedestrian infrastructure within these gaps are major deficiencies in the overall network. NCDOT's Pedestrian and Bicycle Infrastructure Network (PBIN), STRAVA, and Google Earth were used to analyze existing network conditions, identify insufficient bicycle and pedestrian facilities, and evaluate connectivity for active transportation in the PSA.

2.5 Existing Network Gaps

2.5.1 Northern Gap

The Northern Gap is a 0.4-mile stretch along the northern end of Old Falls of Neuse Road that is without any bike or pedestrian facilities at the northwestern corner of the PSA. The gap's southern end is located at Old Falls of Neuse Road and Garden Hill Drive and its northern end is located at the intersection of NC 98 and Old Falls of Neuse Road.

North of the Northern Gap, a shared-use path runs along the northbound side of Durham Road and leads to the intersection of Old Falls of Neuse Road and NC 98. This intersection lacks crosswalks and pedestrian signals on all four legs.



Old Falls of Neuse Road at NC 98 (facing south)



Old Falls of Neuse Road at Garden Hill Drive (facing north)

South of the Northern Gap, the multi-use path along the northbound side of Old Falls of Neuse Road ends at the southeast corner of the intersection of Garden Hill Drive at Old Falls of Neuse Road. The northeast corner of Garden Hill Drive is equipped with a sidewalk which ends as it becomes parallel with Old Falls of Neuse Road. There are no crosswalks serving the ramps on each side of Garden Hill Drive.

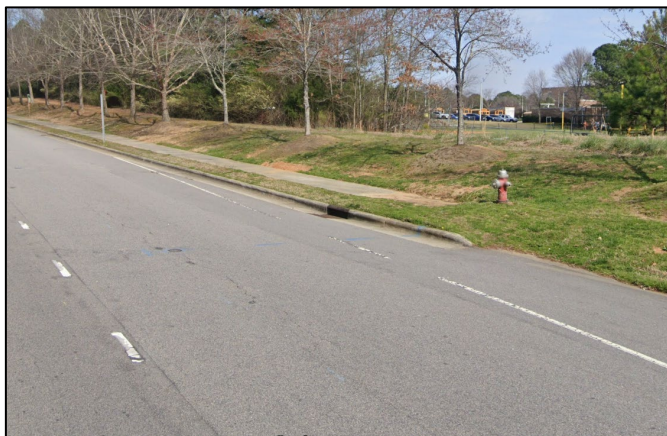
2.5.2 Southern Gap

The Southern gap is a 1.3-mile section along the southern end of Old Falls of Neuse Road located in the southwest portion of the PSA. This gap includes the roadway along Old Falls of Neuse Road in between Falls of Neuse Road to the south and Wakefield Pines Drive to the north.

The northern part of the Southern gap includes a sidewalk, connected to the multi-use path on the northeast corner of the intersection of Wakefield Pines Drive at Old Falls of Neuse Road which ends approximately 500 feet south of the southern driveway of Wakefield High School.



View from the northern end of the Old Falls of Neuse bridge over the Neuse River facing north



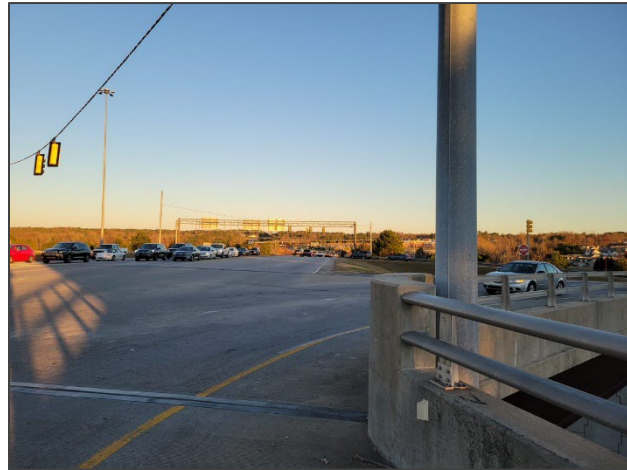
Old Falls of Neuse Road at Garden Hill Drive (facing north)

The gap deviates from Old Falls of Neuse Road towards the southern section and proceeds along Fonville Road, which is currently a dead-end road which stops approximately 75 feet from Falls of Neuse Road. According to STRAVA's global heat map, some bicyclists and pedestrians use Fonville Road and walk, run, ride over the 75-foot patch of grassy land to access Falls of Neuse Road (or in the opposite direction).

2.5.3 Richland Creek Connection

The proposed greenway, known as the Richland Creek Connection, is located at the northeastern corner of the PSA along Richland Creek and intersects with US 1/Capital Boulevard from the Town of Wake Forest to Raleigh city limits. The greenway would follow Richland Creek south and eventually provide a connection point to the Neuse River Trail approximately 2.3 miles from its crossing of US 1/Capital Boulevard.

The Connection appears in the Wake Forest Comprehensive Transportation Plan as a proposed greenway that runs north through Wake Forest to the Town of Youngsville in Franklin County.



*US 1/Capital Boulevard at NC 98 (Durham Road)
Interchange*

2.6 Existing Bicycle Facilities

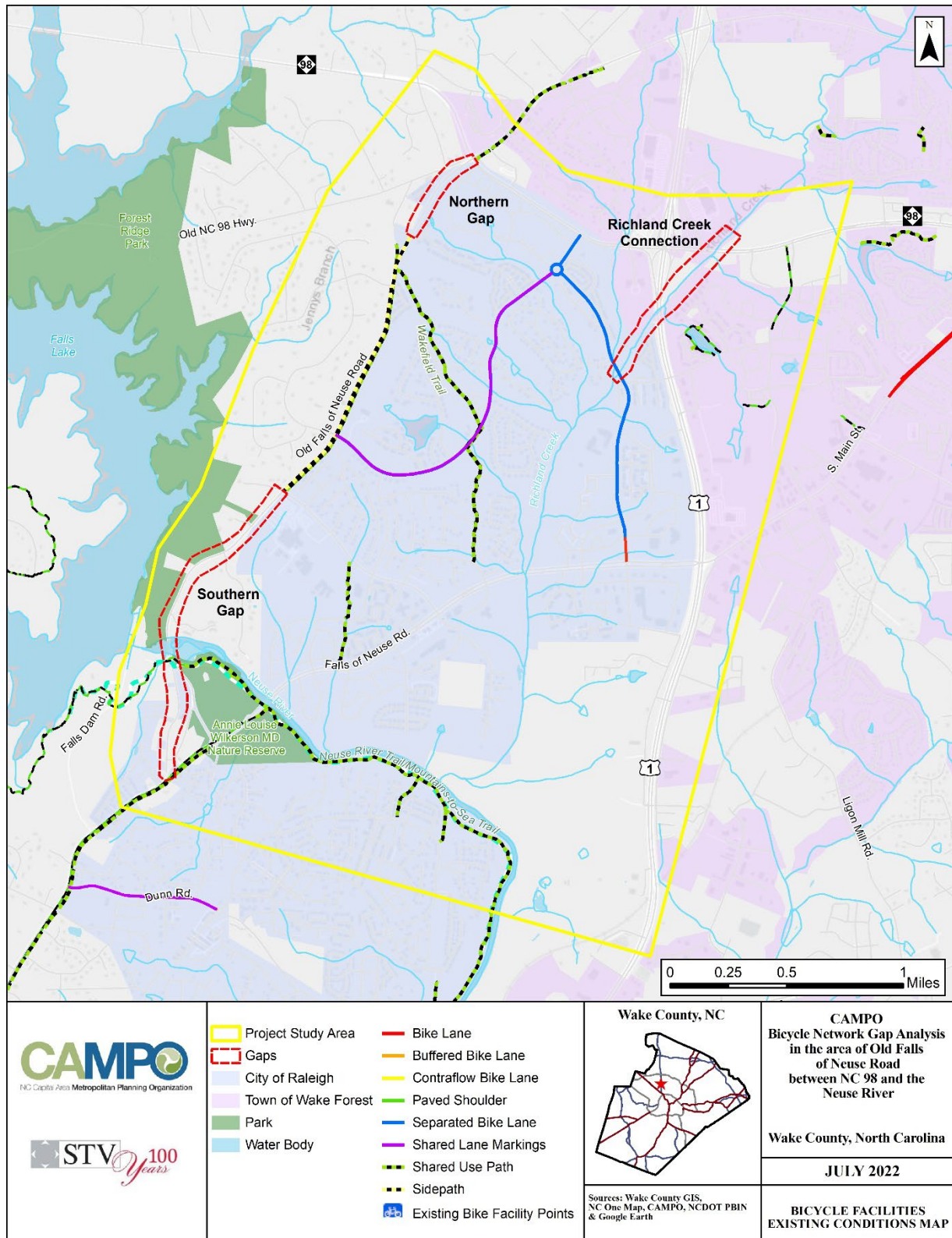
Existing bicycle facilities are sporadic throughout the PSA; there are very few on-road bicycle-oriented facilities in the vicinity of the area gaps. Shared-use paths and separated side paths are the predominant bicycle facility type within the PSA. Existing bicycle facilities within the PSA include:

- Approximately 1.5 miles of shared-use lane markings are located along Wakefield Plantation Road, bisecting the Country Club at Wakefield Plantation.
- The NC 98 (Durham Road) separated side path runs along NC 98 from Jones Wynd to slightly north of Wake Union Church Road.
- The Neuse River Trail (also part of the NCDOT Mountains-to-Sea Trail network) follows the alignment of the Neuse River from the Annie Louise Wilkerson MD Nature Preserve in the PSA towards Capital Boulevard outside of the PSA. The NCDOT Mountains-to-Sea Trail begins west at Falls Lake and proceeds to follow the Neuse River trail alignment.
- The Wakefield Trail is a shared-use facility that runs through The Country Club at Wakefield Plantation. It begins north of the intersection of Old Falls of Neuse Road and Mountain High Road/Tree Trim Way. The facility does not follow an existing roadway; it runs southeast and terminates at Wakefield Plantation Drive. The trail then resumes approximately 600 feet south and connects Wakefield Plantation Drive to London Bell Drive.
- A segment of a shared-use path runs from Wakefield Pines Drive to the north to Falls of Neuse Road to the south. The shared-use path follows the alignment of an unnamed tributary of the Neuse River and runs between Wakefield Elementary School to the west and Kerr Family YMCA to the east.
- A shared-use path runs intermittently along Old Falls of Neuse Road and Durham Road. The portion on Durham Road runs from slightly north of Wake Union Church Road to the north to the intersection of NC 98 (Durham Road) and Old Falls of Neuse Road. The shared-use path also

runs between the Northern and Southern Gaps along Old Falls of Neuse Road and resumes near the intersection of Old Falls of Neuse Road and Wide River Drive.

- There are separated bike lanes along Forest Pines Road starting at the Wakefield Plantation Roundabout Fountain down to Common Oaks Drive, south of Falls of Neuse Road.
- Along Wakefield Plantation Drive, there are a mixture of shared-use lanes and buffered bike lanes in the eastbound/northbound direction between Old Falls of Neuse Road and NC 98. There are buffered bike lanes in westbound/southbound direction.

Exhibit 4: Existing Bicycle Facilities Map



2.6.1 STRAVA Findings

STRAVA, founded in 2009, is a mobile app used by athletes to record performance statistics of various physical activities which incorporates social media features through the user's smartphone or smartwatch. Recorded activity information may include a route summary, elevation, speed, timing, and heart rate. These records can be shared with the user's followers or shared publicly for other users to comment on or give kudos in the form of a like button.

STRAVA provides a resource called a "Global Heatmap" that uses all GPS data of all public activity, known as "heat," which is tracked in the form of a map that can be filtered based on type of activity. This map allows users to discover new places to be active and find routes that other athletes are traveling. The map is updated monthly and shows data from the last two years. The exhibits below show biking (**Exhibit 5**) and walk/run activity (**Exhibit 6**), respectively, within the PSA. Popular areas of activity or "Heat" are shown as a white in color and have a wider width, whereas lesser often used paths are shown in orange with a narrower width, and areas with little to no activity are shown as purple or have no color at all and are very thin or have no width at all.

Exhibit 5: STRAVA Bicycle Heatmap

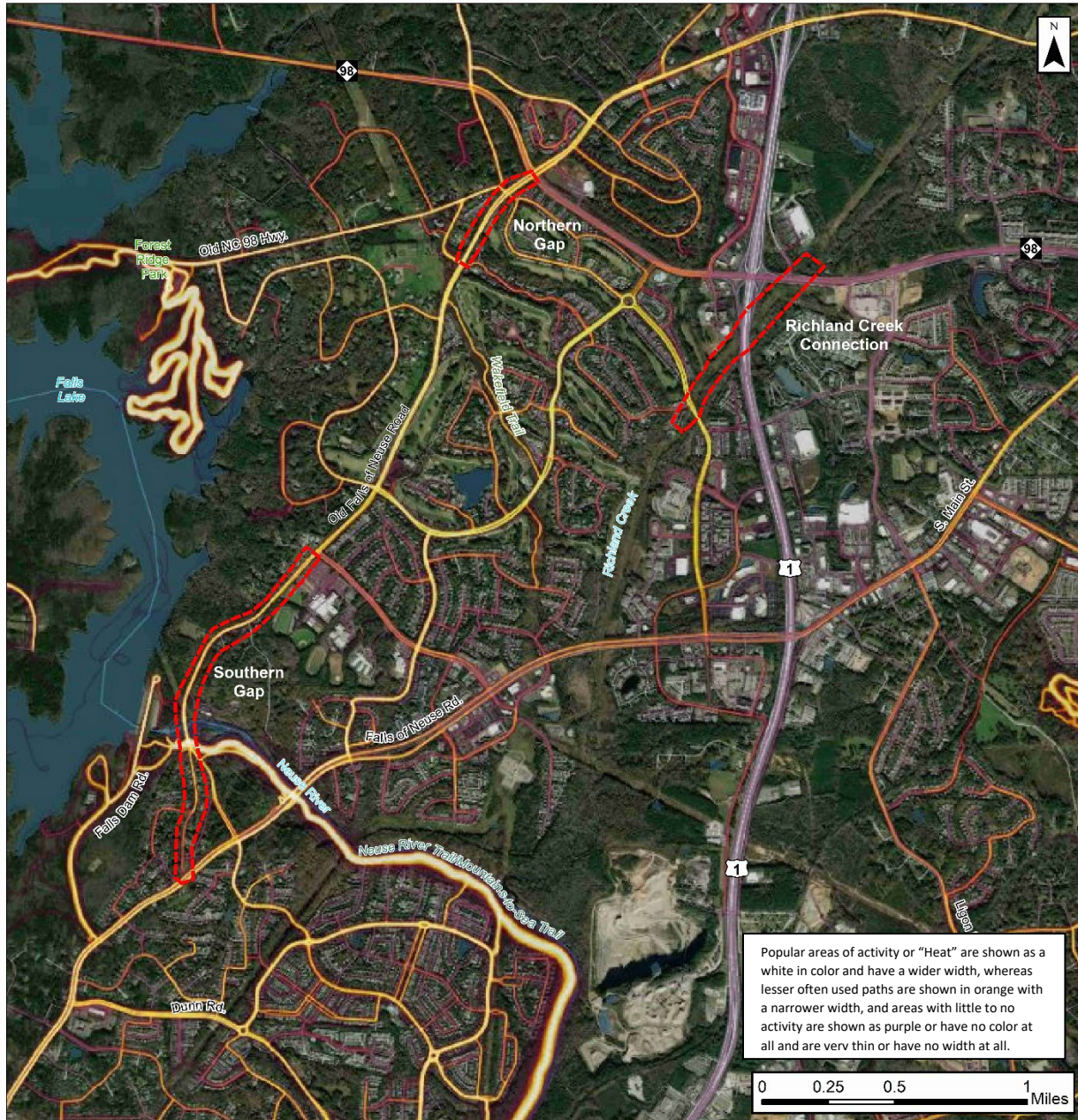
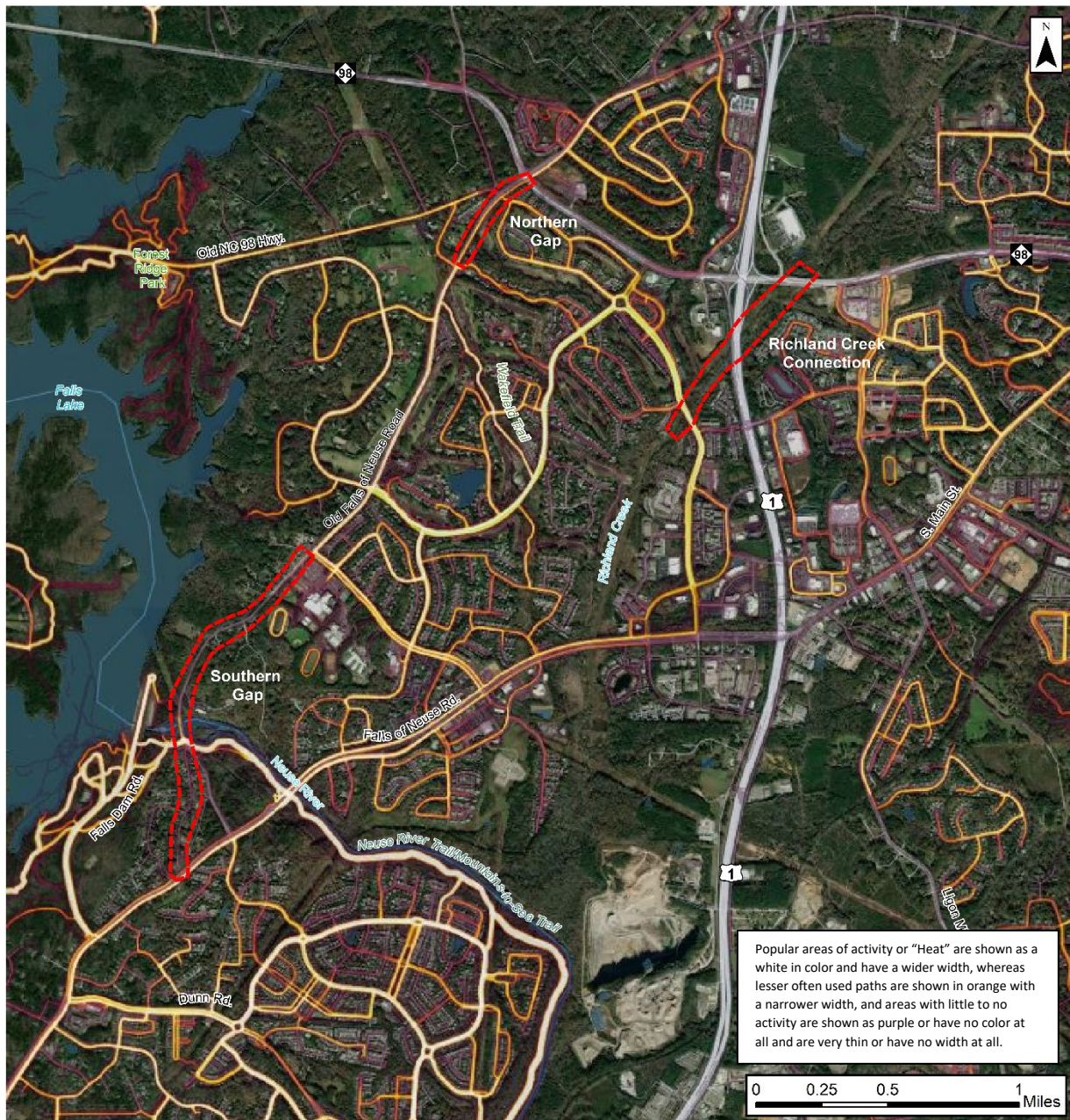


Exhibit 6: STRAVA Walk/Run Heatmap

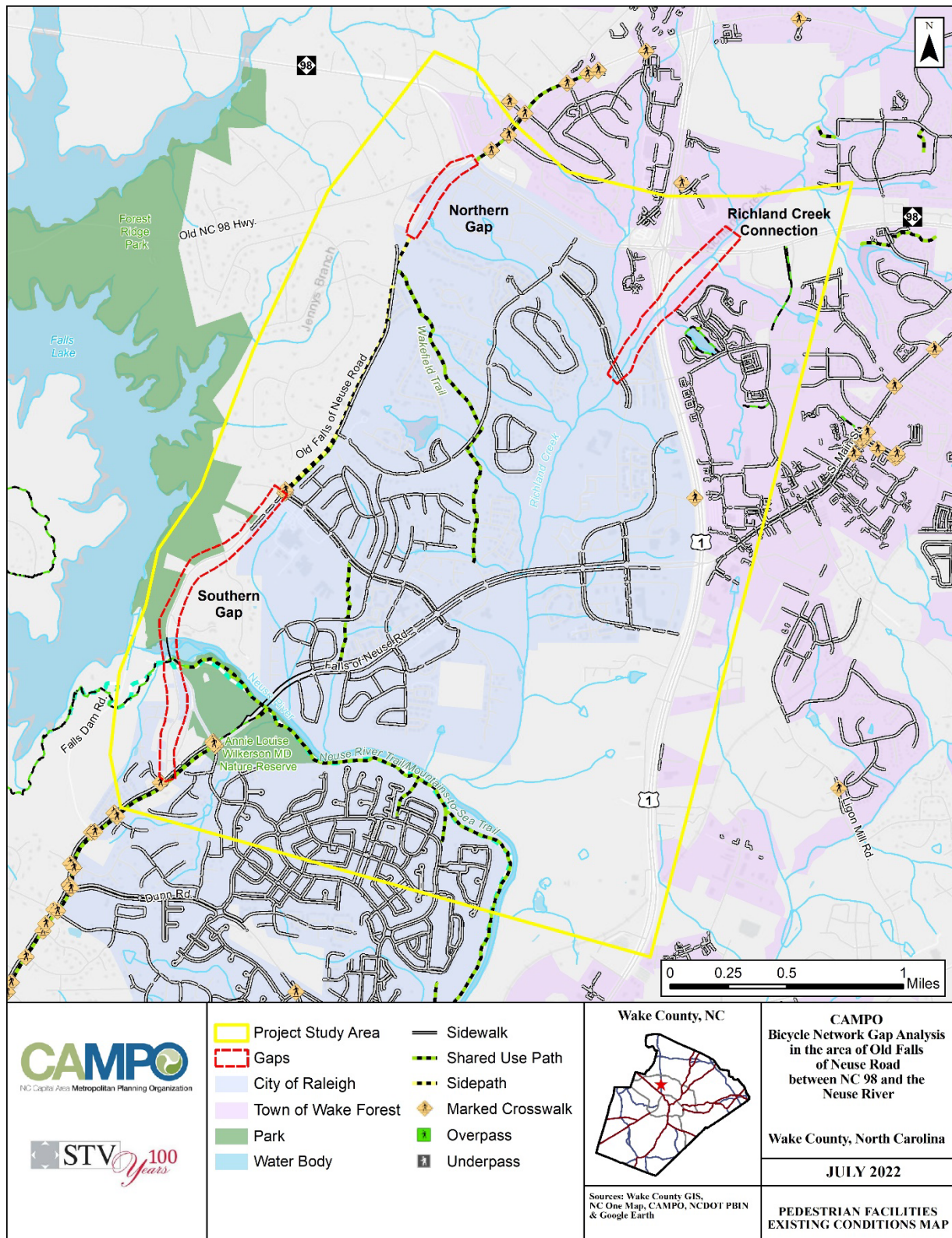


2.7 Existing Pedestrian Facilities

In addition to the shared-use paths and side path facilities located in the PSA, sidewalks are also a predominant facility type in the PSA. Residential neighborhoods are the main land uses in the area and several of the neighborhoods include sidewalk facilities, including Bedford at Falls River, Falls Glen, and Falls Common Townhomes south of the Neuse River, Stratford Hall, the residential area around the Country Club at Wakefield Plantation, and the neighborhoods surrounding Ligon Mill Road. **Exhibit 7** presents the existing pedestrian facilities within the PSA.

Very few marked crosswalks currently exist within the PSA. One marked crosswalk is present along Old Falls of Neuse Road at Wakefield Plantation Drive; another is located along US 1/Capital Boulevard at Popes Creek Road. Several other marked crosswalks are located along Falls of Neuse Road at the intersections of Old Falls of Neuse Road and Waterford Court.

Exhibit 7: Existing Pedestrian Facilities Map

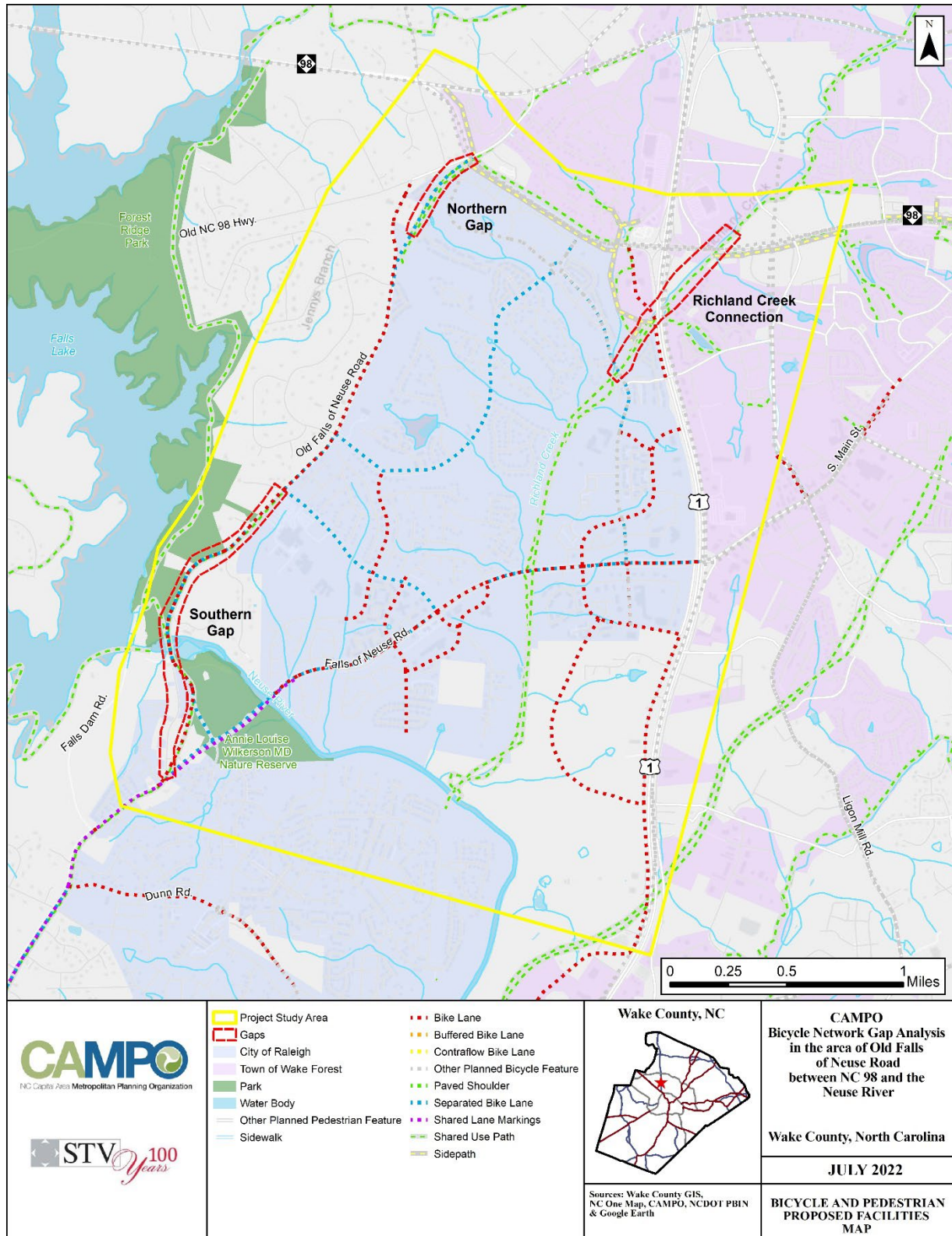


2.8 Proposed Bicycle and Pedestrian Facilities

In addition to the network of existing bicycle and pedestrian facilities, numerous plans recommend proposed facilities throughout the project area; these facilities are depicted in **Exhibit 8**; noteworthy, proposed facilities are included below.

- A separated bike lane is proposed along Old Falls of Neuse Road from NC 98 (Durham Road) to Falls of Neuse Road. *(2050 MTP)*
- Separated bike lanes are proposed along Wakefield Plantation Road, Wakefield Pines Drive and Forest Pines Drive. *(BikeRaleigh)*
- A contraflow bike lane is proposed along NC 98 (Durham Road) within the project area limits. *(Wake Forest CTP)*
- A shared-use path is proposed along Richland Creek beginning at the Neuse River Trail and continuing northeast over NC 98 (Durham Road). *(Wake Forest CTP, Capital Area Greenway Masterplan, Wake County Greenway Plan)*
- Shared-use lane markings are proposed on Falls of Neuse Road from Dunn Road to Waterlow Park Lane; a bike lane is proposed along Falls of Neuse Road from Waterlow Park Lane to US 1/Capital Boulevard. *(BikeRaleigh)*
- Bike lanes are proposed along Common Oaks Drive and Green Elm Lane. *(BikeRaleigh)*
- A side path is proposed in various locations on either side of NC 98 (Durham Road). *(BikeRaleigh)*

Exhibit 8: Proposed Bicycle and Pedestrian Facilities



2.9 Existing Roadway Conditions

2.9.1 Old Falls of Neuse Road

Description: Old Falls of Neuse Road is a three-mile long north/south 45 mph, two-lane major collector roadway at the northern limits of the city of Raleigh that begins at the intersection of NC 98 & Durham Road and ends at Falls of Neuse Road. Low-density single-family homes and a neighborhood of multifamily apartments are dispersed along the northern half of the roadway as well as Wakefield High School at the Wakefield Pines Drive intersection. Towards the southern end of Old Falls of Neuse Road, there is an interchange connection with the Upper Neuse Greenway.

Facilities: South the intersection at NC 98 & Old Falls of Neuse Road, there is no continuation of the shared-use path which ends at the intersection of Garden Hill Drive. The approximately 8-foot-wide shared-use path is located south of Garden Hill Drive on the northbound side of Old Falls of Neuse Road and continues south where it splits roughly 800 feet south of the intersection creating the Wakefield Trail (the Wakefield Trail circuitously travels south to eventually end at London Bell Drive [about a 2.5-minute walk from Falls of Neuse Road]). The mixed-use path along the east side of Old Falls of Neuse Road stretches a length of 1.2 miles from the northern terminus at Garden Hill Drive to its southern terminus at Wakefield Pines Drive, where Wakefield High School lies at the southeast corner of the intersection. Located at this intersection are Old Falls of Neuse Road's only crosswalks. There are no ped/bike facilities south of Blueberry Hill Lane along Old Falls of Neuse Road (see description of Southern Gap) until the intersection with Falls of Neuse Road.

Although Old Falls of Neuse Road is without bike/ped facilities along the Southern Gap, the approximately 500-foot-long bridge over Neuse River and Upper Neuse Greenway is equipped with a separate sidewalk along the southbound side. The south end of the bridge connects to the Upper Neuse Greenway, in the form of a ramp on the southbound side.

Average Daily Traffic (ADT): 15,500 (2019)

2.9.2 Falls of Neuse Road

Description: Falls of Neuse Road is a 45 mph, minor arterial running north/south through North Raleigh and is generally used as a connector between the City of Raleigh and the Town of Wake Forest. The northern terminus of Falls of Neuse Road begins at the intersection of South Main Street & US 1/Capital Boulevard, where it begins as a four-lane median divided roadway through a majority of the PSA. The eastern end of Falls of Neuse Road is flanked on both sides with major retail uses and a hospital. Progressing westbound, shopping centers and small office buildings line both sides of the roadway along with neighborhoods of single-family homes and townhomes running throughout the length of the roadway.

Facilities: Sidewalks run along on both sides the entirety of Falls of Neuse Road within the PSA north of the Neuse River. Both sidewalks end at the northern end of the roadway at the US 1/Capital Boulevard intersection (signed as the "Raleigh City Limits").

At the Old Falls of Neuse Road/Wide River intersection, there are crosswalks along Falls of Neuse to cross both intersection streets. There is also a diagonal crosswalk with median protection from the northwest corner of the intersection to the southeast corner. Crosswalks and ADA compliant ramps are present at other major signalized intersections.

Towards the southern section of Falls of Neuse Road, there is a bridge that crosses over Neuse River and Upper Neuse Greenway which has two connection points to the sidewalks/shared-use paths to the Upper Neuse Greenway in the form of two ramps.

ADT: 19,500 west of Wakefield Pine Dr.; 14,000 east of Wakefield Pine Dr. (2020 data)

2.9.3 NC 98 (Durham Road/Dr. Calvin Jones Highway)

Description: NC 98 is an east-west 55 mph, principal arterial in central North Carolina connecting Durham and Spring Hope, while passing through Wake Forest. Within the PSA, NC 98, also known as Dr. Calvin Jones Highway and Durham Road, is a 4-lane median separated roadway. At the west end of NC 98 lies the grocery store at the northeast corner of Durham Road & Dr. Calvin Jones Highway. Low-density, single-family neighborhoods including a golf club bordering NC 98 to the south with an access point at Wakefield Plantation Drive. Towards the east end of NC 98, there are local restaurants, small retail stores, and two primary healthcare facilities. Continuing eastbound, a single-point diamond interchange is used to connect NC 98 with US 1/Capital Boulevard. NC 98 eventually crosses over Richland Creek just east of the interchange.

Facilities: A shared-use path is located along the northbound side of Durham Road just north of the NC 98 & Old Falls of Neuse Road intersection. The shared-use path does not continue south along Old Falls of Neuse Road (see description of the Northern Gap). Traveling east/west along NC 98 within the PSA, there is a lack of pedestrian/bicycle facilities.

Protected bike lanes are present along Wakefield Plantation Drive starting at the three-way intersection at NC 98. Past the traffic circle, the protected bike lane continues along two routes: Wakefield Plantation Drive to eventually connect with Old Falls of Neuse Road. And Forest Pines Drive that connects with Falls of Neuse Road.

ADT: 21,000 west of Old Falls of Neuse Rd; 22,500 between Old Falls of Neuse Rd and US 1/Capital Boulevard; 33,000 east of US 1/Capital Boulevard (2019 data)

2.9.4 US 1/ Capital Boulevard

Description: US 1/Capital Boulevard, is a major north-south principal arterial running across Wake County. Within the PSA, US 1/Capital Boulevard is a median divided highway that varies between four and six lanes. US 1/Capital Boulevard intersects with NC 98 at the northeast corner of the PSA through a single-point diamond interchange. As US 1/Capital Boulevard progresses southbound towards Falls of Neuse Road, large retail stores, grocery stores, auto dealerships, along with neighborhoods of low-density homes mixed in.

US 1/Capital Boulevard crosses over multiple planned greenway trails:

- Richland Creek (see Section 2.4.3)- approximately .25 miles south of the US 1/Capital Boulevard & NC 98 interchange.
- Bridge over the railroad tracks between Stickman Street and Lois Lane

Facilities: Due to the higher speed limits on this roadway as a principal arterial, there are very few existing pedestrian facilities. Within the PSA, only the intersection at Popes Creek Drive are sidewalks leading up to US 1/Capital Boulevard, but promptly stopping at the intersection. There are no crossings

along this roadway within the PSA. Similarly, to the lack of pedestrian facilities, there are no bicycle facilities along this stretch of US 1/Capital Boulevard from NC 98 to around the Neuse River.

3 References

NCDOT Pedestrian and Bicycle Infrastructure Network (PBIN) Map

<https://www.arcgis.com/apps/mapviewer/index.html?webmap=f03c2cabd13949d0918a4024a440acda>

CAMPO Bike/Pedestrian Existing Infrastructure

<https://ral.maps.arcgis.com/home/item.html?id=82534059d8604ed9b5064c857b47736b>

STRAVA

<https://www.strava.com/heatmap>

PlanWake2021 Comprehensive Plan

<https://www.wakegov.com/departments-government/planning-development-inspections/planning/planwake-comprehensive-plan>

City of Raleigh 2030 Comprehensive Plan

<https://raleighnc.gov/zoning-planning-and-development/2030-comprehensive-plan>

Capital Area Greenway Master Plan

<https://cityofraleigh0drupal.blob.core.usgovcloudapi.net/drupal-prod/COR24/capital-area-greenway-master-plan.pdf>

Town of Wake Forest Community Plan

<https://www.wakeforestnc.gov/planning/community-plan>

Wake County Greenway Plan

https://s3.us-west-2.amazonaws.com/wakegov.com.if-us-west-2/prod/documents/2022-03/Wake_Greenway_System_Plan_September_2018_Final.pdf

WalkBike NC

<https://www.ncdot.gov/bikeped/walkbikenc/default.aspx>

BikeRaleigh

<https://raleighnc.gov/services/transit-streets-and-sidewalks/bike-plan>

CAMPO Metropolitan Transportation Plan

<https://www.campo-nc.us/transportation-plan/2050-metropolitan-transportation-plan-mtp#:~:text=The%20MTP%20is%20the%20long,for%20the%20next%2030%20years.>

Wake Forest Comprehensive Transportation Plan

<https://online.flippingbook.com/view/745228616/>