

COMMUNITY IMPACT ASSESSMENT

For

ADMINISTRATIVE ACTION ENVIRONMENTAL IMPACT STATEMENT



Wake and Johnston Counties

STIP Project Nos. R-2721, R-2828, and R-2829
State Project Nos. 6.401078, 6.401079, and 6.401080
Federal Aid Project Nos. STP-0540(19), STP-0540(20), and STP-0540(21)
WBS Nos. 37673.1.TA2, 35516.1.TA2, and 35517.1.TA1

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June 2015

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Complete 540 - Triangle Expressway Southeast Extension
Community Impact Assessment
NCDOT STIP Project Nos. R-2721, R-2828, R-2829
Wake and Johnston Counties

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EXECUTIVE SUMMARY

This Community Impact Assessment (CIA) evaluates the effects of the subject project on the surrounding communities and on quality of life in those communities. More specifically, the CIA assesses and documents the potential direct impacts of the project on several aspects of the human environment, including social, physical and visual characteristics; land use patterns and economic trends; mobility and access patterns; and area neighborhoods. The CIA also includes recommendations for avoiding, minimizing, and mitigating potential impacts.

As impacts to communities also can be indirect in nature, a separate assessment of indirect and cumulative effects resulting from the proposed project were conducted under a separate technical study, documented in the project's *Indirect and Cumulative Effects Report* (Lochner, 2014b).

The North Carolina Department of Transportation (NCDOT), in cooperation with the Federal Highway Administration (FHWA), proposes transportation improvements from NC 55 Bypass in Apex to the US 64/US 264 Bypass in Knightdale. The focus of these improvements is a potential extension of the Triangle Expressway (NC 540). This project is designated as three projects in the NCDOT *2012-2018 State Transportation Improvement Program* (STIP)—R-2721, R-2828, and R-2829. Together, these STIP projects would combine to complete the 540 Outer Loop around the Raleigh metropolitan area. The Complete 540 - Triangle Expressway Southeast Extension (540 Outer Loop) project is also included in the Capital Area Metropolitan Planning Organization (MPO) and Durham-Chapel Hill-Carrboro MPO joint *2035 Long Range Transportation Plan* (LRTP).

Based on the identified transportation needs, the purpose of the proposed action is to improve transportation mobility for trips within, or traveling through, the project study area during the peak travel period. A second purpose of the proposed action is to reduce forecast congestion on the existing roadway network within the project study area. Another desirable outcome of the project is to improve system linkage in the roadway network in the project study area, in accordance with state and local plans.

Within southern and southeastern Wake County and northern Johnston County, there are limited alternatives for efficient local and long distance travel. Many alternative routes consist of unlimited access primary and secondary roads with no access control, lower posted speed limits, and traffic signals. Much of I-40, an important transportation corridor for local freight and commuter traffic, and the major corridor for interregional traffic across the area, currently operates at unacceptable levels of service (LOS) of E or F. LOS on this and other major routes across the area is forecast to worsen significantly.

Key Community Characteristics

Demographics

- Census data show that between 2000 and 2010, the population of the project's Demographic Study Area grew dramatically. Wake County's population grew by over 43 percent and Johnston County's grew by over 38 percent, compared to North Carolina's statewide population growth of about 18 percent. The populations of all of the municipalities in the study area increased substantially over this same time period, with the fastest growth in Holly Springs (over 167 percent), Clayton (over 133 percent) and Fuquay-Varina (over 127 percent). Most of the highest growth areas in the Demographic Study Area are along its periphery, due in part to the presence of developable land

and proximity to area job centers, particularly in the Apex and Holly Springs area and in southwestern Clayton.

- Census data indicate a presence of minority and/or low income populations that would meet the criteria for environmental justice consideration within the Demographic Study Area. Possible low-income populations were observed within the Direct Community Impact Area (DCIA) during site visits.
- Minority populations in the Demographic Study Area are concentrated at the northern edge of the Demographic Study Area in the Garner, southeast Raleigh and Knightdale areas. Hispanic populations are concentrated in Garner, Clayton, Knightdale, and near US 401. The Demographic Study Area has a slightly lower percentage of African American residents (19.0 percent) than Wake County (20.7 percent) and a slightly higher percentage than Johnston County (15.1 percent). The Demographic Study Area has a percentage of Hispanic residents (10.4 percent) similar to Wake County (9.8 percent); Johnston County's percentage of Hispanic residents (12.9 percent) is higher than in the Demographic Study Area or Wake County.
- About 10 percent of individuals in the Demographic Study Area live below the poverty level, compared to approximately 11 percent in Wake County and 17 percent in Johnston County.
- There do not appear to be any general areas in the Demographic Study Area where the population composition has unusually high senior or youth populations. The median age in the Demographic Study Area is about 36, similar to median ages in Wake and Johnston counties.
- The lowest reported median incomes are generally located in block groups concentrated in the north central and northeastern part of the Demographic Study Area, in Garner, southeast Raleigh and Knightdale. Central areas of Clayton are also characterized by lower median household incomes than the Demographic Study Area as a whole. Many of these areas also include higher than average concentrations of minority residents. Median incomes tend to be much higher than the Demographic Study Area as a whole in the northwestern and western edges of the study area, in southern Cary, Apex, and Holly Springs.
- About 5 percent of individuals within the Demographic Study Area have limited English proficiency, similar to the percentages in Wake and Johnston counties. Census data indicate the presence of a Spanish language group that exceeds the Department of Justice's Safe Harbor threshold of 5 percent or 1,000 persons. Census data also indicate a Spanish language group exceeding 50 persons that may require language assistance within the Demographic Study Area. Block groups with high percentages of individuals with limited English proficiency are located in Garner, southeast Raleigh, and Knightdale. More than 20 percent of the individuals in Wake County Census Tracts 530.09 Block Group 4 and 541.15 Block Group 4 have limited English proficiency.
- The Demographic Study Area features a relatively high median home value and relatively low percentages of renter-occupied and vacant units, although there is some variation across the area. The western and southern parts of the Demographic Study Area tend to have higher median home values and lower percentages of renter-occupied and vacant units. The reverse is true for the areas in central Garner and southeast Raleigh.

Community Characteristics

- Land use in the Demographic Study Area and the Direct Community Impact Area (DCIA) is of mixed intensity and density, although low-density residential subdivisions and rural land uses are the most prevalent characteristics of the area. Much of the area was, until recently, characterized by agricultural and rural residential land uses. Many of the communities in the Demographic Study Area and the DCIA have become increasingly popular locations for suburban development as people commuting to jobs in Research Triangle Park, Raleigh, and other employment centers in the Research Triangle region seek affordable housing, open space, and the quality of life offered by southern Wake County and Johnston County.
- There are numerous named residential subdivisions in the Demographic Study Area for the Complete 540 project, along with many smaller, rural residential neighborhoods. The vast majority of these are single-family residential subdivisions, although there are also a number of mobile home parks. Residential subdivisions are more prevalent in the western part of the Demographic Study Area, although areas surrounding Clayton are increasingly popular locations for development of new subdivisions.
- Numerous schools, places of worship, parks, recreation areas, and other community resources are located throughout the DCIA for the project. Public services such as police, fire and rescue, post offices, and libraries are also present. Several bicycle and pedestrian facilities are located in the DCIA.
- There are several farms in the DCIA that are part of Wake or Johnston Counties' Voluntary Agricultural District (VAD) programs. Johnston County's VAD program includes a public hearing requirement with the local VAD Advisory Board only if land participating in the program is acquired through eminent domain, but Wake County's does not. Several local land use plans identify a need to preserve area farmland and agricultural operations.

Local Planning Initiatives/Documents

- Most of the municipalities in the Demographic Study Area have adopted comprehensive plans, which include designated future land uses. A number of these plans show the proposed route for the Complete 540 project and include special land use categories or overlay districts for the proposed route.
- Several municipalities in the Demographic Study Area have adopted transportation plans, which designate the Complete 540 project as an important transportation need for the area. These municipalities include Wake County, Garner, Holly Springs, Knightdale, Johnston County, and Clayton.
- The *Wake County Land Use Plan* includes a special Land Management Plan for the Swift Creek watershed area. The Land Management Plan identifies the Swift Creek basin's Watershed Critical Area and watershed buffer areas, within which development activities are limited, and also identifies appropriate low-density land use categories for the surrounding areas.

Potential Community Impacts – Visual/Aesthetic

- All of the DSAs have the potential to offer visually pleasing views of rural, agricultural and natural areas from the proposed roadway. On the other hand, all of the DSAs have the potential to detract

from existing views of rural and natural areas from neighborhoods adjacent to the proposed roadway by altering those views.

- DSAs using the Red Corridor would cross a developed low-density suburban landscape in Garner. In addition to numerous residential neighborhoods, this area includes multiple existing and planned nature-oriented parks. The introduction of the roadway in this corridor would result in more significant negative visual impacts than DSAs using the Orange Corridor.
- DSAs using the Purple-Blue-Lilac Corridor would cross a developed low-density suburban landscape in northeastern Holly Springs, southern Cary and Apex, and northeastern Fuquay-Varina. The introduction of the roadway along this corridor would result in more significant negative visual impacts than DSAs using the Orange Corridor.
- DSAs using the Orange or Lilac Corridors would cross the same rural and suburban landscape south of Ten Ten Road and west of NC 50. However, the Lilac Corridor would directly impact more neighborhoods in this area than the Orange Corridor, displacing more residences and thus possibly creating a greater visual impact in this area.

Potential Community Impacts – Transportation Network

- The project should enhance mobility and system-wide connectivity in the project area, facilitating vehicular access to businesses, public services, and other facilities in the area.
- There are limited current transportation options between growing communities in the project area and major employment and activity centers along the existing 540 Outer Loop and along roadways connecting to the existing Outer Loop, such as I-40, NC 147, and US 1/64. By providing a controlled-access, high-speed connection across the project area, the project would improve regional roadway system linkage, which would help enhance mobility and improve access.
- By reducing travel times between residences, employment centers, and commercial areas, and by reducing congestion on the area roadway network, the project would improve mobility and access for project area residents and travelers.

Potential Community Impacts – Economic, Community Safety, Land Use, Farmland

- While economic development is not an explicit component of the purpose of the Complete 540 project, local, regional, and state planners and elected officials believe the project would improve the economic competitiveness of the project area. The municipalities in the project area anticipate that the project will spur commercial and industrial growth near interchange areas, increasing local tax bases and providing new jobs for area workers.
- The project could likely have a long-term positive impact on emergency response times in the DCIA by shortening some response times and by providing improved east-west mobility in the area. None of the DSAs would directly impact any fire stations or police stations and none of these facilities are located adjacent to the any of the DSAs.
- Because it would be a controlled-access toll facility, the proposed project does not include pedestrian and bicycle facilities. None of the DSAs are expected to affect the overall safety of non-motorist access to businesses, public services, schools, or other facilities.

- The project does not conflict with any local land use plans or with any of the jurisdictions' desired development patterns. Several of these plans include land use policies that explicitly support the project, and most of the plans that include these policies base them on the assumption that the project will be located within a corridor protected for the project by NCDOT in the mid 1990s.
- While the Orange Corridor, which generally follows the protected corridor, most closely aligns with local land use planning objectives and desired development patterns, some of the other corridors could also either support these objectives or avoid conflicting with them.
- All of the corridors east of I-40 (Green, Mint Green, Brown, Tan, and Teal) would offer at least partial support to local planning objectives. One notable exception is the Green Corridor's potential impacts on the Randleigh Farm property, which would disrupt City of Raleigh plans to develop this site as a mixed-use community. The Mint Green and Tan Corridors also impact this property, but would shift the impacts closer to the eastern edge of the property.
- The Red Corridor would have notable negative impacts on local land use planning objectives and desired development patterns. It would limit the Town of Garner's plans to promote orderly growth and would directly impact the Greenfield South Business Park, the foundation of Garner's local employment and tax base. This would conflict with the Town's objectives of promoting the expansion of the local tax base and expanding non-residential uses. Development of the project in the Red Corridor would require a complete rewrite of Garner's *Comprehensive Growth Plan*.
- The Purple-Blue-Lilac Corridor would also negatively impact local land use planning objectives; in particular, it would conflict with Town of Holly Springs and Wake County land use plans. It conflicts with all of Holly Springs's long range plans developed since the time the protected corridor was established, in 1996 and 1997, conflicting with planned locations of future regional centers for mixed use development, planned access to the regional transportation network, and desired connectivity between neighborhoods. Similarly, the Purple-Blue-Lilac Corridor would conflict with the planned locations of future activity centers in Wake County's land use plan, shifting needed transportation access away from these areas onto more residential areas.
- All proposed DSAs would involve the use of prime, statewide, and locally important farmland, and other existing agricultural lands, but none would exceed the Farmland Protection Policy Act threshold requiring mitigation for farmland loss. Three VAD farms would be affected by project DSAs. The Orange and Lilac Corridors would impact one VAD farm. The Purple-Blue-Lilac Corridor would impact another VAD farm. The Brown Corridor would impact the remaining VAD farm.

Potential Community Impacts – Neighborhood/Community Effects

- DSAs using the complete Orange Corridor between NC 55 Bypass and I-40 would result in substantially fewer relocations than the other DSAs. DSAs using the Purple-Blue-Lilac Corridor would result in the highest number of relocations, requiring over twice as many relocations as those using the complete Orange Corridor. DSAs using the Orange Corridor to the Lilac Corridor between NC 55 Bypass and I-40 would result in nearly 80 percent more relocations as those using the complete Orange Corridor. DSAs using the Red Corridor would result in over 60 percent more relocations as those using the complete Orange Corridor. Nearly all the relocations required by any of the DSAs would be residential relocations.

- The project would result in population changes in neighborhoods due to required relocations. Redistribution of population is most likely to occur with DSAs that displace a greater number of residents in a neighborhood or DSAs that displace residents in the centers of neighborhoods, as opposed to the edges. This would include DSAs using the Lilac, Purple-Blue-Lilac Corridors.
- All of the project DSAs would have negative impacts on existing neighborhoods. DSAs using the Orange Corridor would directly impact fewer neighborhoods than DSAs using the Red, Lilac, or Purple-Blue-Lilac Corridors, which would all bisect multiple residential neighborhoods, with the Purple-Blue-Lilac Corridor bisecting the largest number of neighborhoods.
- All of the DSAs would have minimal impacts on low-income and minority communities. While minority and low-income populations are present in the DCIA, no notably adverse community impacts are anticipated with this project; thus, impacts to minority and low-income populations do not appear to be disproportionately high or adverse. A small percentage of the required relocatees have household incomes at or near the poverty level. In addition, there appears to be only one small neighborhood with a concentrated population of minority residents affected by the DSAs. The resulting number of the required relocations in this neighborhood is a small percentage of the total relocations for each DSA. Benefits and burdens resulting from the project are anticipated to be equitably distributed throughout the community.
- DSAs that result in relocations at the edges of neighborhoods are less likely to have substantial negative impacts on community cohesion than DSAs resulting in more relocations in the centers of neighborhoods. All of the DSAs would have some effect on community cohesion. The Lilac, Purple-Blue-Lilac, and Red Corridors would be most likely to disrupt community cohesion than the other corridors because they would divide more neighborhoods than other corridors. The Red Corridor would physically divide the Town of Garner, separating lower-income areas to the north from higher-income areas to the south.
- DSAs using the Red Corridor would impact two Town of Garner-owned park properties subject to Section 4(f) requirements: the White Deer Park planned expansion area and the planned Bryan Road Nature Park. DSAs using the Purple-Blue-Lilac Corridor would impact one planned park property subject to Section 4(f) requirements: the planned Town of Holly Springs Sunset Oaks Park. DSAs using the complete Brown Corridor would directly affect the Watershed Extension Loop Trail in the Clemmons Educational State Forest; Section 4(f) applicability to this resource will be resolved prior to publication of the Complete 540 project's Final EIS. DSAs using the Orange Corridor east of Holly Springs Road would impact the Middle Creek School Park, which is eligible for protection under Section 4(f); however, the impact is not anticipated to adversely affect the activities, features, and attributes of this park. All DSAs would cross the Neuse River Trail in the eastern project area, near Auburn Knightdale Road, but none is anticipated to adversely affect the activities, features, and attributes of the trail.
- Wake Technical Community College is the only educational facility that would be directly impacted by project DSAs. DSAs using the Orange Corridor would encroach on property at Wake Tech, but would not impact any buildings on the site.
- All of the DSAs would encroach on a church parcel near the western terminus of the project (Word of Truth Church of God). DSAs using the Red Corridor would also encroach on a church parcel on Auburn-Knightdale Road (Springfield Baptist Church).

- No community centers, libraries, medical facilities or public safety facilities would be directly impacted by any of the DSAs.
- There are several 303(d)-listed streams in the Demographic Study Area. These include portions of Swift Creek, Middle Creek, Terrible Creek, Little Creek, Beddingfield Creek, and the Neuse River. While all of the DSAs cross Swift Creek; the Red Corridor also crosses a 303(d)-listed upstream tributary to Swift Creek. All of the DSAs cross Middle Creek near the western project terminus, while only those using the Purple-Blue-Lilac Corridor cross Middle Creek a second time. DSAs using the Purple-Blue Lilac Corridor also cross a 303(d)-listed portion of Terrible Creek. The Brown Corridor crosses 303(d)-listed portions of Little Creek and Beddingfield Creek. The Green, Mint Green, and Tan Corridors cross 303(d)-listed portions of the Neuse River. There is also one water supply watershed, the Swift Creek Critical Watershed. The Red Corridor crosses the Swift Creek Critical Watershed. The Demographic Study Area does not include any high-quality waters, outstanding water resources, or trout streams.
- All of the DSAs have the potential to affect the Swift Creek Aquatic Habitat Natural Heritage Program (NHP) Natural Area. The DSAs that include the Purple-Blue-Lilac Corridor also have the potential to affect the Middle Creek Aquatic Habitat, Middle Creek Bluffs and Floodplain, and Blue Pond Salamander Site NHP Natural Areas.

Recommendations

- Once a Preferred Alternative is selected, the NCDOT should consider additional mitigation measures for community impacts, based on the final designs and comments from affected communities. Mitigation options for lessening neighborhood impacts were incorporated into the functional engineering designs, where practicable.
- The aesthetic quality of the proposed project areas could be enhanced by the following measures, which can be considered during final design:
 1. Implementation of a roadside landscaping plan
 2. Structural design (such as drainage structures and bridges) consideration to enhance visual appearance
 3. Bifurcated roadways (opposing lanes on roadways on different grades) to blend better with existing topographical features
 4. Natural earth berms for mitigation of noise and visual impacts where space permits
- If the Preferred Alternative uses the Green, Mint Green, or Tan Corridors, NCDOT should begin coordination with the City of Raleigh and Wake County to determine ways to mitigate impacts to the Randleigh Farm property.
- NCDOT should coordinate with local jurisdictions to discuss accommodations for sidewalks, bike lanes, and pedestrian crossings where appropriate and feasible.

- All DSAs would temporarily impact school bus routes during construction and result in modifications of existing routes or require new bus routes. NCDOT should coordinate with Wake and Johnston County schools to identify ways to minimize disruptions to school bus routes once a Preferred Alternative is identified.

1 INTRODUCTION

The National Environmental Policy Act (NEPA) requires agencies to consider how their actions may impact the human environment, as well as the natural and physical environments. This is accomplished through development of a Community Impact Assessment (CIA), which evaluates the effects of a project on the surrounding community and its quality of life. The CIA assesses potential impacts on several aspects of the human environment, including:

- social
- physical
- land use
- economic
- visual
- economic issues
- mobility/access
- displacements

The CIA also assesses the potential for the project to have high and disproportionately adverse effects on environmental justice and Limited English Proficiency (LEP) populations. Environmental justice populations are communities of minority and/or low-income people. LEP populations are communities of people with limited fluency in spoken and written English. These populations have, in the past, been underrepresented in the decision-making process.

The Community Characteristics Report (CCR) (Lochner, 2011a) served as the first step in development of the CIA for the Complete 540 project. The CCR summarized baseline conditions and trends as a foundation for the CIA. This CIA Report summarizes the next step in evaluating the effects of the project on the surrounding community. The analysis component of the CIA addresses only the direct impact of the project on the community. Indirect and cumulative effects, in the form of land use change resulting from the proposed project, including indirect community impacts, are presented in a separate technical report, the *Indirect and Cumulative Effects Report* (Lochner, 2014b).

2 PROJECT DESCRIPTION AND BACKGROUND

2.1 PROPOSED ACTION AND PROJECT PURPOSE

The North Carolina Department of Transportation (NCDOT), in cooperation with the Federal Highway Administration (FHWA), proposes transportation improvements in the project study area and surrounding region to address transportation needs as defined in the project's *Purpose and Need Statement* (Lochner, 2011b). The focus of these improvements is a potential extension of the Triangle Expressway (NC 540) from its current terminus at the NC 55 Bypass in Apex to the US 64/US 264 Bypass in Knightdale. This action is designated as three projects in the NCDOT 2009-2015 STIP: R-2721, R-2828, and R-2829. Together, these STIP projects would combine to complete the 540 Outer Loop around the Raleigh metropolitan area. In some instances, for ease of discussing the project, the project is referred to as having two phases: Phase I is the western portion of the study area between NC 55 Bypass in Apex and I-40 near the Wake/Johnston County line; Phase II is the eastern portion of the study area between I-40 and US 64/US 264 Bypass in Knightdale. NCDOT established a protected corridor for the project between NC 55 Bypass and I-40 in 1996 and 1997. For purposes of meeting the requirements of NEPA, both phases are being examined in the current study as a single and complete project. It is likely that the project would be constructed in phases, but depending on the availability of funding, may or may not be consistent with the current phase descriptions noted. **Figure 1** shows the general project setting.

The project study area is located south and southeast of the City of Raleigh between the towns of Holly Springs to the west and Knightdale to the east. The project study area extends as far south as NC 42 between Fuquay-Varina and Clayton. While most of the project study area is within Wake County, a small portion of western Johnston County is also included. **Figure 2** depicts the project study area.

This project, referred to as the Complete 540–Triangle Expressway Southeast Extension, is intended to improve transportation mobility and reduce forecast traffic congestion. The proposed action is included in the Capital Area Metropolitan Planning Organization (MPO) and Durham-Chapel Hill-Carrboro MPO joint *2035 Long Range Transportation Plan* (LRTP) (2009), as well as the Capital Area MPO *2012–2018 Metropolitan Transportation Improvement Program* (MTIP) (2011). In addition, the proposed action is included in the State's system of Strategic Transportation Corridors (STC) aimed at providing a safe, reliable, and efficient network of transportation facilities within North Carolina (NCDOT, 2015).

NCDOT developed the *Purpose and Need Statement* (Lochner, 2011b) for this project with input from federal and state environmental regulatory and resource agencies and the Capital Area MPO at Turnpike Environmental Agency Coordination (TEAC) meetings and at Capital Area MPO meetings held on June 16, 2010, and September 15, 2010. NCDOT also incorporated public input solicited at public meetings held in September 2010, December 2010, and October 2013.

2.2 FUNCTIONAL CLASSIFICATION

There are several major travel routes through the project study area; these routes are shown in **Figure 1**. I-40 is one of the major east-west routes through North Carolina, connecting Raleigh and its surrounding communities to southeastern North Carolina and I-95 to the east. To the west, I-40 connects the area to Research Triangle Park (RTP), Durham, and other cities in central and western North Carolina. I-440, the Raleigh Beltline, is a partial loop facility around Raleigh, connecting the suburban

areas surrounding the city. Existing I-540/NC 540 currently extends around the north and west sides of the Raleigh area, connecting outlying areas in Apex, Cary, northern Raleigh, and Knightdale. US 64 is another important east-west route through North Carolina; in the project study area, it traverses central Wake County. US 1 connects areas northeast of Raleigh to expanding suburban communities southwest of Raleigh.

Within southern and southeastern Wake County, there are limited alternatives for efficient local and long-distance travel. For residents in rapidly growing areas of southern and southeastern Wake County and northwestern Johnston County, routes for travel to many of the region’s major employment centers consist of unlimited access, primary and secondary roads with lower posted speed limits and frequent traffic signals. Much of I-40, an important transportation corridor for local freight and commuter traffic, and the major corridor for interregional traffic, currently operates at unacceptable levels of service (LOS) E or F, and LOS on this and other major routes across the area is forecast to worsen significantly. The proposed project would be a new location fully controlled-access toll facility.

2.3 PROJECT ALTERNATIVES

The project’s *Alternatives Development and Analysis Report* (Lochner, 2014a) evaluated several possible alternatives associated with this project through a three tiered screening process. These alternatives have been developed and evaluated as color-coded segments termed Preliminary Corridor Alternatives. Combinations of the various Preliminary Corridor Alternatives comprise end-to-end project alternatives. The end-to-end project alternatives remaining following the screening process outlined in the *Alternatives Development and Analysis Report* are termed Detailed Study Alternatives (DSAs), which will be documented and evaluated in detail in the project’s Draft Environmental Impact Statement (EIS). **Figure 3** shows the locations of the Preliminary Corridor Alternatives that make up the DSAs for the project. **Table 1** lists the Preliminary Corridor Alternatives that make up each of the DSAs.

Table 1. Preliminary Corridor Alternatives Comprising Each Detailed Study Alternative

DSA	Preliminary Corridor Alternatives
1	Orange to Green
2	Orange to Green to Mint Green to Green
3	Orange to Brown (South) to Tan (North) to Green
4	Orange to Brown to Green
5	Orange to Green to Teal to Brown to Green
6	Orange to Red to Green
7	Orange to Red to Mint Green to Green
8	Orange to Purple-Blue-Lilac to Green
9	Orange to Purple-Blue-Lilac to Green to Mint Green to Green
10	Orange to Purple-Blue-Lilac to Brown (South) to Tan (North) to Green
11	Orange to Purple-Blue-Lilac to Brown to Green
12	Orange to Purple-Blue-Lilac to Teal to Brown to Green
13	Orange to Lilac (at Sauls Road) to Green
14	Orange to Lilac (at Sauls Road) to Green to Mint Green to Green

Table 1. Preliminary Corridor Alternatives Comprising Each Detailed Study Alternative

DSA	Preliminary Corridor Alternatives
15	Orange to Lilac (at Sauls Road) to Brown (South) to Tan (North) to Green
16	Orange to Lilac (at Sauls Road) to Brown to Green
17	Orange to Lilac (at Sauls Road) to Green to Teal to Brown to Green

The DSAs under consideration are proposed to be toll facilities. An open road (highway speed) transponder-based system will likely be used as the primary means of toll collection. This would allow drivers to travel unobstructed through the toll collection points at highway speeds.

3 PROJECT SETTING

3.1 GEOGRAPHIC AND POLITICAL DESCRIPTION

As shown in **Figure 1**, the proposed project study area is located in southeastern Wake County and northwestern Johnston County. Portions of eight incorporated municipalities—Apex, Holly Springs, Cary, Fuquay-Varina, Garner, Raleigh, Knightdale and Clayton—and numerous unincorporated communities are located within the study area. As shown in **Figure 2**, the project study area consists of the following general boundaries: NC 55 to the west, the existing I-540 interchange at US 64/US 264 Bypass to the east, NC 42 to the south, and the southern outskirts of Raleigh and Cary to the north.

Wake and Johnston counties lie at the eastern point of the area known as the “Triangle” region of North Carolina. The City of Durham/Durham County and the Town of Chapel Hill/Orange County form the Triangle’s other two points. The Research Triangle Park (RTP), one of the oldest and largest science parks in North America, lies at the center of the Triangle and is the area’s major economic engine. RTP is an approximately 7,000 acre development that includes more than 170 companies that employ over 42,000 full-time and 10,000 contract employees (RTP, 2011).

Most of the project study area lies within the Neuse River basin, with a small portion of the southwestern corner of the study area in the Cape Fear River basin. The Neuse River runs roughly north to south through Wake and Johnston counties, extending across the eastern edge of the study area. Several other important streams within the Neuse basin extend across the study area. Swift Creek traverses the study area from the southern outskirts of Cary, southeast to near the intersection of NC 42 and the Clayton Bypass (US 70 Bypass). Two large lakes are part of the Swift Creek sub-basin, Lake Wheeler and Lake Benson; both of these lakes supply drinking water to the area. White Oak Creek, a tributary of Swift Creek, traverses the study area from north to south, east of I-40. Middle Creek extends across the southwest corner of the study area and includes Sunset Lake near Holly Springs.

3.2 COMMUNITY DESCRIPTION

Portions of seven of Wake County’s thirteen incorporated municipalities are located within the project study area: Apex, Holly Springs, Cary, Fuquay-Varina, Garner, Raleigh, and Knightdale. Clayton, an incorporated municipality in Johnston County, is also located in the project study area. These municipalities are each distinct communities that contain neighborhoods of varying characteristics. General descriptions of each, developed through site visits and interviews with local staff (**Appendix A**) in conjunction with local plans and websites are as follows:

Wake County – Wake County is the largest county in the Research Triangle region of North Carolina and is one of the fastest growing counties in the United States (US Census, 2010). It is currently the second most populous county in North Carolina and based on current growth trends is set to soon overtake Mecklenburg County as the most populous. The two largest cities in Wake County are Raleigh, North Carolina’s capital, and Cary, and there are numerous smaller towns and rural communities throughout the County. The County and many of its communities consistently rank high in national surveys of livability and economic growth.

Wake County’s economy is influenced by State government, numerous universities, and by its proximity to RTP, the country’s largest industrial park (Wake County Economic Development, 2013). Important

industries in the County include electrical, medical and telecommunications equipment, pharmaceuticals, biotechnology, and information technology.

Wake County is noted for its extensive system of public parks and greenways and their high level of connectivity. County residents value these resources highly and the County has plans for development of new park and greenway resources. Sensitive natural resources, including Lake Wheeler, Lake Benson and the Swift Creek watershed, a Water Supply Watershed, are also an important feature of the County's landscape; protecting these resources is a key component of the County's vision for the future.

Raleigh – Raleigh is the largest city in Wake County, the capital of North Carolina, and was the nation's fastest growing large city between 2000 and 2010 (US Census, 2010). The site where the City would be located was chosen as the State's capital in 1788 and represents one of the first examples of a planned city in the United States. Consequently, State government has historically been one of the foundations of Raleigh's economic life. The City is home to numerous universities and colleges including North Carolina State University, Shaw University, Meredith College, William Peace University, and St. Augustine's College. With a large percentage of the local economy devoted to government and education, the City has typically weathered broader economic downturns better than many other communities (Raleigh Economic Development, 2013). Close proximity to RTP and several major research universities ensures that high technology industries, including information technology, biotechnology, and nanotechnology, are well represented in the local economy.

According to the *Raleigh 2030 Comprehensive Plan*, Raleigh leaders are interested in promoting neighborhood quality, environmental sustainability, and strong downtown development (City of Raleigh, 2009). Development of local infrastructure should support these themes, enabling the City to address local growth in a way that maintains the area's strong livability.

Cary – Cary is the second largest city in Wake County and the third largest city in the Research Triangle region of North Carolina; between 2000 and 2010 it was the ninth fastest growing city in the United States (US Census, 2010). The Town of Cary is noted for its high median household income and for the large proportion of adult residents who hold a college degree.

Cary is home to SAS Institute, the largest privately-held software company in the world and the Town's largest employer, and many other high-technology businesses (Cary Economic Development, 2013). In addition, due to its close proximity to RTP, many workers at RTP companies make their homes in Cary.

Cary is also noted for its low crime rate, its ethnically diverse population, including a large proportion of foreign-born residents, its livability, and its progressive approach to conserving natural resources and preserving open space (Town of Cary, 2013). The Town has many public parks and well-used greenway and bicycle trails. The Town's aesthetic qualities are important in town planning and development.

Apex – The Town of Apex, at the western edge of the project study area in Wake County, is one of North Carolina's fastest growing small towns. Between 1990 and 2010, the Town experienced an over 650 percent increase in its population (US Census, 2010), and it is projected to continue its rapid growth. The Town was incorporated in 1873 and was originally named "Apex" because it was the highest point on the Chatham Railroad line between Richmond, Virginia, and Jacksonville, Florida (North Carolina History Project, 2013). Apex was one of the first towns in Wake County to develop and by the late 1800s it evolved into an important local trading and retail center.

The Town values its small-town character, historic downtown, and livability and it seeks to maintain these characteristics as it experiences future growth (Town of Apex, 2013). The Town is also interested

in expanding its local employment base as a large proportion of its residents commute to jobs in RTP, Cary, and Raleigh.

Garner – The Town of Garner is a growing community south of Raleigh in Wake County, located near the intersection of US 70 and I-40. While Garner has not grown as rapidly as some of the other Wake County municipalities, it has begun to experience population growth in recent years as local residents take advantage of the Town’s lower housing prices and plentiful stock of newer housing. Manufacturing has traditionally been a more important industry in Garner than in other nearby towns, although the Town’s manufacturing sector continues to decline, paralleling wider state and national trends. The older, central area of Garner is one of the few parts of the project study area to contain very high concentrations of minority and low-income residents.

Holly Springs – Holly Springs, until recently a small rural community in southwestern Wake County, has experienced explosive population growth over the last fifteen years as residential development spreads south into the town from Apex and Cary. It is one of the fastest growing towns in North Carolina (US Census, 2010). The Town welcomes new growth, particularly to expand its local job base, although the community also seeks to control the quality and location of new development while preserving open space and creating public areas (Town of Holly Springs, 2013). In late 2007, international pharmaceutical company Novartis broke ground on a vaccine production facility in Holly Springs along NC 55 Bypass; it now employs around 450 workers (Novartis, 2012).

Fuquay-Varina – Fuquay-Varina is a small town in southern Wake County that has begun to experience rapid suburban growth due to its proximity to the region’s employment centers and its lower housing prices and small-town character. It was traditionally an agricultural center in the area’s tobacco trade, but continues to develop a more suburban residential character. The Town initially developed as two separate communities, Fuquay Springs, incorporated in 1909, and Varina, a community that developed around a local train depot. Fuquay Springs annexed Varina in 1963 and the two communities became one (Fuquay-Varina Economic Development Commission, 2013). The Town seeks to preserve its historic past and its small-town feel while accommodating new growth.

Knightdale – Knightdale is a small Wake County community east of Raleigh that has been experiencing rapid population growth as new residential subdivisions are developed in the community, often providing lower-cost housing opportunities for area residents. The opening of US 64/US 264 Bypass and I-540 made Knightdale easily accessible from all parts of the Research Triangle region (Knightdale Chamber of Commerce, 2011). Knightdale seeks to promote growth and economic development while maintaining its small-town character.

Johnston County – Johnston County lies southeast of Wake County. It is largely a rural county with a significant agricultural sector. Its location along I-95 midway between New York and Florida helps to promote commercial, transportation and travel-oriented development in parts of the County (Johnston County, 2013). In areas near the Wake County border, residential, commercial and industrial growth is strongly influenced by the area’s proximity to Raleigh and RTP.

Clayton – Clayton is a rapidly growing small community in northern Johnston County, near the Wake County border. The Town’s growth is stimulated by its proximity to Raleigh and the Research Triangle region, its lower housing costs, and its proximity to I-40 and US 70, two important regional transportation corridors. It is Johnston County’s fastest growing municipality (US Census, 2010).

In addition to widespread residential development, the Clayton area has also experienced commercial and industrial growth. It has become an important part of the region’s high-technology industrial

economy, with several major biopharmaceutical companies, including Talecris, Hospira, and Novo Nordisk, locating in the area. More than ten percent of the State's biopharmaceutical jobs are in Clayton (Town of Clayton, 2013).

Clayton prizes its small-town character, livability, affordability, and its good schools. The community encourages future development that is consistent with these characteristics.

4 COMMUNITY IMPACT ASSESSMENT METHODS

The methods used for this CIA follow the FHWA's 1996 *Community Impact Assessment: A Quick Reference Guide*.

Consistent with FHWA guidance, a community characteristics profile was developed to describe the basic demographic characteristics of the area, which are used to assess community impacts. Demographic information from a range of sources was used to provide a general overview of the basic population and demographic characteristics of the area. The demographic characteristics selected include: age, race, income, and housing. Other characteristics evaluated include: business and employment characteristics, community resources, safety, and emergency services.

The CIA is based on functional engineering designs within the project's Detailed Study Alternatives (DSAs).

4.1 DATA/INFORMATION SOURCES

Information on population and demographic characteristics was gathered from US Census data, in-person interviews, and project site visits. A complete list of documents referenced for this report is included in **Section 9**. The following data sources provided useful information in understanding existing conditions and likely trends:

- 2010 and 2000 US Decennial Census data
- 2009-2013 American Community Survey Five-Year Estimates from the US Census
- 2013 American Community Survey One-Year Estimates from the US Census
- North Carolina Department of Commerce Division of Employment Security (NCDES) data on unemployment rates and employment by industry.
- Interviews with county and municipal staff (see **Appendix A**).
- Field visits on various dates from late 2009 through late 2012.

Local staff and other community representatives were interviewed to help uncover information not readily identifiable through the sources listed above. Local governments and agencies interviewed in order to collect information and assess community impacts included Wake County, Johnston County, City of Raleigh, Town of Cary, Town of Apex, Town of Holly Springs, Town of Fuquay-Varina, Town of Garner, Town of Knightdale, Town of Clayton, and the Capital Area Metropolitan Planning Organization (CAMPO).

4.2 COMMUNITY STUDY AREAS

Consistent with the NCDOT method for CIA, a demographic study area was defined to provide a baseline framework for preparing an inventory of notable community demographic characteristics, trends and thresholds. The Demographic Study Area consists of forty-seven Census Block Groups in Wake County and six Block Groups in Johnston County (see **Table 2** and **Figure 4**).

Table 2. Demographic Study Area Census Block Groups (2010)

Census Tract	Block Group	As Shown on Figure 4	Census Tract	Block Group	As Shown on Figure 4
Wake County					
528.01	1	371830528011	531.10	1	371830531101
528.01	2	371830528012	531.10	2	371830531102
528.01	3	371830528013	531.10	3	371830531103
528.01	4	371830528014	531.11	1	371830531111
528.02	3	371830528023	531.11	2	371830531112
528.02	4	371830528024	531.11	3	371830531113
528.03	2	371830528032	532.01	1	371830532011
528.06	4	371830528064	532.01	2	371830532012
528.07	1	371830528071	532.02	1	371830532021
528.07	2	371830528072	532.02	2	371830532022
528.08	1	371830528081	532.03	1	371830532031
528.08	2	371830528082	532.03	2	371830532032
528.08	3	371830528083	534.20	1	371830534201
528.08	4	371830528084	534.20	2	371830534202
528.09	1	371830528091	534.21	1	371830534211
528.09	2	371830528092	541.09	2	371830541092
529.02	1	371830529021	541.14	2	271830541142
529.02	2	371830529022	541.15	3	371830541153
529.03	1	371830529031	541.15	4	371830541154
529.04	1	371830529041	Johnston County		
529.04	2	371830529042	410.02	1	371010410021
529.04	3	371830529043	410.02	2	371010410022
530.06	1	371830530061	410.02	3	371010410023
530.08	4	371830530084	411.02	1	371010411021
530.09	2	371830530092	411.02	2	371010411022
530.09	3	371830530093	411.02	3	371010411023
530.09	4	371830530094			
531.09	1	371830531091			

Source: US Census (2010)

This broad area was established to identify and analyze population growth, household, employment and other demographic characteristics. This information will be used as a foundation for determining potential project-related impacts to the human environment.

In accordance with the NCDOT method for CIA, a Direct Community Impact Area (DCIA) was defined to identify the area with the most potential for direct project-induced community-related effects. **Figure 4** shows the DCIA.

Generally, the DCIA boundary was drawn considering such factors as whether a neighborhood would have relocations or property acquisition as a result of the project, or whether an area would experience major changes in access. In most cases, if a portion of a neighborhood would be impacted, the entire neighborhood was included in the DCIA. The DCIA begins at the western project boundary and ends at the eastern project boundary.

Figure 4 shows the Demographic Study Area. The Demographic Study Area includes block groups within or adjacent to Detailed Study Alternatives (DSAs) under consideration for the project. The Demographic Study Area encompasses block groups within incorporated Apex, Holly Springs, Cary, Fuquay-Varina, Garner, Raleigh, Knightdale, and Clayton, as well as unincorporated Wake and Johnston counties.

5 COMMUNITY CONTEXT

Land use in the Demographic Study Area is of mixed intensity, type and density; although low-density residential subdivision and rural land uses are the most prevalent characteristics of the area (see **Figure 5**). Low-density residential uses include both single-family subdivisions and mobile home parks. Interspersed with these land uses are numerous churches, schools, daycare centers, and other similar types of development. Much of the Demographic Study Area was, until recently, characterized by agricultural and rural residential land uses. Many of the communities in the Demographic Study Area have become increasingly popular locations for suburban development as people commuting to jobs in Research Triangle Park, Raleigh, and other employment centers in the Research Triangle region seek affordable housing, open space, and the quality of life offered by southern Wake County and Johnston County.

The western part of the Demographic Study Area includes significant commercial, industrial, and office development along NC 55 and NC 55 Bypass. There are also commercial shopping centers along Holly Springs Road and Kildaire Farm Road. The Holly Springs/Apex/Cary area includes numerous large planned residential subdivisions with homes on lots smaller than one-third acre. There are a few multi-family residential developments in this part of the study area, generally along Kildaire Farm Road and West Lake Road. Downtown Holly Springs features uses such as small offices, government buildings, and small retail stores.

The southwestern corner of the Demographic Study Area includes the Fuquay-Varina area. This community's downtown areas also feature retail stores, restaurants, small offices, churches, schools and government buildings. South and west of Fuquay-Varina, land uses become rural, with numerous farms along with rural, large-lot residences and farm-oriented commercial uses. Areas north and northwest of Fuquay-Varina are characterized by a mix of rural and agricultural uses, horse farms and stables, and newer residential subdivisions. Areas along and near US 401, which connects Fuquay-Varina to Garner and Raleigh to the north, have a higher concentration of industrial uses including automotive businesses, light manufacturing facilities and warehouses, along with commercial uses, restaurants, bars, and small offices.

East of US 401, much of the Demographic Study Area becomes increasingly rural. South of Lake Benson, low-density residential subdivisions and numerous farms and farm-oriented businesses predominate. North of Lake Benson, the central area of Garner is characterized by older, more urban residential development, numerous multi-family residential developments, and significant commercial development. West and south of central Garner, newer single-family residential developments continue to be built. The US 70 corridor between Garner and Clayton features regional shopping centers and numerous industrial developments, including manufacturing and research and development facilities. Industrial and regional commercial development also characterizes the areas surrounding I-40 east of Garner.

East of I-40 and US 70, southern Wake County is mostly rural, with widespread agricultural operations and related rural land uses. Suburban residential development is, however, starting to spread into this portion of the Demographic Study Area, although this type of development is not as common as in the western part of the Demographic Study Area. At the northeastern edge of the Demographic Study Area, land uses include more commercial and industrial developments, particularly near the US 64/US 264 Bypass and along US 64 Business in Knightdale.

The portion of northern Johnston County within the Demographic Study Area is also characterized by a mix of agricultural, rural residential, and newer suburban residential development. The area surrounding the NC 42 interchange on I-40 includes highway-oriented commercial development, with numerous motels, restaurants, gas stations, convenience stores and other retail uses. The new Johnston Medical Center is located on NC 42 east of the US 70 Bypass (Clayton Bypass) interchange. Central Clayton features a mix of small-town urban land uses and older residential neighborhoods. US 70 Business through this part of Johnston County features commercial shopping centers, industrial parks, and office uses.

5.1 COMMUNITY DEMOGRAPHICS

The following sections provide an overview of the Demographic Study Area demographic characteristics. Comparisons are made to the state, county, and town (where available) demographic data to uncover notable trends and to draw general conclusions about the area.

5.1.1 Population Trends

Table 3 presents a summary of the population changes in the region and in the Demographic Study Area between 2000 and 2010. It is important to note that the U.S. Census Bureau modified nearly all of the block group boundaries in the Demographic Study Area between 2000 and 2010, resulting in a smaller total area within the Demographic Study Area based on 2010 Census data than that based on 2000 data.

Table 3. Population Change - 2000 to 2010

Jurisdiction	Population		Growth	
	2000	2010	Actual Difference	Percent Change
North Carolina	8,049,313	9,535,485	1,486,172	18.5%
Wake County	627,846	900,993	273,147	43.5%
Raleigh	276,093	403,892	127,799	46.3%
Cary	94,536	135,234	40,698	43.1%
Apex	20,212	37,476	17,264	85.4%
Garner	17,757	25,745	7,988	45.0%
Holly Springs	9,192	24,611	15,419	167.7%
Fuquay-Varina	7,898	17,937	10,039	127.1%
Knightdale	5,958	11,401	5,443	91.4%
Johnston County	121,965	168,878	46,913	38.5%
Clayton	6,973	16,116	9,143	131.1%
Total Demographic Study Area*	N/A	132,190	--	--

*Census Block Group boundaries changed between 2000 and 2010; therefore the boundaries of the Demographic Study Area changed between 2000 and 2010. The Demographic Study Area based on 2010 Census Block Groups is smaller than the Demographic Study Area based on 2000 Census Block Groups.

Source: US Census Bureau (2010) Summary File 1 Total Population (100-Percent Data), Summary File 1 (100-Percent Data), Table P1 – TOTAL POPULATION (2000)

All of the municipalities in the Demographic Study Area, along with both Wake and Johnston counties, experienced much greater population growth between 2000 and 2010 than North Carolina as a whole. Each county's population expanded at more than twice the statewide population growth rate. The populations of all of the municipalities in the study area increased over this time period, with the fastest growth in Holly Springs (over 167 percent), Clayton (over 131 percent), and Fuquay-Varina (over 127 percent), due in part to the presence of developable land and proximity to area job centers. All three of these municipalities had fairly small populations in 2000, and over the next ten years experienced significant new suburban development and annexations increasing their incorporated areas. The larger,

more established municipalities in the Demographic Study Area, such as Raleigh and Cary, have also experienced continued rapid growth.

5.1.2 Race and Ethnicity

Table 4 provides a summary of the major racial and ethnic groups in the region and the project Demographic Study Area in 2010. A detailed version of this table, including data at the block group level, is in **Appendix B**. Whites and blacks are the two largest racial groups within the study area. Wake and Johnston counties have similar proportions of these racial groups and these proportions are similar to those for the State as a whole. Wake County is about 68 percent white, 21 percent black, and 5 percent Asian. Johnston County is about 74 percent white, 15 percent black, and less than 1 percent Asian. The racial makeup of the Demographic Study Area is fairly similar to those of Wake and Johnston counties. The Demographic Study Area is about 71 percent white, 19 percent black, and 2 percent Asian.

Wake and Johnston counties and the Demographic Study Area also have similar proportions of residents with Hispanic/Latino ethnicity. Wake County is about 10 percent Hispanic/Latino while Johnston County is about 13 percent Hispanic/Latino. The Demographic Study Area is about 10 percent Hispanic/Latino.

Block groups with Substantially Higher than Average Populations of Racial Minority Groups.

Figure 6 shows the total percentages of minority populations for block groups in the Demographic Study Area. The total minority population, shown in Table 4, is calculated by subtracting the total non-Hispanic white population from the total population. About 34 percent of the individuals in the Demographic Study Area are members of minority groups, compared to 38 percent in Wake County and 30 percent in Johnston County. Most of the block groups in the Demographic Study Area have similar or smaller minority populations than the Demographic Study Area as a whole. Six block groups have greater than 50 percent minority populations. All of these are along the north central/northeastern boundary of the Demographic Study Area, in northeastern Garner, southeastern Raleigh, and Knightdale. All of these areas also have significantly greater concentrations of black populations than the Demographic Study Area as a whole.

Census Tract 528.06 Block Group 4, in southeastern Raleigh, has the highest concentration of minority population (81.5 percent) and black population (64.0 percent) in the Demographic Study Area. Census Tract 528.03 Block Group 2, in southeast Raleigh, and Census Tract 541.14 Block Group 2, in Knightdale, have the next highest concentrations of minority population (72.8 percent and 70.0 percent, respectively).

Figure 7 shows the total percentages of members of Hispanic/Latino ethnic groups of any race for block groups in the Demographic Study Area. The highest concentration of Hispanic/Latino population occurs in Census Tract 530.09 Block Group 4 (42.7 percent), along the west side of US 401, near Wake Technical Community College, and in Census Tract 541.14 Block Group 2 (42.6 percent), in Knightdale near the eastern terminus of the project.

One block group contains a significantly higher concentration of Asian population than the Demographic Study Area. This is Census Tract 534.20 Block Group 2 (6.2 percent), in southern Apex. This percentage is lower than the percentage of Asian population in the Town of Apex,

Table 4. Population by Race, Population by Ethnicity, and Total Minority Population (2010)

JURISDICTION	TOTAL POPULATION	TOTAL POPULATION BY RACE						TOTAL POPULATION BY HISPANIC OR LATINO ETHNICITY		TOTAL MINORITY POPULATION*
		White	Black or African American	American Indian or Alaskan Native	Asian	Native Hawaiian or Pacific Islander	Other#	Hispanic or Latino (any race)	Not Hispanic or Latino	
North Carolina	9,535,483	6,528,950 (68.5%)	2,048,628 (21.5%)	122,110 (1.3%)	208,962 (2.2%)	6,604 (0.1%)	620,229 (6.5%)	800,120 (8.4%)	8,735,363 (91.6%)	3,311,488 (34.7%)
Wake County	900,933	597,546 (66.3%)	186,510 (20.7%)	4,503 (0.5%)	48,553 (5.4%)	387 (<0.1%)	63,434 (7.0%)	87,922 (9.8%)	813,011 (90.2%)	340,457 (37.8%)
Raleigh	403,892	232,377 (57.5%)	118,471 (29.3%)	1,963 (0.5%)	17,434 (4.3%)	173 (<0.1%)	33,474 (8.3%)	46,045 (11.4%)	357,847 (88.6%)	188,688 (46.7%)
Cary	135,234	98,907 (73.1%)	10,787 (8.0%)	559 (0.4%)	17,668 (13.1%)	46 (<0.1%)	7,267 (5.4%)	10,364 (7.7%)	124,870 (92.3%)	42,032 (31.1%)
Apex	37,476	29,796 (79.5%)	2,862 (7.6%)	106 (0.3%)	2,652 (7.1%)	31 (0.1%)	2,029 (5.4%)	2,665 (7.0%)	34,811 (93.0%)	9,011 (24.0%)
Garner	25,745	14,888 (57.8%)	8,468 (32.9%)	140 (0.5%)	474 (1.8%)	12 (<0.1%)	1,763 (6.8%)	2,561 (9.9%)	23,184 (90.1%)	11,956 (46.4%)
Holly Springs	24,661	19,674 (79.8%)	3,101 (12.6%)	103 (0.4%)	724 (2.9%)	13 (0.1%)	1,046 (4.2%)	1,544 (6.3%)	23,117 (93.7%)	5,958 (24.2%)
Fuquay-Varina	17,937	12,967 (72.3%)	3,527 (19.7%)	110 (0.6%)	361 (2.0%)	5 (<0.1%)	967 (5.4%)	1,738 (9.7%)	16,199 (90.3%)	6,017 (33.5%)
Knightdale	11,401	5,698 (50.0%)	4,368 (38.3%)	66 (0.6%)	193 (1.7%)	6 (<0.1%)	1,070 (9.4%)	1,299 (11.4%)	10,102 (88.6%)	6,166 (54.1%)
Johnston County	168,878	125,349 (74.2%)	25,546 (15.1%)	939 (0.6%)	1,021 (0.6%)	51 (<0.1%)	15,972 (9.5%)	21,841 (12.9%)	147,037 (87.1%)	51,009 (30.2%)
Clayton	16,116	11,195 (69.5%)	3,507 (21.2%)	65 (0.4%)	224 (1.4%)	2 (<0.1%)	1,123 (7.0%)	1,725 (10.7%)	14,391 (89.3%)	5,686 (35.3%)
Total Demographic Study Area	132,190	94,362 (71.4%)	25,173 (19.0%)	842 (0.6%)	2,506 (1.9%)	121 (0.1%)	9,186 (6.9%)	13,555 (10.4%)	118,635 (89.6%)	43,622 (33.0%)

#Includes individuals reporting "some other race" or "two or more races."

*Total minority population includes all individuals reporting a race other than white plus all individuals reporting both white race and Hispanic or Latino ethnicity (data not shown). This is calculated by subtracting the total non-Hispanic white population (data not shown) from the total population. All other races with Hispanic or Latino ethnicity are included in the race figures used to determine total minority population.

Source: US Census Bureau (2010) Summary File 1 Total Population (100-Percent Data), Table P8. – RACE and Table P9. – HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE

however, so it does not represent an unusually high concentration of Asians compared to other nearby areas. In addition, there are no defined Asian cultural centers in this area.

The highest concentrations of white populations occur in southern Cary and northeastern Holly Springs in Census Tract 530.06 Block Group 1 (93.8 percent) and Census Tract 532.02 Block Group 1 (93.6 percent).

General Trends. Minority populations make up a larger proportion of the block groups along the northeastern and north central edge of the Demographic Study Area. Hispanic populations are concentrated in the Knightdale and Garner areas and near US 401 between Garner and Fuquay-Varina.

5.1.3 Age

As shown in **Table 5**, the median age for the State is 38.7 years. In both Wake County (35.3 years) and Johnston County (37.4 years), the median ages are slightly lower than for the State. The median age of the population in the Demographic Study Area is 36.5 years. A detailed version of this table, including data at the block group level, is in **Appendix B**. Median ages for the block groups within the Demographic Study Area range between 30.4 years (Census Tract 528.06 Block Group 4) and 49.8 years (Census Tract 530.09 Block Group 3).

As also shown in **Table 5**, approximately 26 to 36 percent of the populations of most of the jurisdictions in the Demographic Study Area consist of people aged 20 or younger. All of the jurisdictions have a smaller percentage of population aged 69 or older than does North Carolina (8.7 percent). All of the block groups in the Demographic Study Area have relatively similar percentages of young residents, but there is a greater variety of proportions of older residents.

Table 5. Population by Age Group and Median Age (2010)

Area	Total Population	Percent ≤20 Years	Percent ≥69 Years	Median Age
North Carolina	9,535,483	26.8	8.7	38.7
Wake County	900,933	28.8	5.5	35.3
Raleigh	403,892	26.9	5.6	32.8
Cary	135,234	29.5	5.6	37.3
Apex	37,476	34.7	3.7	35.3
Garner	25,745	26.5	8.2	38.6
Holly Springs	24,661	36.8	2.7	33.4
Fuquay-Varina	17,937	31.9	7.7	35.4
Knightdale	11,401	31.7	4.1	33.7
Johnston County	168,878	30.2	6.5	37.4
Clayton	16,116	32.9	5.8	34.9
Total Demographic Study Area	132,190	31.1	4.7	36.5

Source: US Census Bureau (2010) Summary File 1 Total Population (100-Percent Data), Table P12. – SEX BY AGE

General Trends. There do not appear to be any general areas where the population composition has higher than average senior or youth populations. As described above, there are no block groups in the Demographic Study Area with notably higher concentrations of younger residents; block groups with higher than average percentages of older residents are scattered throughout the Demographic Study Area.

5.1.4 Income

Data on median household incomes within the region are shown in **Table 6**. A detailed version of this table, including data at the block group level, is in **Appendix B**. As shown in the table, the median household incomes for Wake County (\$66,006), Johnston County (\$49,711), and all of the municipalities in the Demographic Study Area are higher than the State (\$46,334). Many of the municipalities have median household incomes with substantially higher incomes than the State. Cary (\$90,250), Holly Springs (\$89,644), and Apex (\$89,475) all have median incomes almost twice the State’s median. Clayton (\$57,456) and Raleigh (\$54,448) have the lowest median incomes of the study area municipalities. The project Demographic Study Area has a median household income (\$73,562) that is higher than either the Wake or Johnston County medians.

Block Groups with Median Incomes Substantially Higher or Lower than the Average. There are three block groups in the Demographic Study Area with lower median incomes than the State as a whole. They are near US 401 between Garner and Fuquay-Varina and in the Clayton area. Census Tract 410.02 Block Group 2 and Census Tract 530.09 Block Group 4 have the lowest median incomes (\$25,568 and \$26,860, respectively) in the study area. Nine block groups in the Demographic Study Area have median incomes higher than any of the Demographic Study Area municipalities. Most of these are in the northwestern part of the Demographic Study Area. Census Tract 532.02 Block Group 1, in Holly Springs, has the area’s highest median income (\$136,689). There are numerous high-priced residential subdivisions in this block group, with little multifamily housing.

General Trends. The lowest reported median incomes are generally located in block groups concentrated in the north central and northeastern part of the study area, in Garner, southeast Raleigh, and Knightdale. Areas near Clayton are also characterized by lower median household incomes than the Demographic Study Area as a whole. Many of these areas also have higher than average concentrations of minority residents. Median incomes tend to be much higher than the Demographic Study Area as a whole in the northwestern and western edges of the study area, in southern Cary, Apex, and Holly Springs.

Table 6. Median Household Income

Jurisdiction	Total Households	Median Household Income (\$)	Jurisdiction	Total Households	Median Household Income (\$)
North Carolina	3,715,565	46,334	Holly Springs	8,621	89,644
Wake County	348,627	66,006	Fuquay-Varina	7,110	58,588
Raleigh	162,573	54,448	Knightdale	3,754	72,285
Cary	52,340	90,250	Johnston County	60,759	49,711
Apex	13,427	89,475	Clayton	6,335	57,456
Garner	10,581	60,842	Total Demographic Study Area	48,263	73,562

Source: US Census Bureau 2009-2013 American Community Survey Table B19001. – HOUSEHOLD INCOME IN THE PAST 12 MONTHS

5.1.5 Environmental Justice Considerations

Federal laws and regulations require the evaluation of effects of transportation actions on minority and low-income populations that in the past have been under-represented or discriminated against in the decision-making process.

Title VI of the Civil Rights Act of 1964 protects individuals from discrimination on the grounds of race, age, color, religion, disability, sex, and national origin. Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-income Populations* (February 11, 1994), requires that each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects on minority and low-income populations. Special populations may include the elderly, children, the disabled, low-income areas, American Indians and other minority groups. Executive Order 12898 requires that environmental justice principles be incorporated into all transportation studies, programs, policies and activities.

The three fundamental environmental justice principles are:

- 1) To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- 2) To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority and low-income populations.
- 3) To fully evaluate the benefits and burdens of transportation programs, policies and activities upon low-income and minority populations.

The USDOT Order 5610.2 defines “minority” in the definition section of its appendix and provides definitions of four minority groups addressed by Executive Order 12898. These groups are:

- 1) Black – a person having origins in any of the black racial groups of Africa.
- 2) Hispanic – a person of Mexican, Puerto Rican, Cuban, Central or South America, or other Spanish culture or origin regardless of race.
- 3) Asian – a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands.
- 4) American Indian and Alaskan Native – a person having origins in any of the original people of North America and who maintains tribal affiliation or community attachment.

It also defines ‘low-income’ as a person (of any race) whose household income (or in the case of a community or group, whose median household income) is at or below the US Department of Health and Human Services poverty guidelines. These guidelines set poverty thresholds for families which vary according to the size of the family and the ages of its members. If a family’s income falls below the poverty threshold for a family of its size and age characteristics, it is considered by the Census to have poverty status.

Minority Populations. As discussed in **Section 5.1.2**, whites, blacks, and Hispanics are the three largest racial/ethnic groups within the study area. **Figures 7** and **8** show the general concentrations of minority and Hispanic/Latino populations. **Figure 7** shows the locations of block groups with either greater than 50 percent minority individuals or a minority population at least 10 percentage points higher than the County averages; these characteristics can help indicate where populations could meet the criteria for environmental justice consideration. This information is also shown in **Table 4**.

The black population in the Demographic Study Area is highly concentrated along the northeastern and northern edges of the study area, in central Garner, southeast Raleigh, and Knightdale. Hispanic

populations are clustered in various parts of the Demographic Study Area, including in Garner, southeast Raleigh/Knightdale, along US 401, and in Clayton.

Interviews with local representatives revealed that the Census data are consistent with current locations of potential environmental justice populations.

Low-income Populations. As shown in **Table 7**, 9.8 percent of the population in the Demographic Study Area lives below the poverty level, less than for North Carolina and Johnston County as a whole, and slightly less than for Wake County. This information was calculated using Census tract-level data, rather than block group-level data, because block group-level data are not available for poverty status from the 2009-2013 American Community Survey. A detailed version of this table, including data at the Census tract level, is in **Appendix B**. **Figure 9** shows concentrations of low-income populations by Census tract. Two Census tracts have larger percentages of low-income populations than the State average of 17.5 percent—Census Tract 530.09, along US 401 near Garner, and Census Tract 528.03, north of US 70 in Garner. These two Census tracts, along with Census Tract 531.11, along US 401 in Fuquay-Varina, are the only ones in the Demographic Study Area with a share of individuals below the poverty level at least 5 percentage points higher than the county as a whole. There are no Census tracts in the study area with 50 percent or more individuals below the poverty level. These two characteristics would help indicate where populations could meet the criteria for environmental justice consideration.

Table 7 also shows that about 5 percent of the population in the Demographic Study Area can be considered “very poor”, with incomes less than or equal to 50 percent of the poverty level, less than for North Carolina and Johnston County as a whole, and similar to Wake County. In addition, about 9 percent of the population in the Demographic Study Area can be considered “near poor”, with incomes between the poverty level and 150 percent of the poverty level, slightly less than for North Carolina and Johnston County as a whole, and slightly more than Wake County. In general, the distribution of individuals considered to be “very poor” and “near poor” is similar to the distribution of individuals below the poverty level.

Interviews with municipal staff, field visits to areas within these block groups, and review of Wake County Public School System’s more recent data on percentages of school children eligible for free and reduced lunch confirmed that the Census data indicate current locations of potential environmental justice populations.

In general, higher levels of poverty occur in the north-central and northeastern parts of the Demographic Study Area, with additional higher poverty areas near Clayton and Fuquay-Varina. Households within the Demographic Study Area tend to have higher incomes than the Wake and Johnston county averages, with the lowest levels of poverty in the Demographic Study Area concentrated in its western and southern parts.

Table 7. Poverty Status

Jurisdiction	Total Population for Whom Poverty Status is Determined	Individuals with Income Below Poverty Level	Percent of Individuals Below Poverty Level	Individuals with Income in "Very Poor" Category*	Percent of Individuals in "Very Poor" Category*	Individuals with Income in "Near Poor" Category#	Percent of Individuals in "Near Poor" Category#
North Carolina	9,396,989	1,643,389	17.5	723,387	7.7	1,018,830	10.8
Wake County	906,662	99,679	11.0	46,515	5.1	73,302	8.1
Raleigh	394,492	64,072	16.2	30,450	7.7	40,311	10.2
Cary	140,641	8,663	6.2	3,544	2.5	6,708	4.8
Apex	39,042	965	2.5	411	1.0	1,922	3.5
Garner	25,966	2,235	8.3	1,226	4.7	1,800	6.9
Holly Springs	25,977	798	3.1	121	0.5	727	2.8
Fuquay-Varina	19,009	1,949	9.3	728	3.8	2,120	11.1
Knightdale	10,420	532	5.1	434	3.6	703	5.9
Johnston County	170,329	29,264	17.2	12,084	7.1	18,513	10.9
Clayton	16,536	2,053	11.0	729	4.4	819	4.9
Total Demographic Study Area	167,668	16,504	9.8	7,638	4.6	15,215	9.1

*Income less than or equal to 50 percent of poverty level.

#Income between poverty level and 150 percent of poverty level.

Source: US Census Bureau 2009-2013 American Community Survey Table B17001. – POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE; Table C17002. – RATIO OF INCOME TO POVERTY LEVEL IN THE PAST 12 MONTHS.

5.1.6 Means of Transportation

American Community Survey 2009-2013 5-year estimates for means of transportation to work were used to determine the percentages of workers in Demographic Study Area block groups who traveled to work using different transportation modes. Higher percentages of workers traveling via carpools, public transportation, or other alternative modes, particularly outside of dense urban areas, can be an indicator for low-income and disadvantaged populations. **Table 8** shows the results of this analysis. A detailed version of this table, including data at the block group level, is in **Appendix B**.

There is relatively little variation in the shares of Demographic Study Area block groups and jurisdictions using various transportation modes. About 82 percent of workers across the Demographic Study Area traveled to work by driving alone, 10 percent by carpooling, 0.2 percent by public transportation and about 8 percent via other modes (including those who worked at home). Most of the Demographic Study Area block groups displayed similar shares of travel modes. Notable exceptions were Wake County Census Tract 534.20 Block Group 1, where about 67 percent drove alone, 10 percent carpooled, and 23 percent used other modes; Wake County Census Tract 530.06 Block Group 1, where about 70 percent drove alone, 9 percent carpooled, and 21 percent used other modes; Wake County Census Tract 531.10 Block Group 3, where about 70 percent drove alone, 18 percent carpooled, and 12 percent used other modes; and Wake County Census Tract 530.09 Block Group 2, where 72 percent drove alone, 23 percent carpooled, and 5 percent used other modes. Median household income data, however, show that all of these block groups have median incomes similar to or higher than the County as a whole.

Table 8. Means of Transportation to Work

Jurisdiction	Percent Who Drove Alone	Percent Who Carpooled	Percent Who Took Public Transportation	Percent Walking/Biking/Other
North Carolina	81.1	10.4	1.1	7.4
Wake County	80.1	9.5	2.1	9.1
Raleigh	79.3	10.0	2.1	8.8
Cary	80.2	8.4	0.6	10.8
Apex	80.5	9.4	0.6	9.6
Garner	81.5	9.1	0.3	9.0
Holly Springs	79.9	8.6	0.2	11.4
Fuquay-Varina	78.9	11.5	0.0	9.6
Knightdale	80.9	12.2	0.0	6.9
Johnston County	82.8	11.1	0.2	5.9
Clayton	82.4	15.4	0.0	2.2
Total Demographic Study Area	82.3	9.6	0.2	7.9

Source: US Census Bureau 2009-2013 American Community Survey Table B08301 – MEANS OF TRANSPORT TO WORK

5.1.7 Limited English Proficiency

Executive Order 13166 “Improving Access to Services for Persons with Limited English Proficiency” requires all recipients of federal funds to provide meaningful access to persons who are limited in their English proficiency (LEP). The US Department of Justice defines LEP individuals as those “who do not speak English as their primary language and who have a limited ability to read, write, speak, or understand English” (67 FR 41459). Data about LEP populations are gathered as part of the American Community Survey.

American Community Survey 2009-2013 5-year estimates for language spoken at home were used to determine if there were block groups within the project Demographic Study Area containing a high percentage of individuals with limited English proficiency. **Figure 10** shows the percentage of adults who speak English less than very well for the block groups in the Demographic Study Area. **Table 9** shows the percentages of adults (18 years of age or older) who speak English less than very well by language category. **Appendix C** lists the percentages of adults who speak English less than very well in all block groups and jurisdictions in the Demographic Study Area.

Table 9. Percentage of Adults Who Speak English Less than Very Well

Jurisdiction	Total Adult Population for Whom Language Data is Available	Primary Language Group of Adults Who Speak English Less than Very Well				Total LEP
		Spanish	Other Indo-European	Asian/Pacific	Other	
Total Demographic Study Area	126,729	5,688 (4.5%)	318 (0.3%)	404 (0.3%)	418 (0.3%)	6,808 (5.4%)
Johnston County	159,865	10,240 (6.4%)	203 (0.1%)	137 (0.1%)	99 (0.1%)	10,679 (6.7%)
Wake County	863,927	35,131 (4.1%)	6,714 (0.8%)	10,092 (1.2%)	3,060 (0.4%)	54,997 (6.4%)

Source: US Census Bureau 2009-2013 American Community Survey Table B16004. – LANGUAGE SPOKEN AT HOME BY ABILITY TO SPEAK ENGLISH

The data indicate the presence of a Spanish language group that exceeds the Department of Justice’s Safe Harbor threshold of 5 percent or 1,000 persons. In accordance with the Safe Harbor provisions, written translations of vital documents will be provided for the LEP language group in addition to other measures assuring meaningful access. These other measures include notice of Right of Language Access for future meetings for this project. According to Executive Order 13166, federal and state agencies are directed to “take reasonable steps to ensure ‘meaningful’ access to information and services.” In order to meet this requirement, NCDOT has translated, and will continue to translate, vital documents into Spanish and to notify LEP communities of their right to language access in regards to study materials, public outreach, and other components of the project. In so doing, NCDOT believes the requirements of Executive Order 13166 will be satisfied.

5.2 HOUSING CHARACTERISTICS

A review of Census data shows that much of the project Demographic Study Area consists of newer housing, built since 1990. Much of the housing in the western part of the study area in particular was built after 2000. Older housing is mainly clustered in the central areas of Garner, Fuquay-Varina and Clayton. While the most recent recession has stemmed the rapid pace of residential development in the Demographic Study Area, local planners expect the pace of development to resume as the region’s economy begins to improve.

Table 10 provides a summary of the housing ownership and value characteristics of the Demographic Study Area. A detailed version of this table, including data at the block group level, is in **Appendix B**. The percentage of renter-occupied housing units is about 35 percent in Wake County, 27 percent in Johnston County, and 33 percent statewide. Raleigh has a much higher percentage of renter-occupied housing units (46.5 percent) than other jurisdictions in the area, owing partly to the large number of university students living in the city. About 19 percent of the housing units in the Demographic Study Area are renter-occupied, a smaller percentage than in the wider region.

As shown in **Table 10**, there is a smaller percentage of vacant residential units in all study area jurisdictions as compared to the State’s 13.5 percent average.

As shown in **Table 10**, the median value of owner-occupied housing units for the State between 2009 and 2013 was \$153,600. The median value of owner-occupied housing units for Wake County (\$229,000) is much higher than the State and for Johnston County (\$141,200) is similar to the State. All of the study area municipalities have higher median owner-occupied housing values than the State, with the highest median value in Cary (\$303,700) and the lowest in Clayton (\$152,600).

Block Groups with Highest and Lowest Percent of Renter-Occupied Units. The block groups with the highest percent of renter-occupied units are located in Clayton (Census Tract 410.02 Block Group 2 – 58.7 percent) and Garner (Census Tract 528.08 Block Group 4 – 57.5 percent). Block groups with the lowest percent of renter-occupied units are scattered across the western half of the Demographic Study Area. The lowest percentages are in Census Tract 532.02 Block Group 2 (2.9 percent), in southeastern Holly Springs, and Census Tract 530.06 Block Group 1 (3.4 percent), in southern Cary.

Table 10. Housing Characteristics

Jurisdiction	Renter-occupied housing units (percent)	Vacant Housing Units (percent)	Median value owner-occupied units (\$)
North Carolina	33.3	13.5	149,100
Wake County	34.9	7.0	222,300
Raleigh	46.5	7.5	203,300
Cary	31.2	3.3	289,000
Apex	25.3	5.0	246,700
Garner	34.1	7.0	162,300
Holly Springs	12.6	5.9	231,800
Fuquay-Varina	26.8	8.6	185,100
Knightdale	32.0	10.5	171,600
Johnston County	26.8	8.5	136,200
Clayton	34.6	9.0	151,000
Total Demographic Study Area	18.7	6.0	206,077

Source: US Census Bureau (2010) Summary File 1 Total Population (100-Percent Data), Table H1 & H3 – OCCUPIED STATUS; 2009-2013 American Community Survey Table B25077 – MEDIAN VALUE OF OWNER-OCCUPIED HOUSING UNITS

Block Groups with Highest and Lowest Percent of Vacant Units. There is relatively little variation across the Demographic Study Area in the percent of vacant units in each block group. Johnston County Census Tract 410.02 Block Group 2, in Clayton, has the highest percentage of vacant units (14.4 percent). Census Tract 528.01 Block Group 1, in rural southwestern Garner near Lake Benson, has the lowest percentage of vacant units (1.8 percent).

Block Groups with the Highest and Lowest Median Home Values. All of the block groups in the Demographic Study Area have median home values that are above \$100,000. Census Tract 530.09 Block Group 4, in southern Raleigh west of US 401, has the lowest median home value (\$117,700). Census Tract 532.02 Block Group 2, in Holly Springs has the highest median home value (\$375,200).

General Trends. While the Demographic Study Area has relatively high median home values and relatively low percentages of renter-occupied and vacant units, there is some variation across the area. The western and southern parts of the Demographic Study Area tend to feature higher median home values and lower percentages of renter-occupied and vacant units. The reverse is true for the areas in Clayton, Garner, and southeast Raleigh.

5.3 BUSINESS AND EMPLOYMENT CHARACTERISTICS

Home to North Carolina’s capital and numerous universities, and adjacent to Research Triangle Park, Wake County has a robust and diversified economy featuring many of the State’s largest employers. State government has always been the foundation of the area’s job base, but biotechnology, information technology, higher education, and health care are also important and growing components of the area’s industrial mix.

Table 11, which compares unemployment rates over time for Wake and Johnston counties and the Raleigh-Cary Metropolitan Statistical Area (MSA), which includes Wake, Johnston, and Franklin counties, to State unemployment rates, illustrates that the Demographic Study Area maintains a stronger job base than the State as a whole. Unemployment rates in all areas have risen since 2002, due primarily to the recent economic recession, but have been steadily decreasing since early 2010, when

unemployment rates peaked. Unemployment rates are consistently lower in Wake County and the Raleigh-Cary MSA than in Johnston County or the State.

Table 12 lists the shares of total employment in various super-sectors or domains for industries in North Carolina, Wake and Johnston counties, and the Raleigh-Cary MSA. These proportions are shown for 2002 and 2012 to illustrate employment trends in each of these areas.

Table 11. Unemployment Rates

Area	2002 Annual Average	2012 Annual Average	October 2013
North Carolina	6.4%	9.5%	8.0%
Wake County	5.6%	7.5%	5.9%
Johnston County	5.7%	8.4%	6.5%
Raleigh-Cary MSA	5.5%	7.7%	6.0%

Source: North Carolina Division of Employment Security.

Notes: Year 2012 most recent year in which annual data available.

The Wake County and Raleigh-Cary MSA employment distributions each display some key differences relative to North Carolina’s distribution. In both 2002 and 2012, Wake County and the Raleigh-Cary MSA had a greater concentration of jobs in service-providing industries and a lower concentration of jobs in goods-producing industries than the State as a whole. This result was largely due to the much lower concentration of manufacturing jobs in Wake County and the Raleigh-Cary MSA relative to the State. The concentration of service-providing jobs, however, was slightly greater in Johnston County than for the State in both 2002 and 2012. This was largely due to the greater concentration of jobs in natural resources, which includes agricultural jobs, and in construction than the State averages. Johnston County continues to have a much greater concentration of employment in goods-producing industries than Wake County and the Raleigh-Cary MSA as a whole.

Within the service-providing domain, Wake County and the Raleigh-Cary MSA had greater concentrations of employment in the professional/business, information, and public administration sectors in both 2002 and 2012. Johnston County had a much lower concentration of jobs in professional/business industries than in Wake and the MSA; its concentration of jobs in this area was also lower than the State’s in 2002 and 2012. Relative to Wake and the MSA, Johnston continues to have a greater concentration of jobs in trade/transportation/utilities and education/health industries and a lower concentration of jobs in information, financial, professional/business and public administration industries.

The manufacturing sector continues to decline in both Wake and Johnston counties, although it still makes up a larger share of Johnston’s employment distribution than Wake’s. The education and health sectors make up a growing share of each county’s job base. The distribution in other sectors has been fairly consistent between 2002 and 2012 in the two counties, although Johnston County has experienced a slight decline in its share of private sector jobs and an increase in its share of government jobs. Much of this shift is due to the continued loss of manufacturing jobs, reflecting a larger statewide and nationwide trend. Wake County’s lower dependence on manufacturing jobs has helped make its economy somewhat more resilient than in other areas of the State.

Table 12. Annual Employment Distribution – 2002/2012 (Percent)

Employment Industry	2002				2012			
	North Carolina	Wake County	Johnston County	Raleigh-Cary MSA	North Carolina	Wake County	Johnston County	Raleigh-Cary MSA
Goods-Producing Domain								
Natural Resources/Mining	1.0	0.6	2.7	0.8	0.8	0.2	2.0	0.4
Construction	5.8	7.3	8.7	7.4	4.4	5.5	7.6	5.7
Manufacturing	17.2	6.3	19.0	7.7	11.3	4.1	14.8	5.3
Service-Providing Domain								
Trade/Transportation/Utilities	20.1	20.0	21.3	20.1	19.7	18.6	21.6	18.8
Information	2.1	4.6	1.4	4.2	1.8	3.8	0.5	3.5
Financial Activities	4.9	5.5	2.7	5.5	5.1	5.5	2.6	5.2
Professional/Business	11.3	20.1	7.3	16.0	13.8	20.1	8.3	18.9
Education and Health	20.2	19.3	19.3	17.5	23.9	19.3	24.0	19.8
Leisure and Hospitality	9.0	11.1	9.5	9.3	10.8	11.1	10.5	11.0
Other Services	2.7	3.2	2.4	3.1	2.5	3.2	2.3	3.1
Public Administration	5.7	8.5	5.8	8.4	6.0	8.5	5.8	8.3
Total Government Sector	16.0	17.7	17.5	17.8	17.7	17.0	21.5	17.5
Total Private Sector	84.0	82.3	82.5	82.2	82.3	83.0	78.5	82.5

Source: North Carolina Division of Employment Security.

Notes: Employment numbers are Annual Average Employment for aggregate of all types by Super sector or Domain. Year 2012 most recent year in which annual data available.

5.4 COMMUNITY RESOURCES

5.4.1 Educational Facilities

Two major public school districts are located in the Demographic Study Area. Wake County Public Schools, the nation's sixteenth largest school district, educates nearly 150,000 students. As shown in **Table 13**, twenty-five of the district's 170 schools are located within the Demographic Study Area for the project, and six of these are in the DCIA. Many of these schools currently operate over capacity. Property has been acquired for three new schools east of Garner—Bryan Road Elementary, Bryan Road Middle, and an as yet unnamed high school—but construction has not yet been scheduled.

Johnston County Schools, a rapidly-growing school system with forty-one schools, educates approximately 30,000 students. As shown in **Table 13**, six of the district's schools are located within the project Demographic Study Area. None of these schools is within the DCIA.

As shown in **Table 13**, several private schools are located within the project Demographic Study Area. The New School Montessori Center, on Sunset Lake Road in Holly Springs, includes preschool through sixth grade. Hilltop Christian School, on Fayetteville Road in Fuquay-Varina, includes Kindergarten through twelfth grade. Wake Christian Academy, west of US 401 near Garner, includes Kindergarten through twelfth grade. Academy of Hope, on Covered Bridge Road in Clayton is an alternative school for girls in grades eight through twelve. None of these schools is within the DCIA. Dozens of private daycare centers and preschools are located throughout the Demographic Study Area.

The main campus of Wake Technical Community College is located on the east side of US 401, just south of Donnybrook Road; part of the campus is within the DCIA. The Clarksville Theological Seminary, on West Main Street in Clayton, offers degrees in theology and religious education; it is not within the DCIA.

The locations of public and private schools and colleges in the Demographic Study Area and the DCIA are shown in **Figure 11**.

5.4.2 Parks, Recreation and Community Facilities

Figure 11 shows the locations of local parks, recreation facilities, golf courses, and other community centers and facilities in the DCIA.

Table 13. Educational Facilities Within the Demographic Study Area

Name	School System	Location	In DCIA? (Corridor)
Holly Springs Elementary	Wake County	Holly Springs	No
Holly Ridge Elementary	Wake County	Holly Springs	No
Holly Ridge Middle	Wake County	Holly Springs	No
Middle Creek Elementary	Wake County	Apex	Yes (Purple-Blue-Lilac Corridor)
Middle Creek High	Wake County	Apex	Yes (Purple-Blue-Lilac Corridor)
West Lake Elementary	Wake County	Apex	Yes (Purple-Blue-Lilac Corridor)
West Lake Middle	Wake County	Apex	Yes (Purple-Blue-Lilac Corridor)
Ballentine Elementary	Wake County	Fuquay-Varina	No
Fuquay-Varina Elementary	Wake County	Fuquay-Varina	No
Willow Springs Elementary	Wake County	Willow Spring	No
Banks Road Elementary	Wake County	Raleigh	No
Vance Elementary	Wake County	Raleigh	Yes (Orange Corridor)
Rand Road Elementary	Wake County	Garner	No
Smith Elementary	Wake County	Garner	No
Garner High	Wake County	Garner	No
Vandora Springs Elementary	Wake County	Garner	No
Timber Drive Elementary	Wake County	Garner	Yes (Red Corridor)
Aversboro Elementary	Wake County	Garner	No
North Garner Middle	Wake County	Garner	No
Creech Road Elementary	Wake County	Garner	No
East Garner Elementary	Wake County	Garner	No
East Garner Middle	Wake County	Garner	No
Barwell Road Elementary	Wake County	Raleigh	No
Hodge Road Elementary	Wake County	Knightdale	No
Knightdale Elementary	Wake County	Knightdale	No
Riverwood Elementary	Johnston County	Clayton	No
West View Elementary	Johnston County	Clayton	No
West Clayton Elementary	Johnston County	Clayton	No
Clayton Middle	Johnston County	Clayton	No
Riverwood Middle	Johnston County	Clayton	No
Clayton High	Johnston County	Clayton	No
New School Montessori	Private	Holly Springs	No
Hilltop Christian School	Private	Fuquay-Varina	No
Wake Christian Academy	Private	Raleigh	No
Academy of Hope	Private	Clayton	No
Wake Technical Community College	Post-Secondary	Raleigh	Yes (Orange Corridor)
Clarksville Theological Seminary	Post-Secondary	Clayton	No

5.4.2.1 Public Parks and Recreation

As shown in **Table 14**, there are several park and recreational facilities located in the Demographic Study Area. All have the potential to be subject to Section 4(f) of the Department of Transportation Act of 1966, as amended (49 USC 303).

Descriptions of each of the park and recreational facilities are as follows:

Clemmons Educational State Forest – This state forest is located on Old US 70 on the Wake/Johnston county border, northwest of Clayton. It features self-guided trails, ranger-conducted tours and classes, and interpretive exhibits (NC Forest Service, 2013). There are four main trails in the forest. Two of them are short trails (less than one mile long) that feature audio recordings about the history of the forest, information about the trees, and information about area geology. There are picnic sites as well as a large

covered picnic shelter available for public use near these two trails. The other two trails are the two-mile long Demonstration Trail and the three-mile long Watershed Extension Loop Trail.

Crowder District Park – Wake County operates this 33-acre park on Ten Ten Road in Apex. It features landscaped grounds and hardwood forests and its amenities include three playgrounds, three picnic shelters, a sand volleyball court, play field, an outdoor amphitheater, and a 3-acre pond with a boardwalk and an observation deck (Wake County Government, 2013).

Table 14. Parks and Recreational Facilities Within the Demographic Study Area

Name	Location	In DCIA? (Corridor)
Clemmons Educational State Forest	Old US 70, Clayton	Yes (Brown and Tan Corridors)
Crowder District Park	Ten Ten Road, Apex	No
Middle Creek School Park	Optimist Farm Road, Cary	Yes (Orange Corridor)
Bass Lake Park and Retreat Center	Bass Lake Road, Holly Springs	No
Sunset Oaks Park (<i>proposed</i>)	Sunset Oaks neighborhood, Holly Springs	Yes (Purple-Blue-Lilac Corridor)
Southeast Regional Park (<i>proposed</i>)	Barber Bridge Road, Willow Spring	Yes (Purple-Blue-Lilac Corridor)
Lake Benson Park	Buffaloe Road, Garner	No
White Deer Park (<i>existing and proposed expansion</i>)	Aversboro Road, Garner	Yes (Red Corridor)
Bryan Road Nature Park (<i>proposed</i>)	Bryan Road, Garner	Yes (Red Corridor)
Thompson Road Park	Central Garner	No
Centennial Park	New Bethel Church Road, Garner	No
South Garner Park	Heather Hills neighborhood, Garner	Yes (Red Corridor)
Garner Recreational Park	Central Garner	No
Neuse River Trail	Along Neuse River southeast of Raleigh	Yes (Green, Tan, and Brown Corridors)
Legend Park	Northern Clayton	No
Clayton Community Park	Amelia Church Road, Clayton	No

Middle Creek School Park – Operated by the Town of Cary, this park features lighted baseball/softball fields and tennis courts, basketball courts, a greenway trail and a community center (Town of Cary, 2012). It is located near Middle Creek High School.

Bass Lake Park and Retreat Center – The Town of Holly Springs operates this site, located on scenic Bass Lake. It includes an environmental education center, conference facilities, observation decks, and a hiking trail (Town of Holly Springs, 2012).

Sunset Oaks Park – The Town of Holly Springs plans to develop 95 acres within the Sunset Oaks neighborhood as a Town-Wide Entertainment Park (Town of Holly Springs, 2007). The Town owns a portion of the planned park property and is continuing to acquire the remaining property. *Beyond the Green*, the Town’s 2007 park and recreation master plan, designates the park for passive recreational use, but also recommends that the park include two soccer fields and connect to the surrounding greenway trail system. The Town has not begun development of this park.

Southeast Regional Park – Wake County plans to develop a park near the intersection of NC 42 and Barber Bridge Road, in the Willow Spring area. The County has identified several parcels in this area for purchase for the park and has received a North Carolina Clean Water Management Trust Fund grant to purchase the parcels. The County has purchased the parcels at the southern end of the planned park and is working to purchase parcels at the northern end; however, the remaining parcels are currently in private ownership. Under the grant, all of the parcels must be part of the park.

Lake Benson Park – Located on Buffalo Road and operated by the Town of Garner, this park is an approximately 63-acre park featuring a walking trail (1.8 miles), and accommodating a variety of activities from family gatherings at the park’s picnic shelters to town wide special events at the park’s 50-seat amphitheater. Fishing and boat rentals are also available at the Lake Benson Boat House (Town of Garner, 2013).

White Deer Park – Garner opened this 96-acre nature park and environmental education center in November 2009. The park features five picnic shelters, two playgrounds, two miles of paved trails and a 2,500 square foot nature center; it is the largest municipal park in Garner. Garner also owns a 35-acre parcel adjacent to the White Deer Park property, and has plans to expand White Deer Park into this parcel, although no development has taken place. When the town purchased this adjacent parcel in 2006, the Wake County deed transfer included a stipulation that the parcel must be developed for use as a park and community center. The *Town of Garner Comprehensive Parks and Recreation, Open Space and Greenways Master Plan* (Town of Garner, 2007), recommends continued design and implementation of planned expansions of this parcel, in conjunction with the existing White Deer Park parcel, with amenities such as signage, nature trails, picnic shelters, and boat access.

Bryan Road Nature Park – The Town of Garner has owned this 20-acre site since 1989 and has plans to develop it with an environmental education center. When the town purchased this parcel, the Wake County deed transfer included a stipulation that the parcel must be developed as a public nature park. The town has also proposed the Mahler’s Creek Greenway to run north to south through this site. The *Town of Garner Comprehensive Parks and Recreation, Open Space and Greenways Master Plan* states that the town should pursue funding for completion of a feasibility and easement and acquisition study. The Plan also states that scenic passive recreation opportunities should be evaluated for the Bryan Road Nature Park site in conjunction with development of Mahler’s Creek Greenway.

Thompson Road Park – Garner operates this 13-acre park, which provides two multipurpose recreational fields. It is located in central Garner.

Centennial Park – Garner operates this 10-acre park, located on New Bethel Church Road in southern Garner, featuring soccer fields, a playground, and a walking trail. There is also a public shelter with a seating capacity of 50.

South Garner Park – Garner operates the South Garner Park, an approximately 34-acre park located in the Heather Hills subdivision. This park has three softball fields, a multipurpose field, tennis courts, a hiking trail, and a large playground.

Garner Recreational Park – Located in the Garner historic district, this Town of Garner park features two ball fields, a playground, and mountain biking trails.

Neuse River Trail – This 28-mile long greenway trail is a pedestrian and bicycle trail adjacent to the Neuse River southeast of Raleigh. It is part of the City of Raleigh’s Capital Area Greenway System.

Legend Park – The Town of Clayton operates Legend Park, located in northern Clayton. This park features mountain biking trails, hiking trails, and ball fields.

Clayton Community Park – This 42-acre park, operated by the Town of Clayton, is located on Amelia Church Road in southern Clayton. It features six tennis courts, eight bocce courts, three ball fields, walking trails, and a community center.

5.4.2.2 Golf Courses

There are numerous golf courses in the Demographic Study Area—many are part of residential subdivisions. Devils Ridge Golf Club is a private, 18-hole golf course in Holly Springs. Bentwinds Golf and Country Club is a private golf course and recreation facility in northern Fuquay-Varina; it is within the DCIA. Crooked Creek Golf Club, also located in northern Fuquay-Varina, is a private 18-hole golf course. Riverwood Golf and Athletic Club operates two private golf courses in the Demographic Study Area: Riverwood Golf Club in northeastern Clayton and Eagle Ridge Golf Club southwest of Garner near US 401. Garner Golf Club is a private 9-hole course in southern Garner. 401 Par Golf, on US 401 in south Raleigh, is a miniature golf course and driving range. Eagle Ridge Golf Club, located on Auburn-Knightdale Road south of Knightdale, is a private, 18-hole golf course. Pine Hollow Golf Club is a private, 18-hole golf course near US 70 near the Wake/Johnston county line. Meadowbrook Golf Club is a public 9-hole golf course in southern Garner; it is the only public golf course in the Demographic Study Area. It is within the DCIA.

5.4.2.3 Community Centers and Libraries

Libraries. There are two libraries in the Demographic Study Area—the Southeast Regional Library, in central Garner, and the Hocutt-Ellington Memorial Library, in downtown Clayton. Neither of these facilities is within the DCIA.

Post Offices. There are two post offices located in the Demographic Study Area. One is on Timber Drive in Garner—this post office is within the DCIA. The other is near the intersection of NC 42 and Cleveland Road in Clayton; it is not in the DCIA.

Community Centers. There are three community centers in the Demographic Study Area. The Middle Creek Community Center, operated by the Town of Cary near Middle Creek High School, has classroom space and a gymnasium and hosts dance, arts, and wellness classes. It also features public meeting space. The Barwell Road Community Center, operated by the City of Raleigh and located in southeast Raleigh, features a broad range of youth and adult educational programs. The Garner Senior Center, on East Garner Road in northeastern Garner, is a multi-purpose facility serving as a focal point for local programs and activities for older adults. It also features public meeting space. None of these facilities is within the DCIA.

5.4.2.4 Places of Worship

Places of Worship. There are numerous places of worship within the Demographic Study Area in Wake County and 19 in Johnston County. **Table 15** lists the places of worship within the DCIA.

Table 15. Places of Worship Within the DCIA

Name	Location	Corridor
Word of Truth Church of God	Eddie Creek Drive, Apex	Orange
Fuquay-Varina Church of Christ	Whitted Road, Fuquay-Varina	Purple-Blue-Lilac
Evangel Pentacostal	Fayetteville Road, Fuquay-Varina	Purple-Blue-Lilac
Wooten Chapel	Sauls Road, Raleigh	Purple-Blue-Lilac
Quest Fellowship Church	Raynor Road, Garner	Red
Springfield Baptist Church	Auburn Knightdale Road, Garner	Red
Triangle Baptist Church	Old Stage Road	Orange
Juniper Level Baptist Church	Sauls Road, Raleigh	Orange, Lilac
Turner Memorial Baptist Church	Benson Road, Garner	Lilac
Mt. Herman Christian Church	Raynor Road, Garner	Green
Faith Tabernacle Ministry	Guy Road, Clayton	Brown

5.4.2.5 Medical Centers and Hospitals

There are two medical centers in the Demographic Study Area. Johnston Medical Center – Clayton, on NC 42 east of I-40, is a new facility including emergency care, outpatient surgery and diagnostic and laboratory services. WakeMed Clayton Medical Park, part of the WakeMed system, is on US 70 Business near Clayton. It provides outpatient care and rehabilitation services. None of these facilities is within the DCIA.

5.4.2.6 Public Safety Facilities

Police stations in the region are located in the downtowns of Holly Springs, Garner, and Clayton. There is also a North Carolina Highway Patrol Training Center north of downtown Garner. None of these facilities is within the DCIA. There is a Raleigh Police Department shooting range just off Battle Bridge Road—this facility is within the DCIA.

Fire stations and emergency medical services (EMS) stations typically are co-located. There are several scattered throughout the Demographic Study Area, as shown on **Figure 11**. Stations within or near the limits of the Demographic Study Area are listed below; none of these facilities is within the DCIA.

Apex

- Apex Volunteer Fire Department – NC 55, south of US 1
- Fairview Rural Fire Department – near the intersection of Ten Ten Road and Holly Springs Road.

Cary

- Cary Fire Department Station No. 6 – Ten Ten Road, near Kildaire Farm Road

Holly Springs

- Holly Springs Fire Station No. 1 – Holly Springs Road east of downtown Holly Springs

Garner

- Garner Fire-Rescue Station 1 – West Main Street in downtown Garner
- Garner Fire-Rescue Station 2 – Sauls Road south of Ten Ten Road
- Garner Fire-Rescue Station 3 – Timber Drive at Vandora Springs Road
- Garner Fire-Rescue Station 4 – Near Raynor Road

Raleigh

- Raleigh Fire Department Station No. 26 – Rock Quarry Road near Battle Bridge Road

Knightdale

- Eastern Wake Fire Rescue Department – Clifton Road south of US 64/US 264 Bypass

Clayton

- Clayton Fire Department – downtown Clayton
- Clayton Emergency Services – downtown Clayton

5.4.3 Bicycle and Transit Routes

Bicycle and Pedestrian Routes. The Town of Cary maintains two existing multi-use trails in the Demographic Study Area, and has several other proposed multi-use trails and bicycle routes in the area (Town of Cary, 2008). Multi-use trails are designed for bicycle and pedestrian use. The two existing trails are the 0.7-mile Camp Branch Greenway, north of Ten Ten Road near Kildaire Farm Road, and

the 0.5-mile Churchill Estates Greenway, south of Ten Ten Road near Crowder District County Park. Roadways with striped bicycle lanes or wide curb lanes tend to be found in the more urban areas north of the study area. Within the Demographic Study Area, no roadways with designated bicycle lanes or wide curb lanes are specifically designated on state or local maps. In the eastern section of Raleigh, east of I-40, several roadways are identified as having planned bicycle lanes in the *2030 Comprehensive Plan* (City of Raleigh, 2009). A map showing the location of proposed and existing routes and trails is shown in **Appendix D**. There is one NCDOT bicycle route in the Demographic Study Area, the NC 5/Cape Fear Run, which follows Kildaire Farm Road and travels south along Sunset Lake Road, crossing the DCIA.

The Neuse River Greenway is a 33-mile long paved multi-use trail that follows the Neuse River from Clayton to Falls Lake Dam in North Raleigh. It crosses the Demographic Study Area in the vicinity of Auburn-Knightdale Road. The portion of the trail in Wake County is managed by the City of Raleigh, and the portion in Johnston County is managed by the Town of Clayton.

In general, sidewalks within the Demographic Study Area are limited to more urbanized areas and in residential areas, with newer subdivisions generally having a comprehensive and well-maintained system of sidewalks. Most sidewalks in the Demographic Study Area are separated from moving traffic by a landscaped or grassed buffer and are generally found along both sides of the roadway.

In general, outside of town centers bicycling and walking facilities in the Demographic Study Area are for recreational purposes only. Generally low levels of bicycling and walking are observed except near trails and parks.

Public Transit Routes. Maps of fixed public transit routes in the Demographic Study Area are shown in **Appendix E**.

Within the Demographic Study Area, Raleigh’s transit system, called GoRaleigh (formerly known as Capital Area Transit) provides fixed route bus service between downtown and Wake Technical Community College along US 401 (Route 40e) and between downtown and Garner, with park-and-ride lots at two shopping centers along US 401 (Route 7). Route 40e is within the DCIA. GoRaleigh also operates Accessible Raleigh Transportation (ART), which provides flexible para-transit services to disabled Raleigh residents (CAT, 2015).

Triangle Transit (TTA) provides fixed route service connecting the major centers of the Research Triangle region and coordinates vanpools in the area (TTA, 2011). One fixed TTA bus route serves the project Demographic Study Area. Route 102 connects downtown Raleigh to Garner and serves a park-and-ride lot at the Forest Hills Shopping Center. It is within the DCIA. During the I-40/I-440 “Fortify” project, which will rebuild existing portions of I-40 and I-440 south of Raleigh, TTA is operating a Johnston County Express route, between the Cleveland Crossing shopping center in Johnston County and downtown Raleigh.

The Town of Cary’s transit service, C-Tran, operates six fixed bus routes, but none of these are within the Demographic Study Area (C-Tran, 2015). C-Tran also operates door-to-door transit service for Cary residents who are at least 60 years old or disabled.

5.4.4 Voluntary Agricultural Districts

Voluntary Agricultural District (VAD) programs allow farmers to establish areas where commercial agriculture is encouraged and protected (North Carolina Agricultural Development and Farmland Preservation Trust Fund, 2013). Authorized by the North Carolina General Assembly in the 1985 Farmland Preservation Enabling Act (61:106-738) and implemented at the county level through the adoption of an ordinance, VADs form partnerships between farmers, county commissioners and land use planners. Farm landowners receive a set of benefits in exchange for restricting development on their land for a specific time period. VADs raise public awareness in agricultural activity and help leaders plan future development that will support and encourage the continued viability of local agriculture. Wake and Johnston Counties each have a VAD program. Each program has numerous participating farms. There are six VAD farms in the DCIA; **Figure 12** shows the locations of these. Johnston County's VAD program includes a public hearing requirement but Wake County's does not.

5.5 INFRASTRUCTURE

This section describes the various utility systems operating throughout the project area, including electricity, water, sewer and gas services.

5.5.1 Electric Power

Most of the Demographic Study Area is served with electric power by Duke Energy. The Town of Apex Electric Division provides service via the North Carolina Eastern Municipal Power Agency to some parts of Apex (Town of Apex Electric Division, 2013). The Town of Clayton owns and operates an electric distribution system (Town of Clayton, 2012). There are two electric power substations in the DCIA—one on Battle Bridge Road and another on Ten Ten Road near Sauls Road.

5.5.2 Natural Gas

Natural gas services are provided to the Demographic Study Area by PSNC Energy, which supplies and distributes natural gas throughout 28 counties in North Carolina. The major natural gas pipeline in the DCIA is the Colonial Pipeline. It extends from west to east across the DCIA south of Ten Ten Road.

5.5.3 Water and Sewer

The City of Raleigh is the major provider of water and sewer service in Wake County. The City of Raleigh provides water and sewer service to approximately 450,000 customers in Raleigh, Garner, and Knightdale, as well as the Wake Forest, Rolesville, Knightdale, Wendell, and Zebulon areas (City of Raleigh Public Utilities, 2013). Raleigh also is a wholesale seller of bulk water supply to customers including the Town of Fuquay-Varina. Raleigh operates two water treatment plants. One of these, the Dempsey E. Benton Water Treatment Plant, is in the Demographic Study Area just west of I-40. Raleigh also operates three wastewater treatment plants (WWTPs). One of these, the Neuse River WWTP, is in the Demographic Study Area east of Auburn Knightdale Road. Incorporated areas in the eastern and north central portions of the Demographic Study Area are served by City of Raleigh water and sewer.

The Towns of Cary and Apex jointly own the Cary/Apex Water Treatment Plant, a water treatment plant (WTP) west of the project area. This WTP has a treatment capacity of 40 million gallons per day (MGD). Each of these towns maintains a water distribution system; together these two systems serve over 65,000 customers (Town of Apex Public Works and Utilities Department, 2013, and Town of Cary Public Works and Utilities Department, 2013). Cary and Apex each also provide sewer service to large

parts of western Wake County. The Town of Cary currently operates two WWTPs—one of these is the South Cary Water Reclamation Facility, just south of the Demographic Study Area in the West Lake area. The Town of Apex operates the Apex Wastewater Treatment Plant, near the western terminus of the project. Areas in the northwestern part of the Demographic Study Area are served by Cary and Apex water and sewer.

Holly Springs receives its public water supply from Harnett County and is also able to purchase water supply from the City of Raleigh. Holly Springs operates a wastewater treatment plant and provides wastewater treatment to over 25,000 residents, with the capacity to treat 6 MGD of wastewater (Town of Holly Springs Public Utilities Department, 2013). The Holly Springs service area includes the western part of the Demographic Study Area.

A new Western Wake Regional WWTP recently opened west of the project area. It serves Cary, Apex, Holly Springs, and Morrisville (Western Wake Partners, 2011). It will eventually increase the region’s wastewater treatment capacity by 18 MGD.

The Town of Clayton provides water distribution and sewer service to areas in the southeastern corner of the Demographic Study Area. Clayton operates the Little Creek Water Reclamation Facility, which has a treatment capacity of 2.5 MGD. Clayton augments its wastewater treatment capacity through agreements with the City of Raleigh and Johnston County. Clayton purchases its water supply from Johnston County.

In general, non-commercial development in unincorporated areas, which comprise large parts of the Demographic Study Area between US 401 and US 64/264 Bypass, is limited to septic systems and well water.

5.6 NEIGHBORHOODS

There are over 1,000 named residential subdivisions in the Demographic Study Area for the Complete 540 project, and numerous smaller, rural residential neighborhoods. The majority of these are single-family residential subdivisions, although there are also a number of mobile home parks. **Table 16** lists those neighborhoods that are within the DCIA.

Table 16. Named Neighborhoods Within the DCIA

Neighborhood	Municipal Location	Corridor
Neighborhoods from NC 55 to US 401		
Sunset Hills	Apex	Orange
Fair Oaks	Apex	Orange
Woodcreek	Holly Springs	Orange
Fairview Wooded Acres	Holly Springs	Orange
Sancroft	Holly Springs	Orange
South Lake	Apex	Orange
Jamison Park	Apex	Orange
Sunset Oaks	Holly Springs	Purple-Blue-Lilac
Talicut Trail	Apex	Purple-Blue-Lilac
Park at West Lake	Apex	Purple-Blue-Lilac
Crofts at Brackenridge	Fuquay-Varina	Purple-Blue-Lilac
High Grove	Fuquay-Varina	Purple-Blue-Lilac
Bentcreek	Fuquay-Varina	Purple-Blue-Lilac
Bentwinds	Fuquay-Varina	Purple-Blue-Lilac
Springfield North	Fuquay-Varina	Purple-Blue-Lilac
Augusta Place	Fuquay-Varina	Purple-Blue-Lilac

Table 16. Named Neighborhoods Within the DCIA

Neighborhood	Municipal Location	Corridor
Johnson Pointe	Fuquay-Varina	Purple-Blue-Lilac
Meadowview	Fuquay-Varina	Purple-Blue-Lilac
Forest Ridge	Fuquay-Varina	Purple-Blue-Lilac
Brookshire Manor	Raleigh	Orange
Langston	Apex	Orange
Oxford Greene	Apex	Orange
Bells Pointe	Apex	Orange
Highland Creek	Apex	Orange
Blue Skies Mobile Home Park	Raleigh	Orange
Carriage Village	Apex	Orange
Deerfield Park	Apex	Orange
Ridgebrook Bluffs	Raleigh	Orange
Woods of Ashbury	Raleigh	Orange
McCullers Pines	Raleigh	Orange
Neighborhoods from US 401 to I-40		
Vandora Pines	Garner	Red
Tiffany Woods	Garner	Red
Lakewood	Garner	Red
Breezeway	Garner	Red
Heather Springs	Garner	Red
Heather Hills	Garner	Red
Heather Ridge	Garner	Red
Summers Walk	Garner	Red
The Village at Aversboro	Garner	Red
Heather Woods	Garner	Red
Van Story Hills	Garner	Red
Forest Landing	Garner	Red
South Creek	Garner	Red
Everwood	Garner	Red
Laneridge	Raleigh	Orange
Rolling Meadows	Raleigh	Orange
Old Stage Place	Raleigh	Orange
Pine Meadow	Willow Spring	Purple-Blue-Lilac
Rowland Heights	Willow Spring	Purple-Blue-Lilac
Woodsong	Willow Spring	Purple-Blue-Lilac
Whitefield	Raleigh	Purple-Blue-Lilac
Saddle Acres	Raleigh	Purple-Blue-Lilac
Littlejohn Acres	Raleigh	Purple-Blue-Lilac
Willow Bluffs	Raleigh	Purple-Blue-Lilac
Springhaven	Raleigh	Purple-Blue-Lilac
Middle Creek Acres	Raleigh	Purple-Blue-Lilac
Blalock Forest	Raleigh	Purple-Blue-Lilac
Tyler Farms	Raleigh	Purple-Blue-Lilac
Nathans Landing	Raleigh	Purple-Blue-Lilac
Brookstone	Raleigh	Purple-Blue-Lilac
Hadley Meadows	Raleigh	Purple-Blue-Lilac
Ormond Plantation	Raleigh	Purple-Blue-Lilac
Little Creek Heights	Raleigh	Purple-Blue-Lilac
Southern Meadows	Raleigh	Purple-Blue-Lilac
Lassiter Farms	Raleigh	Purple-Blue-Lilac
Windy Hills	Raleigh	Purple-Blue-Lilac
Brittany Hills	Raleigh	Purple-Blue-Lilac
Laurel Grove	Raleigh	Purple-Blue-Lilac
Hoke Landing	Raleigh	Purple-Blue-Lilac
Jacobs Ridge	Raleigh	Purple-Blue-Lilac
Hunt Farms	Raleigh	Purple-Blue-Lilac

Table 16. Named Neighborhoods Within the DCIA

Neighborhood	Municipal Location	Corridor
Crest of Carolina	Raleigh	Orange
Autumn Crest Farm	Raleigh	Orange, Lilac
Tavernier	Raleigh	Orange, Lilac
Turner Farms	Raleigh	Orange, Lilac
Shannondale	Raleigh	Lilac
Britt Estates	Raleigh	Lilac
Heather Glen	Raleigh	Lilac
Wakefield	Raleigh	Lilac
Squire's Keep	Raleigh	Lilac
Grissom Farms	Raleigh	Orange, Lilac
Upchurch Farms	Raleigh	Orange, Purple-Blue-Lilac
Stevens Oaks	Raleigh	Orange
Southern Trace	Raleigh	Lilac
Neighborhoods from I-40 to US 64/US 264 Bypass		
Camelot	Garner	Red, Green
Barrington Hills	Raleigh	Lilac
Hillington West	Raleigh	Orange, Lilac
Meadowbrook Estates	Raleigh	Lilac, Green
White Oak Landing	Raleigh	Brown
Avalon	Raleigh	Brown
Stoney Creek	Raleigh	Brown, Tan
Preserve at Long Branch Farms	Raleigh	Tan
Poplar Village	Knightdale	Green
Pine Country Estates	Knightdale	Green
Dreamland Mobile City	Knightdale	Green

5.7 PLANS AND REGULATIONS

The following sections include a summary discussion of relevant planning documents and initiatives in the Complete 540 study area. These plans will be further reviewed in the project's *Indirect and Cumulative Effects Report* (Lochner, 2014b).

Wake County. The *Wake County Land Use Plan*, last updated in March of 2004, establishes policies designed to influence the timing, type, location, and quality of future development in Wake County's planning jurisdiction. These policies are intended to accommodate growth of urbanized areas within or adjoining the County consistent with the Plan's goals and strategies. The Plan includes several small area land use plans. Two of these plans cover areas within the Complete 540 project study area. The East Raleigh-Knightdale Area Land Use Plan identifies areas along a representative corridor for Phase II of the Complete 540 project with a Special Transportation Corridor designation. The Fuquay-Varina-Garner Area Land Use Plan identifies areas along the protected corridor for Phase I and a representative corridor for Phase II as a Special Highway Overlay District. The *Wake County Land Use Plan* also includes a special Land Management Plan for Swift Creek. The Land Management Plan, adopted in 1990, identifies the Swift Creek basin's Watershed Critical Area and watershed buffer areas, within which development activities are limited, and appropriate low-density land use categories for the surrounding areas.

The *Wake County Transportation Plan* (2003) identifies mobility needs in unincorporated parts of Wake County. It identifies the Complete 540 project ("Outer Loop") as a primary transportation need for the area, indicating that completion of the Outer Loop was a stated objective of the Citizen Advisory Group involved in the Plan's development. The Outer Loop is identified as a primary travel corridor for Wake County.

Raleigh. The City of Raleigh adopted a new *2030 Comprehensive Plan* in November of 2009. The Plan is the City’s key policy document shaping all aspects of the community’s physical development and influencing related economic and social issues. One of the goals of the Plan is to enhance land use and transportation related coordination. The Complete 540 project is not specifically mentioned in the Plan, although the Plan does identify an objective of coordinating transportation planning and funding with neighboring jurisdictions and local transportation agencies so that sufficient right-of-way for future transportation corridors may be preserved. The Complete 540 project would be consistent with the Plan.

Cary. The Town of Cary’s *Comprehensive Plan* is a compilation of several separate plans and elements that together describe the Town’s official vision for Cary’s future. The plan addresses issues including growth, land use, transportation, and housing. The Town of Cary *Land Use Plan*, adopted in 1996 and last amended in 2009, is the land use component of the Comprehensive Plan. The Land Use Plan presents the Town’s official policy regarding the form and pattern of future development. One of its functions is to direct provision of public infrastructure. The Land Use Plan Map identifies the protected corridor for Phase I of the Complete 540 project as “Planned Outer Loop Right of Way.”

The Town’s *Comprehensive Transportation Plan* (CTP), adopted in 2008, identifies goals and recommendations for provision of transportation facilities in the Town. The CTP identifies the Triangle Expressway as a planned project, but does not specifically identify the Complete 540 project.

Apex. The Town of Apex adopted its *Peak Plan 2030* comprehensive plan in 2013 with a goal of presenting a vision of the community’s future to inform development decisions. The Plan includes a map illustrating proposed land uses in the Town in 2030. The map designates several activity centers—key areas to accommodate higher-density, mixed-use growth. One of the proposed activity centers is just north of the western terminus of the Complete 540 project at NC 55. Office space in larger buildings is envisioned as a key element of this activity center.

Some of the transportation-related goals of *Peak Plan 2030* include “efficient traffic circulation” and “infrastructure that helps achieve land use and growth management objectives.”

Fuquay-Varina. The Town has a *Comprehensive Land Use Plan*, adopted in 2005 and amended regularly as needed. The Plan seeks to guide future development within the Town’s Urban Services Area (USA). The plan includes a Land Use Map, which designates desired future land uses in the USA. The alignment of the protected corridor for the Complete 540 project is shown as a recommended major thoroughfare on the Land Use Map.

The Town also has a *Community Transportation Plan*, which was adopted in 2006 and is also amended regularly. This plan serves to guide the successful implementation of the Town’s transportation system. A key plan goal is “supporting economic vitality” through transportation improvements. The alignment of the protected corridor for the Complete 540 project is shown as a recommended thoroughfare in this plan, and proposed interchanges along this alignment are shown at Bells Lake Road and US 401. The project is expected to improve access to other municipalities and regions throughout Wake County.

Garner. Garner’s *Comprehensive Growth Plan* (2006) is intended to provide a long-range vision for land development and redevelopment opportunities, community infrastructure decisions and community image. Water quality issues in the Lake Benson area are especially prominent. The Plan identifies several activity centers, where commercial, higher density residential, and mixed uses can be located. The area surrounding the intersection of US 401 and the protected corridor for Phase I of the Complete 540 project is identified as an activity center.

The *Garner Transportation Plan* (2010) was approved by the Garner Town Council in October 2010 after a year-long public process to discuss the future transportation needs of the Town and Region. This intensive citizen engagement process led to a plan that depicts 540 in its traditionally planned location (Orange Corridor). As early as 1999, Garner had placed emphasis on the original planned route of the Complete 540 project (Orange Corridor). This route was central to the Town's previous transportation plan. The community has been advocating, supporting, and waiting on the orange route for many years.

All of the Town's land-use planning for southern Garner has been centered on this proposed transportation facility. The 2010 *Transportation Plan* noted the following:

“The Southern Wake Freeway (now termed the “Southeast Extension” of 540 by the NC Turnpike Authority) has started forward movement through the National Environmental Policy Act (NEPA) planning process. The Town of Garner should request quarterly small group meetings with the project consultant and NEPA manager of NCTA/NC DOT to ensure that this project is designed in accordance with the goals of Garner. This recommendation is critical: no other single project stands to impact the traffic and travel patterns of automobile traffic to the degree of this proposed project.”

Holly Springs. *Vision Holly Springs* is the Town of Holly Springs Comprehensive Plan. It was last revised in 2008. The Plan seeks to establish and enhance a town-wide identity, encourage economic development, and promote livability. It establishes a future land use strategy, including a map of planned future land uses. The Plan identifies regional centers for mixed use development along major transportation routes through the town to ensure the best possible access while minimizing negative impacts on area residential development. One of these regional centers, surrounding the intersection of Kildaire Farm Road and Holly Springs Road, is in the vicinity of the protected corridor for Phase I of the Complete 540 project.

Vision Holly Springs includes a transportation element, which establishes a vision for the future transportation system in the town. The transportation element identifies the Complete 540 project (“Wake Freeway”) as the largest and most significant planned road improvement that will impact the town. The plan identifies the Complete 540 project as a future freeway facility through the Holly Springs area.

Knightdale. The Town of Knightdale's *2027 Comprehensive Plan*, adopted in 2003, is a direct response to the community's rapid growth, creating the building blocks for the Town's future development. It includes a section outlining the Town's vision for its future and sections addressing individual topics including land use and transportation.

The transportation element of the *2027 Comprehensive Plan*, titled the Transportation Master Plan, seeks to encourage the development of a transportation network that disperses traffic while connecting and integrating the Town's neighborhoods. I-540 is identified as an important regional roadway facility that will both provide access to all parts of the Research Triangle region and spur development in Knightdale; however, the Plan's discussion of I-540 focuses on the portion north of US 64/US 264 Bypass. The Complete 540 project would be consistent with the Plan.

Johnston County. The *Johnston County 2030 Comprehensive Plan*, adopted in March 2009, is organized around seven goals for County growth including managing growth and infrastructure, expanding economic opportunities, preserving farmland and rural character, and enhancing mobility. The Plan indicates that the County's growth patterns have typically been driven by the location of major

transportation facilities and that the County will continue to support key roadway improvements. While promoting future growth the County seeks to protect area farming operations, both for community character and economic benefits.

The Complete 540 project is shown as a planned transportation improvement in the Comprehensive Plan. The Swift Creek watershed area, east of Clayton, is shown as an Environmental Sensitive Zone. Johnston County also has a *Comprehensive Transportation Plan*, adopted in 2011.

Clayton. The Town of Clayton adopted a *Strategic Growth Plan* in March 2008 to prepare for increasing population growth and its effects on transportation, open space, and other community features. The Plan addresses the incorporated town as well as its extraterritorial jurisdiction, which extends approximately two miles around the town limits. The Plan indicates that much local traffic congestion is attributable to the many Clayton residents that commute to jobs in Raleigh and other surrounding areas. The Plan includes a map designating proposed land uses within the town and its extraterritorial jurisdiction. The Complete 540 project is shown as a Proposed Freeway on this map. Parts of the project study area within Clayton are generally designated for moderately dense residential development, with areas along US 70 Business designated for commercial development.

5.8 NATURAL RESOURCES

This section summarizes the natural resources located within the Demographic Study Area and is based on the *Natural Resources Technical Report* (Mulkey, 2014), prepared for the Complete 540 project.

Much of the area within the Detailed Study Alternatives (DSAs) consists of maintained/disturbed lands. The other major land cover types in the DSAs are dry-mesic oak-hickory forest and agricultural/pasture lands. Land use in the Demographic Study Area and the DCIA ranges from urban to agricultural. Water resources in the study area are mainly located in the Neuse River basin (USGS Hydrologic Unit 03020201), with resources at the western edge of the study area within the Cape Fear River basin (USGS Hydrologic Unit 03030004).

Numerous named and unnamed streams are within the Demographic Study Area. There are three general watersheds within this area: Middle Creek and its tributaries, Swift Creek and its tributaries, and the Neuse River and its tributaries. The Swift Creek Critical Watershed Area is located in the northern part of the Demographic Study Area and the DCIA; it is a water supply watershed encompassing Lake Wheeler and Lake Benson and Swift Creek between these two lakes. As described in **Section 5.7**, development in the Swift Creek watershed area is limited by watershed protection policies within Wake County's *Swift Creek Land Management Plan* (1990). Swift Creek is classified as a Water Supply-III watershed with nutrient sensitive waters (WS-III NSW) by the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Water Resources (NCDENR, 2014).

There are several streams within the project study area that are included on the North Carolina 303(d) list, in which NCDENR identifies impaired waters as required under Section 303(d) of the Clean Water Act of 1972 (NCDENR, 2014). Middle Creek and Swift Creek, two of the major streams within the immediate project area are both included on 303(d) list. Middle Creek, which is classified as a Class C watershed with nutrient sensitive waters, is listed as impaired from south of US 1 to the backwaters of Sunset Lake due to fair benthic integrity. From the dam at Sunset Lake to just upstream of US 401, Middle Creek is listed as impaired due to poor fish community. Terrible Creek, a tributary of Middle Creek, is also identified as an impaired water body between Johnson Pond and Middle Creek due to fair benthic integrity.

Several other waterways in the Neuse River basin are also included on the North Carolina 303(d) list. Beddingfield Creek from its source to the Neuse River is listed as impaired due to fair benthic integrity. Little Creek in Johnston County is listed as impaired from its source, near Clayton, to Swift Creek, about eleven miles south, due to fair benthic integrity. The Neuse River itself in the vicinity of Auburn Knightdale Road is listed as impaired due to a fish tissue advisory of potential PCB contamination.

None of the water bodies in the project study area are classified as High Quality Waters or Outstanding Resource Waters.

There are four federally protected species within the Demographic Study Area: the Red-cockaded woodpecker (*Picoides borealis*), Michaux's sumac (*Rhus michauxii*), the Dwarf wedgemussel (*Alasmidonta heterodon*) and the Tar River spiny mussel (*Elliptio steinstansana*).

There are several sites in the Demographic Study Area that are designated by the North Carolina Natural Heritage Program (NCNHP) as Natural Heritage Program (NHP) Natural Areas (NCNHP, 2001 and 2003). These include the following:

Blue Pond Salamander Site – In the Sunset Lake area in Holly Springs, this is one of Wake County's most important amphibian breeding sites.

Middle Creek Aquatic Habitat – This designation covers Middle Creek from the area near Sunset Lake Road in Holly Springs to Smithfield in Johnston County. It is significant because it supports several rare aquatic species.

Middle Creek Bluffs and Floodplain – This is a segment of the Middle Creek system in the area between Holly Springs and Fuquay-Varina. It features a wide floodplain and slopes supporting an extensive mesic mixed hardwood forest natural community and good quality alluvial forest communities.

Neuse River (Clayton) Forests – This is an area along the Neuse River south of the US 64/US 264 Bypass. It contains several types of forested natural communities.

Swift Creek Aquatic Habitat – This designation covers Swift Creek from downstream of Lake Benson to Smithfield in Johnston County. It is significant because it supports several rare mussel species, including the federally protected Dwarf wedgemussel.

Walnut Creek Sumac Site – Near Barwell Road in southeastern Raleigh, this area supports one of North Carolina's best known populations of the federally protected Michaux's sumac.

6 POTENTIAL COMMUNITY IMPACTS

6.1 PROJECT AREA EFFECTS

The project has the potential to cause impacts on the human environment at both a broad, project area level and a more site-specific neighborhood level. This section considers impacts at the project area level, focusing on project effects at the DCIA level or greater. These effects generally apply equally to all the Detailed Study Alternatives (DSAs), except where noted. **Section 6.2** addresses impacts at the DSA and/or neighborhood level for project impacts that are more local in nature.

6.1.1 Visual, Character and Aesthetic Effects

Most of the DCIA is low-density suburban and rural in nature. The major exceptions to this are the areas near I-40, US 401, and US 70, and the eastern and western project termini, which include commercial and industrial development. Residential neighborhoods are more numerous along the western end of the Orange Corridor and along the Purple-Blue-Lilac and Red Corridors. The DCIA, particularly in the western part of the area, continues to grow and become more suburban.

The introduction of any large roadway facility in a rural area can alter the local perception of the visual environment. While aesthetic and landscape features such as open agricultural fields, pastures, forest-lined streams and woodland areas are present throughout the project study area, they are not limited to the DCIA. For this reason, the landscape within the DCIA is not characterized by unique aesthetic features. All of the DSAs have the potential to offer visually pleasing views of these landscape features from the proposed roadway. Conversely, all of the DSAs have the potential to detract from existing views of rural and natural areas enjoyed by residents adjacent to the proposed roadway. Groups that may experience negative visual impacts include those with a view of the roadway, such as users of adjacent property (residents, employees, recreational users, etc.)

Overall, visual changes along the DSAs would be intermittent, with some residents subjected to a view of the roadway, and others shielded from the roadway by topography and vegetation. The visual and aesthetic effects likely for each of the color-coded Preliminary Corridor Alternatives are discussed below.

Orange Corridor – Residential neighborhoods are adjacent to much of the Orange Corridor; however, many of these neighborhoods have been developed prior to establishment of the protected corridor within the Orange Corridor or developed adjacent to the protected corridor in accordance with local land use plans that took the protected corridor into account. For this reason, many of these neighborhoods have wooded buffers or other open space between residential lots and the proposed right-of-way within the Orange Corridor. A notable exception is the area between Rhodes Road and Johnson Pond Road, where the Orange Corridor would displace existing residences and create a possible visual impact.

Purple-Blue-Lilac Corridor – This corridor extends through a developed low-density suburban landscape in northeastern Holly Springs, southern Cary, and northeastern Fuquay-Varina, then crosses a rural and suburban landscape between US 401 and NC 50. The southernmost part of this corridor features more rural land uses. The introduction of the roadway along this corridor would create a notable visual impact in this area.

Lilac Corridor – The Lilac Corridor crosses the same rural and suburban landscape south of Ten Ten Road and west of NC 50 that the Orange Corridor crosses. However, the Lilac Corridor would directly

impact more neighborhoods in this area, displacing more residences, and thus may create a greater visual impact in this area.

Red Corridor – This corridor extends through a developed, low-density suburban landscape in Garner. In addition to numerous residential neighborhoods, this area includes multiple existing and planned nature-oriented parks. The introduction of the roadway in either of these two corridors would create a notable visual impact in this area. A DSA using the Red Corridor would likely result in the most notable negative impacts to the visual and aesthetic environment.

Green and Mint Green Corridors – Most of the area in the vicinity of these corridors is rural, with scattered low-density residential development. These corridors would change the visual nature of the area by introducing a major roadway facility into a fairly rural landscape. In addition, these corridors cross the Randleigh Farm property, a 417-acre tract on Battle Bridge Road jointly owned by the City of Raleigh and Wake County. Multiple uses, including parkland and an environmental education center, are planned for the property. Introducing the roadway in this area could change the visual nature of this property. The Green Corridor bisects the property, while the Mint Green Corridor is shifted to the eastern side of the property, shifting the impacts to the edge of the property.

Tan Corridor – Most of the area in the vicinity of this corridor is rural, with scattered low-density residential development. This corridor would change the visual nature of the area by introducing a major roadway facility into a fairly rural landscape. The Tan Corridor would directly impact more residential lots than the Green Corridor and thus may create a greater visual impact in this area. The Tan Corridor would also cross the northwestern corner of the Clemmons Educational State Forest, possibly changing the visual nature of this area. However, the location of the corridor on the periphery of this area could limit the magnitude of this change.

Brown Corridor – Most of the area in the vicinity of this corridor is rural. This corridor would change the visual nature of the area by introducing a major roadway facility into a fairly rural landscape. The Brown Corridor would directly impact fewer residential lots than the Tan, Green, or Mint Green Corridors, so the visual changes in this area could be experienced by fewer people. Like the Tan Corridor, the Brown Corridor would cross the northwestern corner of the Clemmons Educational State Forest, possibly changing the visual nature of this area.

Teal Corridor – This is a short connector corridor between the Green Corridor and the Brown Corridor in a fairly rural area. This corridor would change the visual nature of the area by introducing a major roadway facility into a somewhat rural landscape.

6.1.2 Transportation Network

The Complete 540 project would enhance the existing transportation network by improving east-west transportation mobility and reducing congestion in the project area. The project is anticipated to influence mobility and accessibility between places of residence and work and travel time.

6.1.2.1 Mobility and Access

The project is likely to improve mobility and system-wide connectivity in the project area, facilitating vehicular access to businesses, public services, and other facilities in the area. For residents in rapidly growing communities throughout the Demographic Study Area, there are limited transportation options between these communities and major employment and activity centers along the existing 540 Outer Loop and along roadways connecting to the existing Outer Loop, such as I-40, NC 147, and US 1/64.

The existing routes for travel between these areas are limited to primary and secondary roads with lower posted speed limits, no control of access, and frequent traffic signals. By providing a controlled-access, high-speed connection across the project area, the project would improve regional roadway system linkage, which would help enhance mobility and improve access.

As shown in the *Southeast Extension First Tier Screening Traffic Memorandum* (HNTB, May 2011) prepared for this project, the new location highway concept for this project would reduce travel times between key destinations in the project area and major nearby employment centers such as Research Triangle Park (RTP) by 10 to 25 percent over currently forecast 2035 travel times. The new location highway concept would also reduce the congested vehicle miles traveled (VMT) in the project area by as much as 26 percent as compared to 2035 forecast conditions. By reducing travel times between residences, employment centers, and commercial areas, and by reducing congestion on the area roadway network, the project would improve mobility and access for project area residents and travelers.

6.1.2.2 Transit

As described in **Section 5.4.3**, fixed-route public transportation is very limited in the project area. The project is unlikely to have a notable effect on existing public transportation services. However, the project would provide enhanced regional east-west travel, which could provide an opportunity for east-west transit service.

6.1.2.3 Bicycle and Pedestrian Routes

Interchanges and intersections along the project will be grade-separated from existing roadways. For this reason, the project is unlikely to have a notable effect on existing bicycle and pedestrian routes. All of the DSAs would cross the Neuse River Trail, but because the crossing would be grade-separated from the existing trail, effects on the trail will be limited. DSAs using the Brown or Teal Corridor would also require a slight modification to the existing trail, but existing bicycle and pedestrian use of the trail would be maintained.

6.1.3 Economic

Population and employment in the vicinity of the project are expected to continue to increase rapidly. According to CAMPO, more than twice as many jobs are expected in Wake County in 2035 as in 2005 (CAMPO, 2009). Johnston County is expected to see similar job growth.

While economic development is not an explicit component of the purpose of the Complete 540 project, local, regional, and state planners and elected officials believe this project will enhance the economic competitiveness of the project area. The municipalities in the project area anticipate that the project will spur commercial and industrial growth near interchange areas, increasing local tax bases and providing new jobs for area workers. For instance, the Town of Apex expects that the Veridea development, a large mixed-use development planned near the western terminus of the Complete 540 project, will ultimately bring 30,000 jobs and \$6 billion in new tax revenue to the Town. However, the full build-out of this development is dependent upon construction of the Complete 540 project. All of the municipalities have policies in place to encourage more commercial and industrial development, given that much of the area currently consists of lower-density residential development.

Business relocations are discussed in **Section 6.2.2** of this report. Business relocations include those that are within the right-of-way limits or are denied access according to the functional engineering designs for the DSAs.

The Greenfield South Business Park is located in Garner between I-40 and US 70 Business. This 416-acre commercial and industrial development is Garner's primary industrial recruitment area and is a foundation of the town's local employment base. The Red Corridor would extend across Greenfield South, between I-40 and US 70 Business, requiring acquisition of 26 lots (in eight parcels) within the Business Park, directly impacting approximately 44 acres. The Town of Garner estimates that these 26 lots have a total Wake County tax value of over \$30 million and would therefore decrease its tax base by over \$30 million. Garner's current Economic Development Policy, as outlined in the town's 2006 *Comprehensive Growth Plan*, emphasizes the need to expand the town's tax base and to achieve a more balanced mix of non-residential and residential development by expanding non-residential uses. By eliminating a substantial area of land targeted for commercial and industrial development, the Red Corridor would conflict with this goal.

6.1.4 Community Safety

6.1.4.1 Emergency Response

The project could likely have a long-term positive impact on emergency response times in the DCIA. The project could shorten some response times for emergency services by decreasing travel times within, as well as outside of, the DCIA, and by providing improved east-west mobility in the area. None of the DSAs would directly impact any fire stations or police stations and none of these facilities are located adjacent to any of the DSAs.

6.1.4.2 Pedestrian and Bicycle

The proposed project does not include pedestrian and bicycle facilities because it would be a controlled-access toll facility. In general, none of the DSAs are anticipated to affect the overall safety of non-motorist access to businesses, public services, schools, or other facilities in consideration of general pedestrian and bicycle access and safety within the DCIA. It is possible that new interchanges on existing roadways could affect pedestrian and bicycle safety in those individual locations, but this effect would be common to all of the DSAs.

6.1.5 Land Use

As described in **Section 5.7**, most of the jurisdictions in the project area have adopted land use plans that acknowledge the planned Complete 540 project. Several of these plans include land use policies that explicitly support the project, and most of the plans that include these policies base them on the assumption that, in the Phase I area, the project will be located within the protected corridor. In fact, six of the jurisdictions have indicated that construction of the project within the protected corridor is required in order for their currently adopted planning objectives to be met.

While the Orange Corridor, which generally follows the protected corridor, most closely aligns with local land use planning objectives and desired development patterns, some of the other corridors could also either support these objectives or avoid conflicting with them. Based on reviews of local plans and discussion with local planning staff, all of the Phase II corridors (Green, Mint Green, Brown, Tan, and Teal) would offer at least partial support to local planning objectives. One notable exception is the Green Corridor's impacts on the Randleigh Farm property, which would disrupt City of Raleigh plans to develop this site as a mixed-use community. The Mint Green and Tan Corridors also impact this property, but would shift the impacts closer to the eastern edge of the property.

As compared to the other corridors under consideration, the Red Corridor would have significant negative impacts on local land use planning objectives and desired development patterns. They would

impact five of the Town of Garner's six targeted growth areas, limiting the town's plans to promote orderly growth in these areas. The Red Corridor would also directly impact the Greenfield South Business Park, the foundation of Garner's local employment and tax base. By eliminating a substantial area of land targeted for commercial and industrial development, the Red Corridor would conflict with the town's objectives of promoting the expansion of the local tax base and expanding non-residential uses. Development of the project in the Red Corridor would require a complete rewrite of Garner's *Comprehensive Growth Plan*.

The Purple-Blue-Lilac Corridor would also negatively impact local land use planning objectives. It conflicts with all of Holly Springs's long range plans developed since the protected corridor was established in 1996 and 1997. The Town's *Vision Holly Springs* comprehensive plan establishes regional centers for mixed use development along major transportation routes through the town to ensure the best possible access while minimizing negative impacts on area residential development. By shifting a major transportation route from the planned Orange Corridor to a different, unplanned alignment, the Purple-Blue-Lilac Corridor would not provide transportation access in the most appropriate locations and would not minimize negative impacts on residential development. The Purple-Blue-Lilac Corridor would also conflict with the vehicular, bicycle, and pedestrian connectivity between neighborhoods that Holly Springs's plans have shaped over the years. Similarly, the Purple-Blue-Lilac Corridor would conflict with the planned locations of future activity centers in Wake County's land use plan, shifting needed transportation access away from these areas onto more residential areas.

Indirect and cumulative effects and changes in land use as a result of the project are further evaluated in the *Indirect and Cumulative Effects Report* prepared for the project (Lochner, 2014b).

6.1.6 Farmland

In 2011, the average annual employment in the agricultural sector accounted for 0.2 percent of total employment in Wake County and 2.0 percent of total employment in Johnston County (NCDES, 2012). According to the Census of Agriculture (U.S. Department of Agriculture, 2007), the number of farms in Wake County decreased from 846 to 827 between 2002 and 2007, and the median farm size decreased from 57 acres to 38 acres. In Johnston County, the number of farms increased from 1,144 to 1,245, but median farm size decreased from 78 acres to 48 acres. As shown in the *Natural Resources Technical Report* (Mulkey, 2014) about 15 percent of the land within the DSAs is considered to be in agricultural use.

As described in **Section 5.4.4**, Wake and Johnston Counties both have a VAD program. Both programs have numerous participating farms; six VAD farms are within the DCIA. The first is just north of the Clayton Bypass along the Wake-Johnston County line—the Orange and Lilac Corridors would each cross this farm. The second is on Ten Ten Road east of Old Stage Road—it would not be impacted by any corridors. The third is on US 70 in Johnston County just south of the county line—the Brown Corridor would cross the western edge of this farm. The remaining three farms are on Old Stage Road near NC 42—the Purple-Blue-Lilac Corridor would impact one of these three farms.

In accordance with the Farmland Protection Policy Act (FPPA) of 1981 (7 CFR Part 658) and State Executive Order Number 96, an assessment was conducted for the potential impacts of land acquisition and construction activities on prime, unique, and local or statewide important farmland soils, as defined by the Natural Resource Conservation Service (NRCS).

The FPPA defines farmland as either prime farmland, unique farmland, farmland other than prime or unique that is of statewide importance, or farmland other than prime or unique that is of local importance.

These types of farmland are defined by Section 1504(c)(1) of the Act. These definitions refer to areas where the soils are conducive to agricultural production, not just areas currently or historically used as farmland. According to the Act, prime farmland does not include land already in or committed to urban development or water storage.

The NRCS assigns ratings to potential farmland impacts in order to determine the level of significance of impacts. The ratings are comprised of two parts. The Land Evaluation Criterion Value represents the relative value of the farmland to be converted and is determined by the NRCS on a scale from 0 to 100 points. The Corridor Assessment, which is rated on a scale of 0 to 160 points, evaluates farmland soil based on its use in relation to the other land uses and resources in the immediate area. The two ratings are added together for a possible total rating of 260 points. Sites receiving a total score of 160 points or more are given increasingly higher levels of consideration for protection.

All proposed DSAs would involve the use of prime farmland and state and locally important farmland soils. In accordance with the FHWA Guidelines for Implementing the Final Rule of the Farmland Protection Policy Act for Highway Projects, a Farmland Conversion Impact Rating (FCIR) for Corridor Type Projects (NRCS CPA-106) was prepared and submitted to the NRCS. **Table 17** lists the total acres of prime farmland soil types in each DSA, along with the total FCIR score for each. Copies of the FCIR forms, which show the calculation of each score, are in **Appendix F**. It is important to note that because separate Land Evaluation Criterion Values are assessed for each of the two counties in this project, these values had to be combined in order to assign a total value to each DSA. A weighted average of the two values for each alternative (one for its portion in Wake and one for its portion in Johnston) was calculated based on the percent of the DSA’s length in each county.

Table 17. Impacts to Prime Farmland by DSA

DSA	Corridors in DSA	Total Acres Prime Farmland Soil*	FCIR Total Points
1	Orange - Green	2,051	116
2	Orange – Green – Mint Green – Green	2,040	117
3	Orange – Brown – Tan – Green	2,035	128
4	Orange – Brown – Green	2,049	128
5	Orange – Green – Teal – Brown – Green	2,056	118
6	Orange – Red – Green	1,972	101
7	Orange – Red – Mint Green - Green	1,949	103
8	Orange – Purple – Blue – Lilac – Green	2,328	129
9	Orange – Purple – Blue – Lilac – Green – Mint Green – Green	2,310	128
10	Orange – Purple – Blue – Lilac – Brown – Tan – Green	2,286	136
11	Orange – Purple – Blue – Lilac – Brown – Green	2,300	136
12	Orange – Purple – Blue – Lilac – Green – Teal – Brown – Green	2,332	128
13	Orange – Lilac – Green	2,175	121
14	Orange – Lilac – Green – Mint Green – Green	2,165	121
15	Orange – Lilac – Brown – Tan – Green	2,122	128
16	Orange – Lilac – Brown – Green	2,146	128
17	Orange – Lilac – Green – Teal – Brown – Green	2,164	120

* Within the right-of way based on preliminary functional designs plus 40 feet on each side.

Each of the DSAs would result in a total FCIR score of less than 160 points. Therefore, in accordance with the Farmland Protection Policy Act, no mitigation for farmland loss is required for the project. There is relatively little variation in the total acreage of prime farmland soil types among the DSAs.

6.1.7 Natural Resources

All of the DSAs cross Swift Creek, which is a 303(d)-listed stream. The Red Corridor also crosses a 303(d)-listed upstream tributary to Swift Creek; DSAs using the Red Corridor also cross the Swift Creek Critical Watershed Area. All of the DSAs have the potential to affect the Swift Creek Aquatic Habitat NHP Natural Area. All of the DSAs also cross a 303(d) listed portion of Middle Creek near the western terminus of the project; the DSAs that include the Purple-Blue-Lilac Corridor cross Middle Creek in a second 303(d)-listed location and also cross a 303(d) listed portion of Middle Creek. All the DSAs have the potential to affect the Middle Creek Aquatic Habitat, Middle Creek Bluffs and Floodplain, and Blue Pond Salamander Site NHP Natural Areas. The Brown Corridor crosses 303(d)-listed portions of Little Creek and Beddingfield Creek. The Green, Mint Green, and Tan Corridor cross 303(d)-listed portions of the Neuse River.

As described in **Section 5.9**, there are four federally protected species within the Demographic Study Area. The U.S. Fish and Wildlife Service has concurred that the project will have no effect on the Red-cockaded woodpecker or Michaux's sumac. Surveys and research are being conducted to identify the potential impacts of the project on the two freshwater mussel species. The Dwarf wedgemussel is found throughout Swift Creek through the Demographic Study Area; however, the portion of Swift Creek downstream of the Lake Benson dam is particularly important for the long-term survival of this species in the region. DSAs using the Red Corridor would cross Swift Creek upstream of the Lake Benson dam and would therefore avoid this downstream area. All of the other DSAs would cross Swift Creek in the downstream area.

6.2 NEIGHBORHOOD/COMMUNITY EFFECTS

6.2.1 Community Services and Facilities

6.2.1.1 Schools

As show in **Table 13**, there are several educational facilities within the DCIA. The DSAs would avoid directly impacting any of these sites except Wake Tech. The Orange Corridor would directly impact property at the northeastern corner of Wake Tech, but the corridor would not impact any buildings on the site.

All DSAs would temporarily impact school bus routes during construction and result in modifications of existing routes and/or require new bus routes.

6.2.1.2 Parks, Recreation and Community Facilities

Parks, recreation and community facilities in the Demographic Study Area and the DCIA are described in **Section 5.4.2**. Five existing and planned park and recreation sites within the DCIA would be impacted by the project's DSAs. Those impacts are described below.

Clemmons Educational State Forest – The right-of-way within the Brown Corridor and the Tan Corridor would directly impact the northwest corner of the Clemmons Educational State Forest. The Brown Corridor would directly impact about 500 feet of the Watershed Extension Loop Trail, one of the trails in the northwest corner of the State Forest; the Tan Corridor would not affect this trail. Shifting these corridors to avoid these direct impacts would result in increased impacts to nearby streams and to the adjacent Stoney Creek neighborhood.

Southeast Regional Park (planned facility) – The right-of-way within the Purple-Blue-Lilac Corridor would avoid directly impacting all of the land currently in public ownership for the planned Southeast Regional Park. The right-of-way would, however, directly impact privately-owned parcels that Wake County intends to purchase for development as part of the park. There is no feasible way to shift the corridor to avoid the privately-owned parcels without incurring major impacts to nearby neighborhoods.

Middle Creek School Park – The southern edge of the right-of-way within the Orange Corridor would affect the far northern edge of Middle Creek School Park. However, this part of the park is a narrow strip of land at the northern edge of the Jamison Park neighborhood, and there are no active recreational uses within this area.

Sunset Oaks Park (planned facility) – The right-of-way within the Purple-Blue-Lilac Corridor would impact the eastern portion of the planned Town of Holly Springs Sunset Oaks Park. The only way to avoid crossing the planned park would be shifting the Purple-Blue-Lilac Corridor to the east into the Park at West Lake neighborhood, a large, densely developed residential community.

White Deer Park planned expansion area – The right-of-way within the Red Corridor would directly impact this expansion parcel and it would be very difficult to shift the alignment without directly impacting one of several other parks in this area and impacting several additional neighborhoods. Even if an alignment were shifted to either the northern or southern edge of the parcel, the impacts would completely span the parcel from west to east, a distance of about a quarter of a mile.

The White Deer Park expansion area, along with the existing White Deer Park, and several other Town of Garner parks form a linear chain of recreational resources. The *Town of Garner Comprehensive Parks and Recreation, Open Space and Greenways Master Plan* (Town of Garner, 2007) underscores the value placed on maintaining connections between these resources by encouraging the development of trails and paths between them. Disruption of this connection would be a negative impact to the Town's overall plans for recreational facilities in this area.

Bryan Road Nature Park (planned facility) – The right-of-way within the Red Corridor would bisect this park, making it difficult to develop a portion of it with its intended uses. Shifting the corridor would be constrained by the location of Centennial Park, to the south. Plus additional neighborhood impacts would result from a shift out of the park either to the north or the south.

Neuse River Trail – All of the DSAs would cross the Neuse River Trail, but because the crossing would be grade-separated from the existing trail, effects on the trail will be limited. DSAs using the Brown or Teal Corridor would also require a slight modification to the existing trail, but existing recreational use of the trail would be maintained.

No community centers, libraries, medical facilities or public safety facilities would be directly impacted by any of the DSAs.

6.2.1.3 Places of Worship

As described in **Section 5.4.2.4**, there are several places of worship in the DCIA. The Word of Truth Church of God is located at the western edge of the Orange Corridor, just off NC 55. All of the DSAs would require acquisition of about 1 acre of this church's 1.5 acre parcel, although the church building likely would be able to remain. The Red Corridor would require acquisition of property through the middle of a large parcel owned by Springfield Baptist Church, on Auburn-Knightdale Road in Garner.

There would be no impact to any buildings on the parcel, but the impact would split the parcel into one 20 acre section to the north and a 19 acre section to the south.

6.2.1.4 Infrastructure

Utilities and non-transportation infrastructure are concentrated in the more developed areas, but serve communities throughout the DCIA. Duke Energy transmission lines and transmission stations are found in the DCIA and may be impacted by any of the DSAs. There are also natural gas transmission lines scattered throughout the project, as well as water and sewer facilities.

Detailed information about the potential impacts of the DSAs on utilities in the DCIA is in the project's *Utility Impact Report* (Hinde Engineering, 2014).

6.2.2 Relocations and Displacements

Potential relocation impacts based on preliminary functional designs for each DSA are shown in **Table 18**. This information was obtained from the project's *Relocation Reports* (HDR, 2015).

There is a wide range in the number of relocations that would be required as a result of the different DSAs, but for all the DSAs, the vast majority of the relocations would affect residential properties. DSAs 1 through 5, which all use the complete Orange Corridor between NC 55 Bypass and I-40, would result in far fewer relocations than the other DSAs. DSAs using the Purple-Blue-Lilac Corridor between NC 55 Bypass and I-40 would result in the most relocations, requiring over twice as many relocations as the DSAs using the complete Orange Corridor. DSAs using the Orange Corridor to the Lilac Corridor between NC 55 Bypass and I-40 would result in nearly 80 percent more relocations than those using the complete Orange Corridor. DSAs using the Red Corridor would result in greater than 60 percent more relocations than those using the complete Orange Corridor.

There is relatively little variation among each group of DSAs using a particular alignment between NC 55 Bypass and I-40, indicating that there is relatively little variation in the number of relocations required by the various corridors east of I-40. Among these groups, alignments following the complete Brown Corridor would result in somewhat fewer relocations than alignments following the other corridors east of I-40.

It is the policy of NCDOT to ensure that comparable replacement housing is available for relocatees prior to construction of state and/or federally assisted projects. Furthermore, the NCDOT has three programs to minimize the inconvenience of relocation: relocation assistance, relocation moving payments, and relocation replacement housing payments or rent supplements.

With the Relocation Assistance Program, experienced NCDOT staff will be available to assist displacees with information such as; availability and prices of homes, apartments, or businesses for sale or rent, and financing or other housing programs. The Relocation Moving Payment Program, in general, provides for payment of actual moving expenses encountered in relocation. Where displacement will force an owner or tenant to purchase or rent property at higher cost or to lose a favorable financing arrangement (in case of ownership), the Relocation Replacement Housing Payments or Rent Supplement Program will compensate up to \$22,500 to owners who are eligible and qualify, and up to \$5,250 to tenants who are eligible and qualify.

The relocation program for the proposed action will be conducted in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-

646) and the North Carolina Relocation Assistance Act (GS-133-5 through 133-18). This program is designed to provide assistance to displaced persons in relocation to a replacement site in which to live or do business. At least one relocation officer is assigned to each highway project for this purpose.

Table 18. Relocations Required by DSA

DSA	Corridors in DSA	Relocations				
		Residential	Business	Farm	Nonprofit	TOTAL
1	Orange - Green	269	6	0	3	278
2	Orange – Green – Mint Green – Green	271	6	1	3	281
3	Orange – Brown – Tan – Green	256	5	1	3	265
4	Orange – Brown – Green	234	5	1	3	243
5	Orange – Green – Teal – Brown – Green	263	6	0	3	272
6	Orange – Red – Green	435	12	0	2	449
7	Orange – Red – Mint Green - Green	437	12	0	2	451
8	Orange – Purple – Blue – Lilac – Green	548	16	1	1	566
9	Orange – Purple – Blue – Lilac – Green – Mint Green – Green	550	16	2	1	569
10	Orange – Purple – Blue – Lilac – Brown – Tan – Green	537	16	2	1	556
11	Orange – Purple – Blue – Lilac – Brown – Green	515	16	2	1	534
12	Orange – Purple – Blue – Lilac – Green – Teal – Brown – Green	542	16	1	1	560
13	Orange – Lilac – Green	466	14	0	1	481
14	Orange – Lilac – Green – Mint Green – Green	468	14	1	1	484
15	Orange – Lilac – Brown – Tan – Green	455	14	1	1	471
16	Orange – Lilac – Brown – Green	433	14	1	1	449
17	Orange – Lilac – Green – Teal – Brown – Green	460	14	0	1	475

Source: Complete 540 Relocation Reports, 2015.

The relocation officer will determine the needs of displaced families, individuals, businesses, non-profit organizations, and farm operations without regard to race, color, religion, sex, or national origin. The NCDOT will schedule its work to allow ample time, prior to displacement, for negotiation and possession of replacement housing that meets decent, safe, and sanitary standards. The relocatees are given a 90-day written notice after NCDOT purchases the property. Relocation of displaced persons will be offered in areas not generally less desirable in regard to public utilities and commercial facilities. Rent and sale prices of replacement housing will be within the financial budget of the families and individuals displaced and will be reasonably accessible to their places of employment. The relocation officer also will assist owners of displaced businesses, non-profit organizations, and farm operations in searching for and moving to replacement property.

All tenant and owner residential occupants who may be displaced will receive an explanation regarding all available options, such as: 1) purchases of replacement housing; 2) rental of replacement housing, either private or public; and 3) moving existing owner-occupied housing to another site (if practicable). The relocation officer also will supply information concerning other state or federal programs offering

assistance to displaced persons and will provide other advisory services as needed in order to minimize hardships to displaced persons in adjusting to a new location.

Last Resort Housing is a program used when comparable replacement housing is not available, or is unavailable within the displacee's financial means, and the replacement payment exceeds the federal and state legal limitation. The purpose of the program is to allow broad latitudes in methods of implementation by the state so that decent, safe, and sanitary replacement housing can be provided. Since opportunities for replacement housing appear adequate within the study area, it is not likely that the Last Resort Housing Program would be necessary for the proposed project. However, this program will still be considered as mandated by State law.

6.2.3 Neighborhood and Community Cohesion Impacts

NCDOT's environmental planning process places a high priority on the avoidance and minimization of neighborhood disruption in defining, evaluating, and selecting the DSAs and developing functional engineering designs within the DSA corridors. The initial land suitability mapping process for the project included identifying residential areas along with other constraints in the project study area. Alternative alignments were developed to achieve a balance between impacts to residential developments and sensitive natural and cultural features in the study area.

Numerous cohesive neighborhoods are located within the DCIA. These include areas such as residential subdivisions, rural communities near crossroads areas, and communities with strong ties to local churches, etc. DSAs that result in relocations at the edge of communities are less likely to have substantial negative impacts on community cohesion and social interaction or changes in neighborhood social patterns. Neighborhoods with displacement impacts in more central locations are more likely to experience a barrier effect, with negative impacts on cohesion, because the project's right-of-way width would separate parts of the neighborhoods.

All of the DSAs would directly impact existing neighborhoods, and all would affect community cohesion to some extent. **Table 19** shows the neighborhood impacts of the Preliminary Corridor Alternatives that comprise the DSAs. DSAs using the Orange Corridor would have more minor impacts on community cohesion than DSAs using other corridors in the Phase I area. This is because the Orange Corridor follows the project's protected corridor fairly closely and much development in this vicinity has occurred after corridor protection. For this reason, neighborhoods have generally developed either north or south of the protected corridor, but do not cross the corridor. A notable exception is the Deerfield Park neighborhood, which would be bisected by the Orange Corridor, resulting in numerous relocations and changes in access to remaining properties. The Orange Corridor would also bisect the nearby Blue Skies Mobile Home Park, requiring relocations of several of the mobile homes, and the Fairview Wooded Acres neighborhood. The Orange Corridor would directly impact the edge of the Sancroft neighborhood near Holly Springs Road. It would also directly impact three communities in the vicinity of US 401: Oxford Greene, the Woods of Ashbury and the McCullers Pines neighborhoods. The Orange Corridor would require relocations of properties at the edges of these communities and would alter the neighborhoods' existing access to the surrounding road network.

The Red, Lilac, and Purple-Blue-Lilac Corridors would all bisect several large communities and would impact the edges of several others, making these the most disruptive options from a neighborhood/community cohesion perspective. The Red Corridor would bisect the Brookwood, Tiffany Woods, Heather Ridge, Village at Aversboro, and Forest Landing neighborhoods and would impact the edges of Vandora Pines, Vandora Village, and Van Story Hills. The Lilac Corridor would

bisect neighborhoods in the central part of the project area: Turner Farms, Britt Estates, Barrington Hills, and Hillington West. It would also directly impact the edge of the Southern Trace neighborhood.

The Purple-Blue-Lilac Corridor would bisect the largest number of neighborhoods, disrupting the cohesion of these communities: Talicud Trail, High Grove, Johnson Pointe, Rowland Heights, Littlejohn Acres, Springhaven, Blalock Forest, and Southern Meadows. The Purple-Blue-Lilac Corridor would impact the edges of many more neighborhoods, including Sunset Oaks, the Crofts at Brackenridge, Springfield North, Willow Bluffs, Tyler Farms, Hadley Meadows, Brookstone, Jacobs Ridge, Hoke Landing and Grissom Farms.

Table 19. Neighborhood Impacts of Preliminary Corridor Alternatives

Neighborhood	Preliminary Corridor Alternative Type of Effect								
	Orange	Purple- Blue- Lilac	Lilac	Red	Green	Mint Green	Tan	Brown	Teal
Neighborhoods from NC 55 to US 401									
Fairview Wooded Acres	5								
Sancroft	2								
Sunset Oaks		3							
Talicud Trail		5							
Crofts at Brackenridge		2							
High Grove		5							
Bent Creek		1							
Berrington		1							
Bentwinds		1							
Springfield North		3							
Johnson Pointe		5							
Oxford Greene	3								
Bells Pointe	1								
Blue Skies MHP	4								
Deerfield Park	5								
Woods of Ashbury	3								
McCullers Pines	3								
Neighborhoods from US 401 to I-40									
Brookwood				5					
Vandora Pines				3					
Tiffany Woods				5					
Vandora Village				3					
Breezeway				1					
Heather Ridge				4					
The Village at Aversboro				5					
Van Story Hills				3					
Forest Landing				5					
South Creek				1					
Laneridge	1								
Rolling Meadows	1								
Old Stage Place	1								
Pine Meadow	1								
Rowland Heights		5							
Littlejohn Acres		5							
Willow Bluffs		3							
Blalock Forest		5							
Springhaven		5							
Middle Creek Acres		1							
Tyler Farms		2							

Table 19. Neighborhood Impacts of Preliminary Corridor Alternatives

Neighborhood	Preliminary Corridor Alternative Type of Effect								
	Orange	Purple- Blue- Lilac	Lilac	Red	Green	Mint Green	Tan	Brown	Teal
Hadley Meadows		3							
Brookstone		3							
Southern Meadows		5							
Windy Hills		1							
Hoke Landing		2							
Jacobs Ridge		2							
Crest of Carolina	1		1						
Tavernier	1		1						
Autumn Crest Farm	1		1						
Turner Farms			5						
Shannondale			1						
Britt Estates			5						
Grissom Farms	1	3	1						
Upchurch Farms	1	1							
Stevens Oaks	1								
Southern Trace			3						
Neighborhoods from I-40 to US 64/US 264 Bypass									
Barrington Hills	1		5						
Hillington West			5						
Meadowbrook Estates					3				
White Oak Landing					1			3	
Avalon								1	
Stoney Creek								1	
Farmdale Acres						2			
Preserve at Long Branch Farms							2		

- Key:
- 1 – Change in access only
 - 2 – Relocations at edge of neighborhood only
 - 3 – Relocations at edge of neighborhood and change in access
 - 4 – Relocations through middle of neighborhood only
 - 5 – Relocations through middle of neighborhood and change in access

Due to the more rural landscape east of I-40, the corridors in this part of the project area would have fewer impacts to larger residential neighborhoods. The Green Corridor would directly impact the edge of Meadowbrook Estates, the Mint Green Corridor would directly impact the edge of Farmdale Acres, and the Brown Corridor would directly impact the edge of the White Oak Landing neighborhood. The Tan Corridor would also directly impact the edge of the Preserve at Long Branch Farms, near Battle Bridge Road in the eastern part of the project area. The Teal Corridor would not bisect any cohesive, developed communities.

By forming a notable physical barrier between older parts of Garner to the north, and newer residential subdivisions to the south, the Red Corridor would have the effect of dividing the town. Lower-income areas with higher concentrations of minority residents would be north of these corridors and higher-income areas with lower concentrations of minority residents would be south of them. This effect is particularly important because many Garner residents view US 70 Business, constructed in the 1950s, as having had the same effect of physically dividing the Garner community.

Because most of the DCIA is suburban or rural in nature, much of the area experiences relatively low existing noise levels. Communities adjacent to the proposed project in suburban and rural areas would experience a general increase in noise levels.

Information about the potential noise impacts to properties near the DSAs is described in detail in the Traffic Noise Analysis prepared for the project (Lochner, 2015). DSAs using the Red Corridor will impact notably more noise receptors (residences, schools, churches, recreational facilities and other similar sites) than the other DSAs. DSAs using the Purple-Blue-Lilac Corridor will impact fewer noise receptors than the other DSAs. The noise analysis found that numerous noise barriers along each DSA would be feasible and reasonable; further analysis to determine which noise barriers will be incorporated into the design of the project will be completed after a Preferred Alternative has been identified.

6.3 ENVIRONMENTAL JUSTICE

6.3.1 Tolling Considerations

The consideration of environmental justice impacts in the development of toll projects is a relatively new endeavor. FHWA’s *Environmental Justice Emerging Trends and Best Practices Guidebook* is the primary guidance available for assessment of such effects for toll projects (November, 2011). This resource describes potential issues that could apply to all toll road scenarios, including a toll road on new location. Potential issues with respect to tolling and environmental justice for the Complete 540 project are listed and evaluated in **Table 20**.

Table 20. General Environmental Justice Evaluation for Toll Facilities

Project Consideration	Comment
Availability of non-toll facilities	No potential for disproportionately high and adverse impact. Non-toll facilities remain available as alternate routes, including I-40, I-440, US 70, NC 55, Ten-Ten Road, and NC 42.
Adequate north-south and east-west corridors to serve as alternate routes	No potential for disproportionately high and adverse impact. Non-toll corridors are available to continue to serve as alternate north-south (e.g., I-40 and NC 55) and east-west (I-440, US 70, Ten-Ten Road, and NC 42) routes.
Non-toll alternatives equitable in terms of travel time or distance	Potential for minimal impact. All travelers would continue to have access to existing non-toll corridors (e.g., I-40, I-440, US 70, NC 55, Ten-Ten Road, and NC 42). If travelers choose to use existing routes, their travel distances will remain the same. It is possible that travel times for drivers using non-toll routes could be slightly greater than using the new facility.
Tolling effect on transit	No potential for disproportionately high and adverse impact. Project is unlikely to affect transit service. There is minimal existing transit service in the project area. Project could provide opportunities for transit service enhancement.
Cost of toll	<i>(to be added after traffic and revenue study)</i>
100% Electronic Tolling	Specific payment options have not yet been determined. In addition to paying tolls, electronic toll collection may involve establishing an account. Some low-income users may not be willing or able to establish an account. Electronic tolling options that do not require an account are planned to be available. Tolls on the existing Triangle Expressway are slightly higher for those without accounts.
Diversion of traffic through neighborhoods	No potential for disproportionately high and adverse impact. Very limited potential for diverted traffic through neighborhoods containing special populations.
Increased air quality/noise issues in neighborhoods	Some neighborhoods could experience noise level increases, but project is not likely to cause disproportionately high and adverse impacts to neighborhoods with special populations.
Access to businesses	No potential for disproportionately high and adverse impact. Location of the project alternatives in an area mainly limited to low-density suburban development means that the project is unlikely to have a notable effect on existing access to businesses.
Impact to businesses	No potential for disproportionately high and adverse impact. Relatively small numbers of relocations required by any of the alternatives would affect businesses. Based on a review of Census data, interviews with

Project Consideration	Comment
	local planners, and windshield surveys, the affected businesses are not likely to serve concentrated minority or low-income populations.
Denial of benefits or disproportionate impacts to low-income drivers	Minimal potential for disproportionately high and adverse impacts. While a new toll facility could be cost-prohibitive to low-income drivers, non-toll routes will continue to be available.

In addition to the factors described in **Table 20**, the project would provide a new route in the region, reducing traffic and congestion on existing alternate non-toll routes such as I-40, I-440, US 70, NC 55, Ten Ten Road, and NC 42. By providing the opportunity for accelerated project delivery, using tolling as a funding source could help provide the benefit of reduced congestion sooner than with traditional funding sources. Completing the project would benefit all motorists, including low-income motorists who may choose not to use the toll facility or may tend to use it less frequently. Benefits and burdens resulting from the project are anticipated to be equitably distributed throughout the community.

6.3.2 Environmental Justice Findings

Based on available data, while low-income and minority populations are located in various parts of the Demographic Study Area, these populations are generally not concentrated within the DCIA. The low-income and minority populations near the project DSAs are generally located north and east of the DCIA boundary. While there are low-income and minority populations along US 401 between Garner and Fuquay-Varina, the DSAs generally avoid these populations.

The project’s *Relocation Reports* (HDR, 2015) indicate the likely household income level for residential relocations. Median household size in the Demographic Study Area is slightly under three individuals per household. The federal threshold for poverty for a household of three individuals is an annual household income of no more than \$20,090. As discussed in Section 5.1.5, about 10 percent of households in the Demographic Study Area have incomes below the federal poverty level and another 9 percent have incomes in the “near poor” category (between the poverty level and 150 percent of the poverty level). **Table 21** lists the number of residential relocations for each DSA with likely annual household incomes under \$25,000 per year and those with incomes between \$25,000 and \$35,000.

Based on the relocation surveys, a very small proportion of the total relocations will affect households with annual incomes under \$25,000. The proportion of relocatees with incomes between \$25,000 and \$35,000 is also relatively small. All households with incomes below \$35,000 account for six to thirteen percent of the total relocations, depending on DSA. These percentages are well below the 19 percent of residents of the Demographic Study Area with incomes below the poverty level or in the “near poor” category. This suggests that none of the DSAs would result in a disproportionate relocation effect on low-income individuals.

There are two locations in the DCIA that account for the largest number of low-income relocatees. One is the Blue Skies Mobile Home Park on Rhodes Road, south of Ten Ten Road. All of the DSAs except those using the Purple-Blue-Lilac Corridor would affect this neighborhood, requiring relocation of 17 homes. The other location is Dreamland Mobile City on Knightdale Estates Drive, east of Hodge Road near the eastern terminus of the project. A portion of the Green Corridor included in all 17 DSAs would affect this neighborhood, requiring relocation of six homes.

Based on a review of 2010 Census data at the block group and block level, the area around the Dreamland Mobile City neighborhood appears to be the sole cluster of minority residents affected by the DSAs. Census data indicate that a majority of the residents of this area are of Hispanic/Latino ethnicity. Since this area is near the eastern terminus of the project, all of the DSAs impact this

neighborhood. Each DSA would require relocation of six homes in this neighborhood. This is a very small proportion of the total relocations for each of the DSAs. Because this proportion is very small, and because all of the DSAs would have the same effect, none of the DSAs would likely result in a disproportionate relocation effect on minority individuals.

Table 21. Household Income Levels of Residential Relocations

DSA	Corridors in DSA	Total Residential Relocations	Relocations with Income Under \$25,000	Relocations with Income Between \$25,000 and \$35,000
1	Orange - Green	269	5	28
2	Orange – Green – Mint Green – Green	271	5	28
3	Orange – Brown – Tan – Green	256	5	27
4	Orange – Brown – Green	234	5	25
5	Orange – Green – Teal – Brown – Green	263	5	27
6	Orange – Red – Green	435	6	28
7	Orange – Red – Mint Green - Green	437	6	28
8	Orange – Purple – Blue – Lilac – Green	548	3	32
9	Orange – Purple – Blue – Lilac – Green – Mint Green – Green	550	3	32
10	Orange – Purple – Blue – Lilac – Brown – Tan – Green	537	3	28
11	Orange – Purple – Blue – Lilac – Brown – Green	515	3	26
12	Orange – Purple – Blue – Lilac – Green – Teal – Brown – Green	542	3	31
13	Orange – Lilac – Green	466	5	48
14	Orange – Lilac – Green – Mint Green – Green	468	5	48
15	Orange – Lilac – Brown – Tan – Green	455	5	44
16	Orange – Lilac – Brown – Green	433	5	42
17	Orange – Lilac – Green – Teal – Brown – Green	460	5	47

Source: Complete 540 Relocation Reports, 2015.

At the time of this report, it was unknown whether discounts for toll transponders would be available to special groups, such as low-income commuters. However, low-income commuters would have the option to use non-toll alternate routes such as I-40, I-440, US 64/264 Bypass, NC 55, NC 42, and Ten Ten Road. These non-toll alternate routes would have reduced traffic after the project is constructed and open to traffic, so users of non-toll routes would indirectly benefit from the project without paying tolls.

Impacts to low-income or minority populations resulting from implementing the Complete 540 project as a toll facility are not anticipated to be “disproportionately high and adverse.” Benefits and burdens resulting from the project are anticipated to be equitably distributed throughout the community.

6.4 SECTION 4(F) RESOURCES

Section 4(f) of the US Department of Transportation Act (49 USC 303) applies to transportation projects that use lands from publicly owned parks, recreational areas, wildlife refuges, or historic sites. Under Section 4(f), FHWA cannot approve a transportation project that requires the use of any of these resources unless certain conditions are met, including demonstration that there are no feasible and prudent alternatives that avoid impacting the resource and that the project includes all possible planning to minimize harm to the property as a result of the use.

As described in **Section 6.2.1.2**, there are multiple park and recreation sites that potentially would be impacted by the project's DSAs. Each of the DSAs has some involvement with one or more park properties. Additionally three historic properties along the DSAs are subject to Section 4(f) requirements.

White Deer Park Planned Expansion Area

The White Deer Park planned expansion area is included in the *Town of Garner Comprehensive Parks and Recreation, Open Space and Greenways Master Plan* (Town of Garner, 2007) and is in public ownership by the Town of Garner. **Figure 13** shows the location of this park expansion area and the potential impacts of the Red Corridor. The Red Corridor impacts 9.4 acres of the park expansion area and leaves a 12.2 acre isolated section of the expansion area north of the Red Corridor.

When Garner purchased the 35-acre White Deer Park planned expansion parcel in 2006, the Wake County deed transfer included a stipulation that the parcel must be developed for use as a park and community center. The *Comprehensive Parks Master Plan* recommends continued design and implementation of planned expansions of this parcel, along with the existing 96-acre White Deer Park parcel and Thompson Road Park. The Plan also recommends further development of this parcel, in conjunction with the existing 96-acre White Deer Park parcel, with amenities such as signage, nature trails, visual accesses and overlooks, wildlife viewing stations and birding trails, picnic shelters, a new fishing pier, and boat access to water bodies. The Plan also discusses the possibility of shifting a planned community arts center from the 96-acre White Deer Park parcel to the expansion parcel.

Based on the available information, the White Deer expansion parcel is eligible for protection under Section 4(f) because it:

- is in public ownership by the Town of Garner,
- will permit visitation by the general public at any time during the normal operating hours of the facility,
- will have no fees associated with its use, other than rental fees for amenities such as picnic shelters,
- is primarily intended for recreational use, and
- Garner has formally designated and determined it to be significant for park and recreational purposes.

Bryan Road Nature Park

The planned Bryan Road Nature Park is also included in the *Town of Garner Comprehensive Parks and Recreation, Open Space and Greenways Master Plan* (Town of Garner, 2007) and is in public ownership by the Town of Garner. **Figure 14** shows the location of this park and the potential impacts of the Red Corridor. The park is bisected by the Red Corridor with 5.7 acres directly impacted; leaving 10.2 acres north of the road and 4.2 acres south of the road.

The town has owned the 20-acre Bryan Road Nature Park site since 1989 and has plans to develop it with an environmental education center. When the town purchased this parcel, the Wake County deed transfer included a stipulation that the parcel must be developed as a public nature park. The town has also proposed the Mahler's Creek Greenway to run north to south through this site. The Comprehensive Parks Master Plan states that the town should pursue funding for completion of a feasibility and easement and acquisition study. The Plan also states that scenic passive recreation opportunities should be evaluated for the Bryan Road Nature Park site in conjunction with development of Mahler's Creek Greenway.

Based on the available information, the Bryan Road Nature Park is eligible for protection under Section 4(f) because:

- it is in public ownership by the Town of Garner,
- it will permit visitation by the general public at any time during the normal operating hours of the facility,
- it will have no fees associated with its use, other than rental fees for the environmental education center,
- its major purpose and function will be for recreational use, and
- Garner has identified it as a significant recreational resource.

Clemmons Educational State Forest

The Clemmons Educational State Forest is an 830-acre site in public ownership by the State of North Carolina, and managed by the North Carolina Forest Service. *North Carolina's Forest Resources Assessment*, adopted in 2010, is the North Carolina Forest Service action plan. It establishes a vision for protecting North Carolina forest values and benefits and establishes a strategic plan for implementing that vision. The primary goal of the plan is forest resource management. Another of the elements of the vision established by the plan is enhancing the benefits of North Carolina's forests, and one component of this addresses recreation resources of the State's forests. This component describes the importance of the recreational resources of the State's forests in encouraging protection and sound management of the State's forests. According to the policy established in FHWA's 2012 *Section 4(f) Policy Paper*, if recreation has not been established as the primary purpose of a resource, it does not qualify as a recreational resource under Section 4(f). However, the Watershed Extension Loop Trail within Clemmons may independently qualify as a recreational resource under Section 4(f). FHWA and NCDOT are continuing to coordinate with the North Carolina Forest Service to further clarify Section 4(f) applicability to the Watershed Extension Loop Trail and will resolve the applicability prior to preparing the project's Final EIS.

Both the Brown and Tan Corridors cross the northwestern corner of this resource, affecting 17.6 and 7.0 acres, respectively. However, as described above, Section 4(f) would not apply to the Clemmons Educational State Forest property, although it may be applicable to the Watershed Extension Loop Trail. **Figures 15, 15a, 15b,** and 15c show the location of this resource with respect to the Brown, Tan and Teal Corridors. The Brown Corridor would directly affect about 500 feet of the 3-mile long Watershed Extension Loop Trail at its westernmost reach, but it would not affect any of the other trails within the forest or access to any trails. None of the other corridors would affect any of the forest trails. More information about this is provided in the Draft Section 4(f) Evaluation, which is an appendix to the project's Draft Environmental Impact Statement (Lochner, 2015).

Sunset Oaks Park

The 78-acre parcel designated for development of Sunset Oaks Park is in public ownership by the Town of Holly Springs. The planned park is described in *Beyond the Green*, the parks and recreation master

plan for Holly Springs, published in 2007. The Town-owned land is open to the public, and both passive and active recreational uses are planned for the park. The Purple-Blue-Lilac Corridor would cross the planned park, directly affecting 9.6 acres and separating a 4.5 acre section of the park east of the highway. **Figure 16** shows the location of the planned park and the potential impacts of the Purple-Blue-Lilac Corridor on it. Plans for the park are not yet detailed enough to determine exactly how the Purple-Blue-Lilac Corridor would affect recreational uses planned for the park.

Based on the available information, the planned Sunset Oaks Park is eligible for protection under Section 4(f) because:

- it is in public ownership by the Town of Holly Springs,
- it will permit visitation by the general public at any time during its normal operating hours,
- it will have no fees associated with its use, other than rental fees for amenities,
- its major purpose and function will be for recreational use, and
- the Town of Holly Springs has identified it as a significant recreational resource.

Middle Creek School Park

The 105-acre Middle Creek School Park is in public ownership by the Town of Cary. This park opened in 2001 and is included in the Town of Cary's 2012 *Parks, Recreational and Cultural Resources Master Plan*. The park is open to the public and includes a wide range of public recreational facilities. The Orange Corridor crosses a small portion of the extreme northern edge of Middle Creek School Park, directly affecting 1.6 acres. The area affected is a narrow strip of open space along the northern edge of a residential neighborhood. There are no active recreational uses in this part of the park—all of the park's recreational facilities are well to the south of this area. **Figure 17** shows the location of Middle Creek School Park and the potential impacts of the Orange Corridor on it.

Middle Creek School Park is eligible for protection under Section 4(f) because:

- it is in public ownership by the Town of Cary,
- it permits visitation by the general public at any time during its normal operating hours,
- it has no fees associated with its use, other than rental fees for amenities,
- its major purpose and function is for recreational use, and
- the Town of Cary has identified it as a significant recreational resource.

While Middle Creek School Park is eligible for protection under Section 4(f), the right of way needed within the DSAs affecting the park are not anticipated to adversely affect the activities, features, and attributes of the park. More information about this is provided in the project's Draft Section 4(f) Evaluation (Lochner, 2015).

Southeast Regional Park

While some of the land intended for development of the Wake County Southeast Regional Park is in public ownership by Wake County, the Purple-Blue-Lilac Corridor would only impact land currently in private ownership. The FHWA *Section 4(f) Policy Paper* indicates that "when privately held properties [planned for park development] are formally designated...for future park development, Section 4(f) is not applicable." Because the affected parcel is in private ownership, Section 4(f) would not apply.

Neuse River Trail

The section of the Neuse River Trail in the vicinity of the DSAs is in public ownership within land owned by the City of Raleigh. This section of the Neuse River Trail opened to the public in 2013. The trail is included in the City of Raleigh's 2014 *Parks, Recreation and Cultural Resources System Plan*. All of the DSAs would cross the trail.

DSAs using the Green Corridor in the vicinity of the Neuse River would cross the trail on the same bridge that would cross the Neuse River. This is shown on **Figure 18a**. For DSAs using the Mint or Tan Corridor in this area, the trail would be accommodated under the new road with an appropriately sized box culvert to accommodate the trail. These are shown on **Figures 18b and 18c**. For the Tan Corridor, there is a potential impact south of the crossing on the east side of the highway. This could be addressed and avoided during final design of the highway.

DSAs using the Brown Corridor in this area (including DSAs connecting to the Brown Corridor via the Teal Corridor), would affect the trail in two places. This is shown on **Figure 18d**. These options would cross the existing trail where it parallels Old Baucom Road and would also affect the existing trail where it parallels Brownfield Road. However, the existing trail could be modified as part of the project design to maintain public use of the trail. As an alternative to replacing the trail along Brownfield and Old Baucom Roads as it is currently configured, the trail could possibly cross under 540 in a culvert or could go north along Brownfield Road to Battle Bridge Road and cross under 540 in conjunction with the bridges at this location. In either of these options the trail would be located east of 540 with a connection back to the current trail along Old Baucom Road east of the 540 interchange.

The Neuse River Trail is eligible for protection under Section 4(f) because:

- it is on land in public ownership by the City of Raleigh,
- it permits visitation by the general public at any time during its normal operating hours,
- it has no fees associated with its use,
- its major purpose and function is for recreational use, and
- the City of Raleigh has identified it as a significant recreational resource.

While the Neuse River Trail is eligible for protection under Section 4(f), the DSAs affecting the park are not anticipated to adversely affect the activities, features, and attributes of the park. Under the Brown Corridor scenario, the existing trail would need to be modified as part of the Complete 540 project design to maintain public use of the trail. More information about this is provided in the project's Draft Section 4(f) Evaluation (Lochner, 2015).

Historic Properties

Through consultation with the North Carolina State Historic Preservation Office (HPO), it was determined that there are 25 historic sites included in or eligible for inclusion in the National Register of Historic Places (NRHP) in the vicinity of the DSAs that are subject to Section 4(f) requirements. Of these 25 sites, six have the potential to be affected by Complete 540 DSAs. Through this consultation, it was determined that three of these sites have the potential to be adversely affected and have potential Section 4(f) use by DSAs. These three sites are the Baucom-Stallings House, which would be impacted by the Tan Corridor, and the Faulhaber Farm and Bryan Farm Historic District, which would both be impacted by the Red Corridor. These properties are discussed in detail in the Historic Architectural Resources Survey Report prepared for this project (Mattson et al., 2014).

7 IMPACT CONCLUSIONS AND RECOMMENDATIONS

7.1 CONCLUSIONS

- DSAs using the complete Orange Corridor between NC 55 Bypass and I-40 would result in substantially fewer relocations than the other DSAs. DSAs using the Purple-Blue-Lilac Corridor would result in the highest number of relocations, requiring over twice as many relocations as those using the complete Orange Corridor. DSAs using the Orange Corridor to the Lilac Corridor between NC 55 Bypass and I-40 would result in nearly 80 percent more relocations as those using the complete Orange Corridor. DSAs using the Red Corridor would result in over 60 percent more relocations as those using the complete Orange Corridor. Nearly all the relocations required by any of the DSAs would be residential relocations.
- All of the project DSAs would have negative impacts on existing neighborhoods. DSAs using the Orange Corridor would directly impact fewer neighborhoods than DSAs using the Red, Lilac, or Purple-Blue-Lilac Corridors. They would also require far fewer relocations. The Red, Lilac, and Purple-Blue-Lilac Corridors would all bisect multiple residential neighborhoods, affecting the existing cohesion in these neighborhoods. The Red Corridor would physically divide the Town of Garner, separating lower-income areas to the north from higher-income areas to the south.
- All of the DSAs would result in access changes to existing neighborhoods, including notable changes in travel patterns to and from some neighborhoods.
- The DSAs would have minimal impacts on low-income and minority communities. While minority and low income populations are present in the DCIA, no notably adverse community impacts are anticipated with this project; thus, impacts to minority and low income populations do not appear to be disproportionately high or adverse. Benefits and burdens resulting from the project are anticipated to be equitably distributed throughout the community.
- DSAs using the Red Corridor would eliminate a portion of the Greenfield South Business Park, the foundation of Garner’s local employment and tax base. By eliminating a substantial area of land targeted for commercial and industrial development, the Red Corridor would conflict with the town’s objectives of promoting the expansion of the local tax base and expanding non-residential uses.
- The project would provide opportunities for aesthetically pleasing views from the highway, but could also detract from the existing views of rural areas from adjacent properties.
- DSAs using the Red Corridor would impact two park properties subject to Section 4(f) requirements: the White Deer Park planned expansion area and the planned Bryan Road Nature Park. DSAs using the Purple-Blue-Lilac Corridor would impact one planned park property subject to Section 4(f) requirements: the planned Town of Holly Springs Sunset Oaks Park. DSAs using the complete Brown Corridor would directly affect the Watershed Extension Loop Trail in the Clemmons Educational State Forest; Section 4(f) applicability to this resource will be resolved prior to publication of the Complete 540 project’s Final EIS. DSAs using the Orange Corridor east of Holly Springs Road would impact the Middle Creek School Park, which is eligible for protection under Section 4(f); however, the impact are not anticipated to adversely

affect the activities, features, and attributes of this park. All DSAs would cross the Neuse River Trail in the eastern project area, near Auburn Knightdale Road, but none are anticipated to adversely affect the activities, features, and attributes of the trail.

- All of the DSAs would encroach on a church parcel near the western terminus of the project. DSAs using the Red Corridor would also encroach on a second church parcel, on Auburn-Knightdale Road.
- The Orange Corridor would encroach on property at Wake Technical Community College but would not directly impact any buildings on the property. No other educational facilities would be directly impacted by any of the DSAs.
- No community centers, libraries, medical facilities or public safety facilities would be directly impacted by any of the DSAs.
- There are several 303(d)-listed streams in the Demographic Study Area. These include portions of Swift Creek, Middle Creek, Terrible Creek, Little Creek, Beddingfield Creek, and the Neuse River. While all of the DSAs cross Swift Creek; the Red Corridor also crosses a 303(d)-listed upstream tributary to Swift Creek. All of the DSAs cross Middle Creek near the western project terminus, while only those using the Purple-Blue-Lilac Corridor cross Middle Creek a second time. DSAs using the Purple-Blue Lilac Corridor also cross a 303(d)-listed portion of Terrible Creek. The Brown Corridor crosses 303(d)-listed portions of Little Creek and Beddingfield Creek. The Green, Mint Green, and Tan Corridors cross 303(d)-listed portions of the Neuse River. There is also one water supply watershed, the Swift Creek Critical Watershed. The Red Corridor crosses the Swift Creek Critical Watershed.
- All of the DSAs have the potential to affect the Swift Creek Aquatic Habitat Natural Heritage Program (NHP) Natural Area. The DSAs that include the Purple-Blue-Lilac Corridor also have the potential to affect the Middle Creek Aquatic Habitat, Middle Creek Bluffs and Floodplain, and Blue Pond Salamander Site NHP Natural Areas.
- Temporary impacts associated with construction and operation of the proposed project are anticipated for adjacent neighborhoods and businesses. These effects may include changes in traffic patterns to community services/facilities through temporary detours, changes to access points, and increases in noise. They may also include changes in access for emergency vehicles, public services, and school buses.

7.2 RECOMMENDATIONS

This section includes suggestions for minimizing or mitigating impacts, and measures that could become part of project commitments. Specific project activities and features will be further evaluated in later design phases for the Preferred Alternative. The implementation of recommendations is at the discretion of NCDOT, in consultation with FHWA.

- Once a Preferred Alternative is selected, NCDOT should consider additional mitigation measures for community impacts, based on the final designs and comments from affected communities. Mitigation options for lessening neighborhood impacts were incorporated into the functional engineering designs, where practicable.

- The aesthetic quality of the proposed project areas could be enhanced by the following measures, which can be considered during final design:
 1. Implementation of a roadside landscaping plan
 2. Structural design (such as drainage structures and bridges) consideration to enhance visual appearance
 3. Bifurcated roadways (opposing lanes on roadways on different grades) to blend better with existing topographical features
 4. Natural earth berms for mitigation of noise and visual impacts where space permits
- If the Preferred Alternative uses the Green, Mint Green, or Tan Corridors, NCDOT should begin coordination with the City of Raleigh and Wake County to determine ways to mitigate impacts to the Randleigh Farm property.
- NCDOT should coordinate with local jurisdictions to discuss accommodations for sidewalks, bike lanes, and pedestrian crossings where appropriate and feasible, particularly at proposed interchange locations and approaches along y-lines.
- All DSAs would temporarily impact school bus routes during construction and result in modifications of existing routes or require new bus routes. NCDOT should coordinate with Wake and Johnston County schools to identify ways to minimize disruptions to school bus routes once a Preferred Alternative is identified.
- NCDOT should consult with public safety departments to ensure response times are maintained during project construction
- To avoid disruptions in utility service and delivery, NCDOT should coordinate any required relocation of utility lines with the utility providers, prior to construction.

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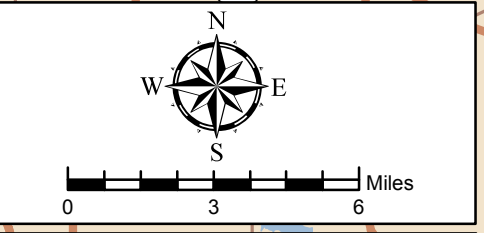
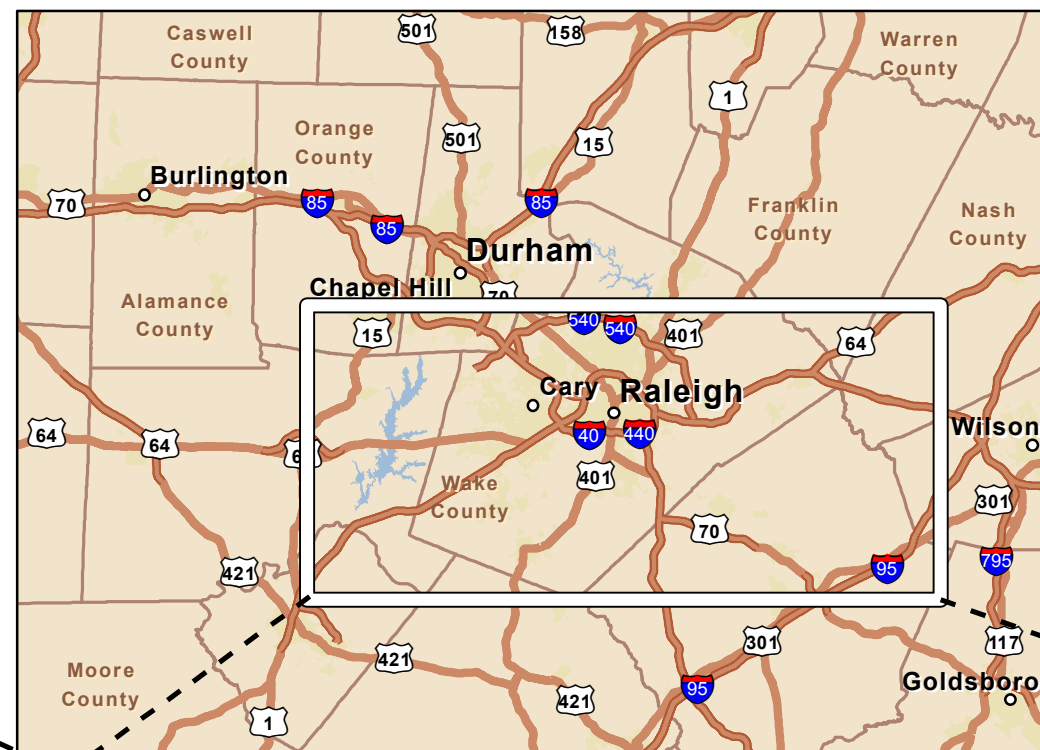
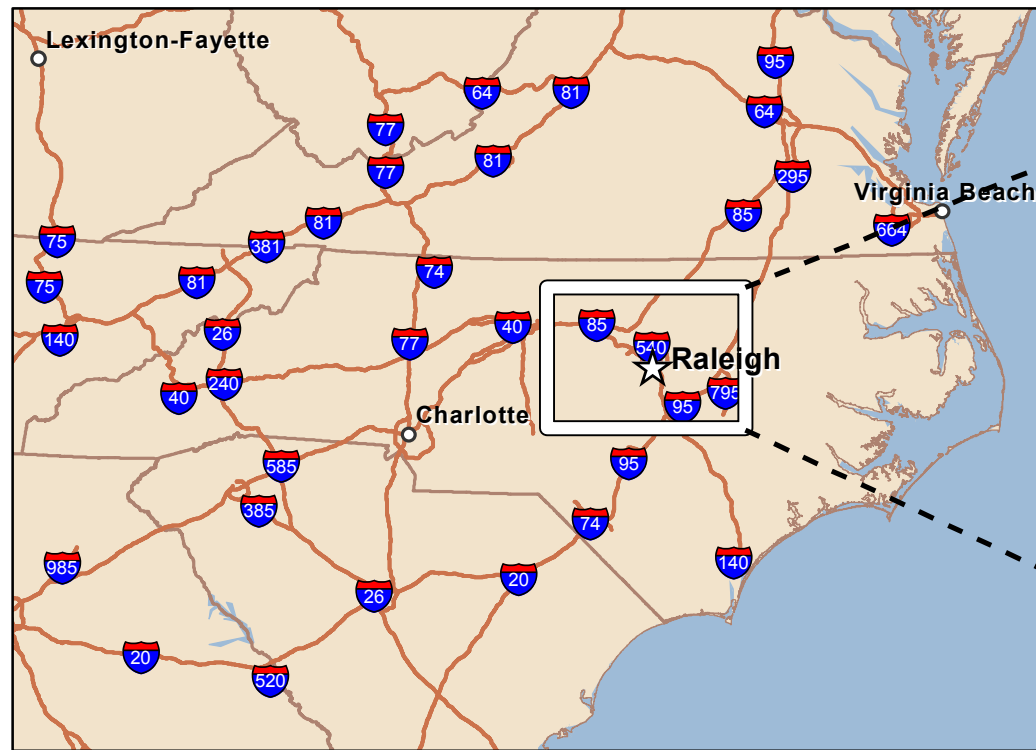
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Legend

- Study Area Boundary
- Triangle Expressway



NORTH CAROLINA Turnpike Authority

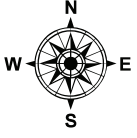
Complete 540 - Triangle Expressway Southeast Extension

State Project No. 6.401078 & 6.401079 & 6.401080
S.T.I.P. No. R-2721 & R-2828 & R-2829

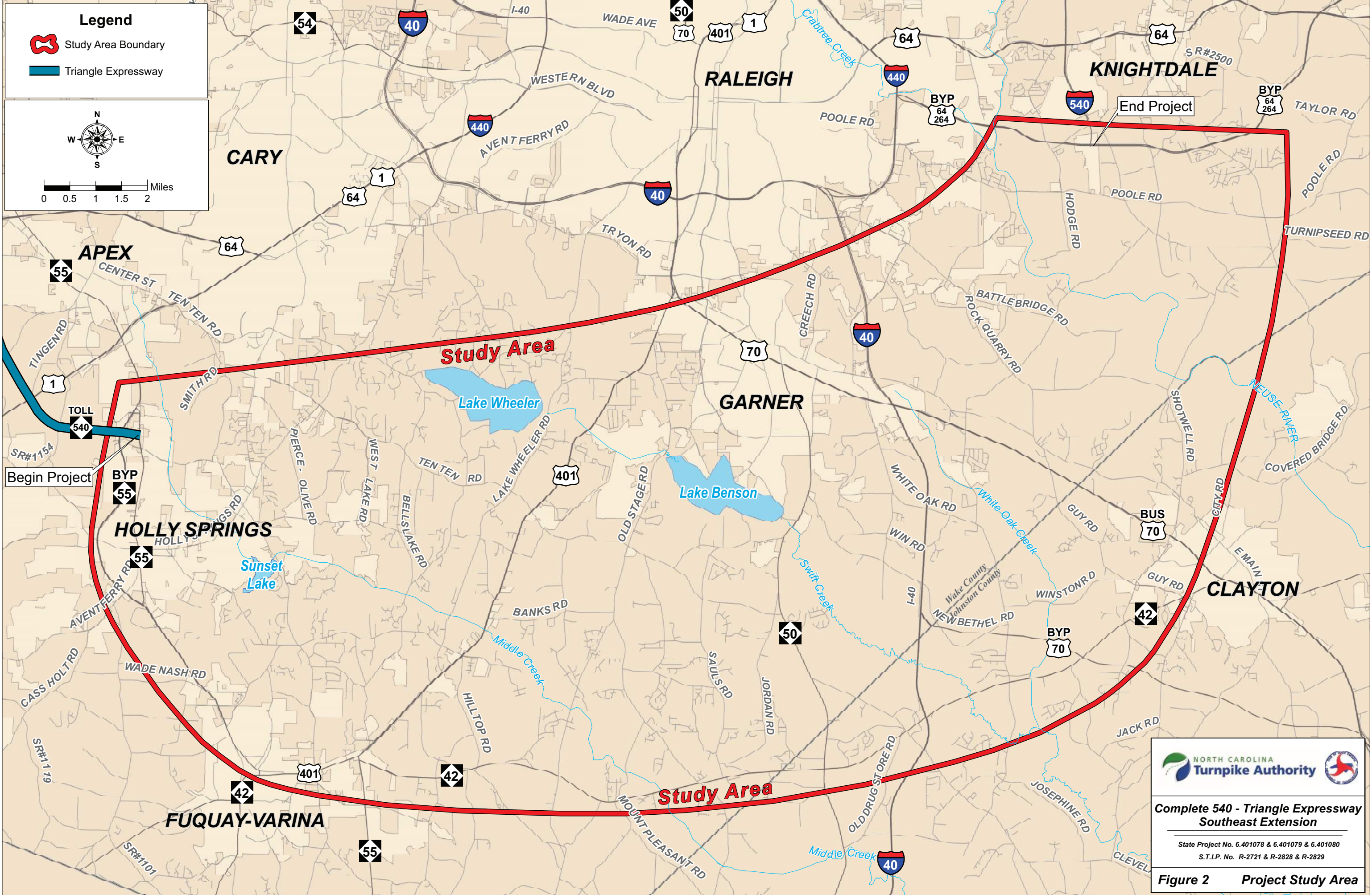

Figure 1 Project Setting

Legend

-  Study Area Boundary
-  Triangle Expressway



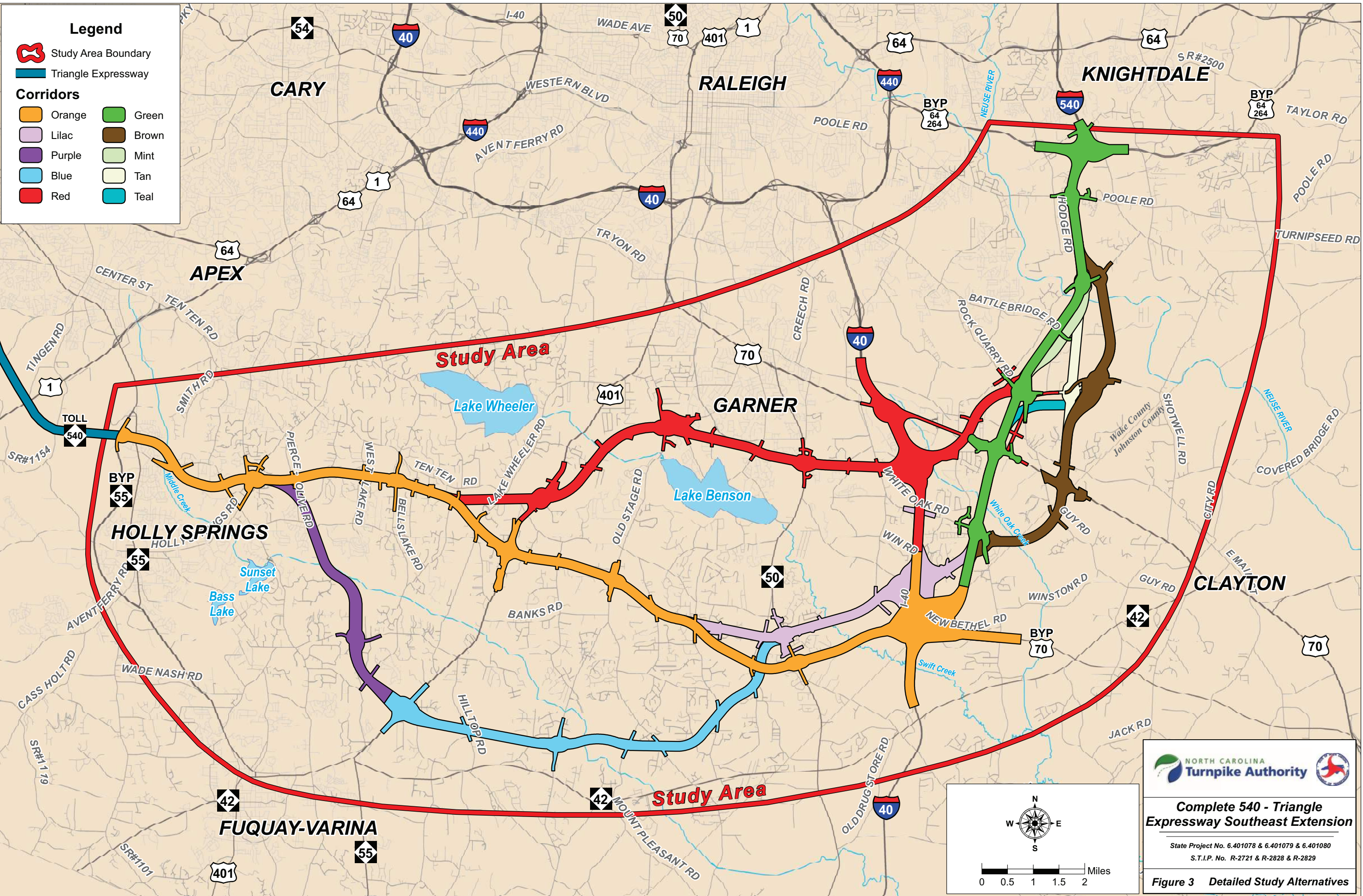
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S.T.I.P. No. R-2721 & R-2828 & R-2829

Figure 2 Project Study Area



Legend

- Study Area Boundary
- Triangle Expressway

Corridors

Orange	Green
Lilac	Brown
Purple	Mint
Blue	Tan
Red	Teal

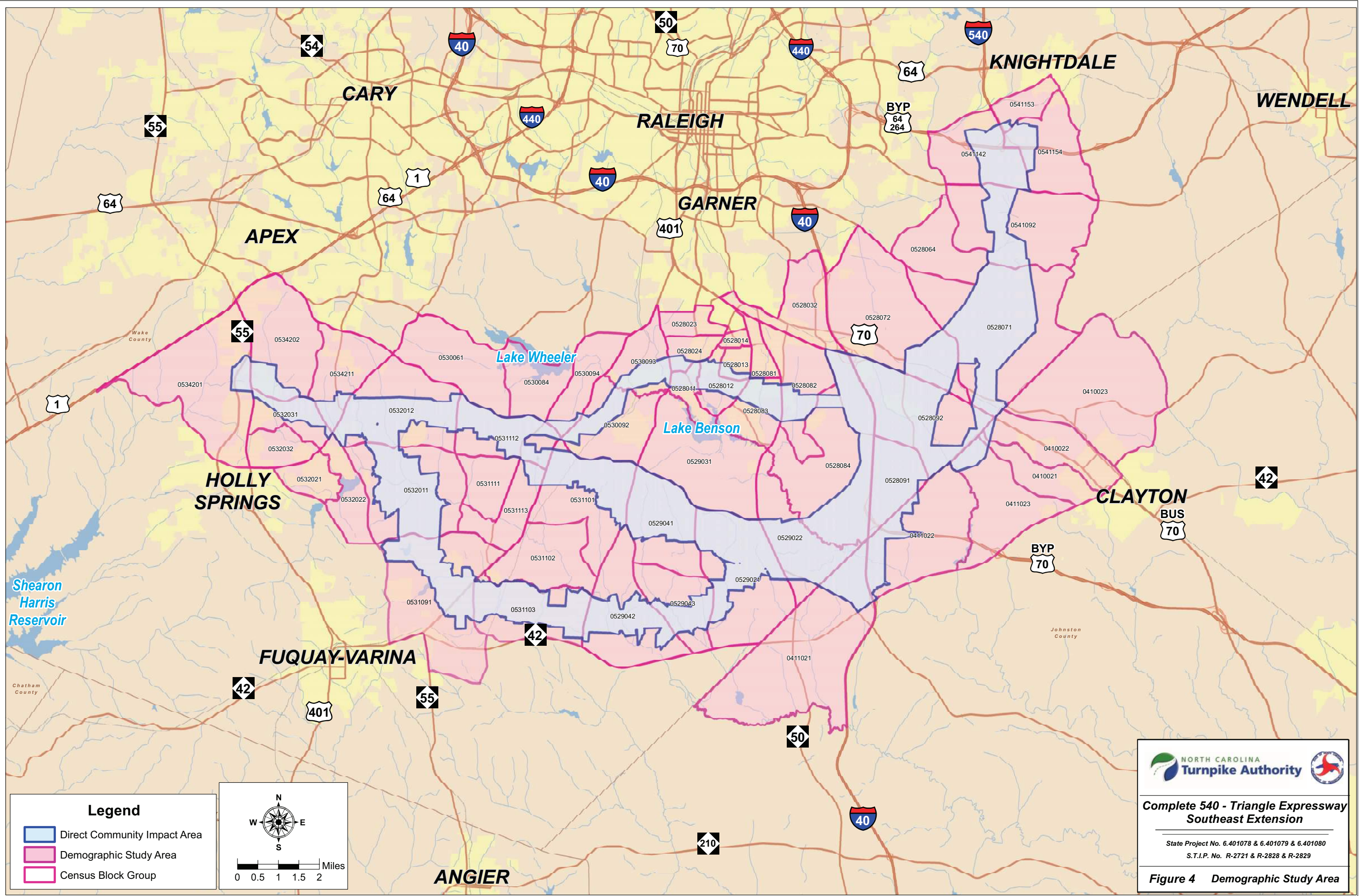
NORTH CAROLINA Turnpike Authority

Complete 540 - Triangle Expressway Southeast Extension

State Project No. 6.401078 & 6.401079 & 6.401080
 S.T.I.P. No. R-2721 & R-2828 & R-2829

Figure 3 Detailed Study Alternatives

North arrow and scale bar (0 to 2 Miles).



Legend

- Direct Community Impact Area
- Demographic Study Area
- Census Block Group

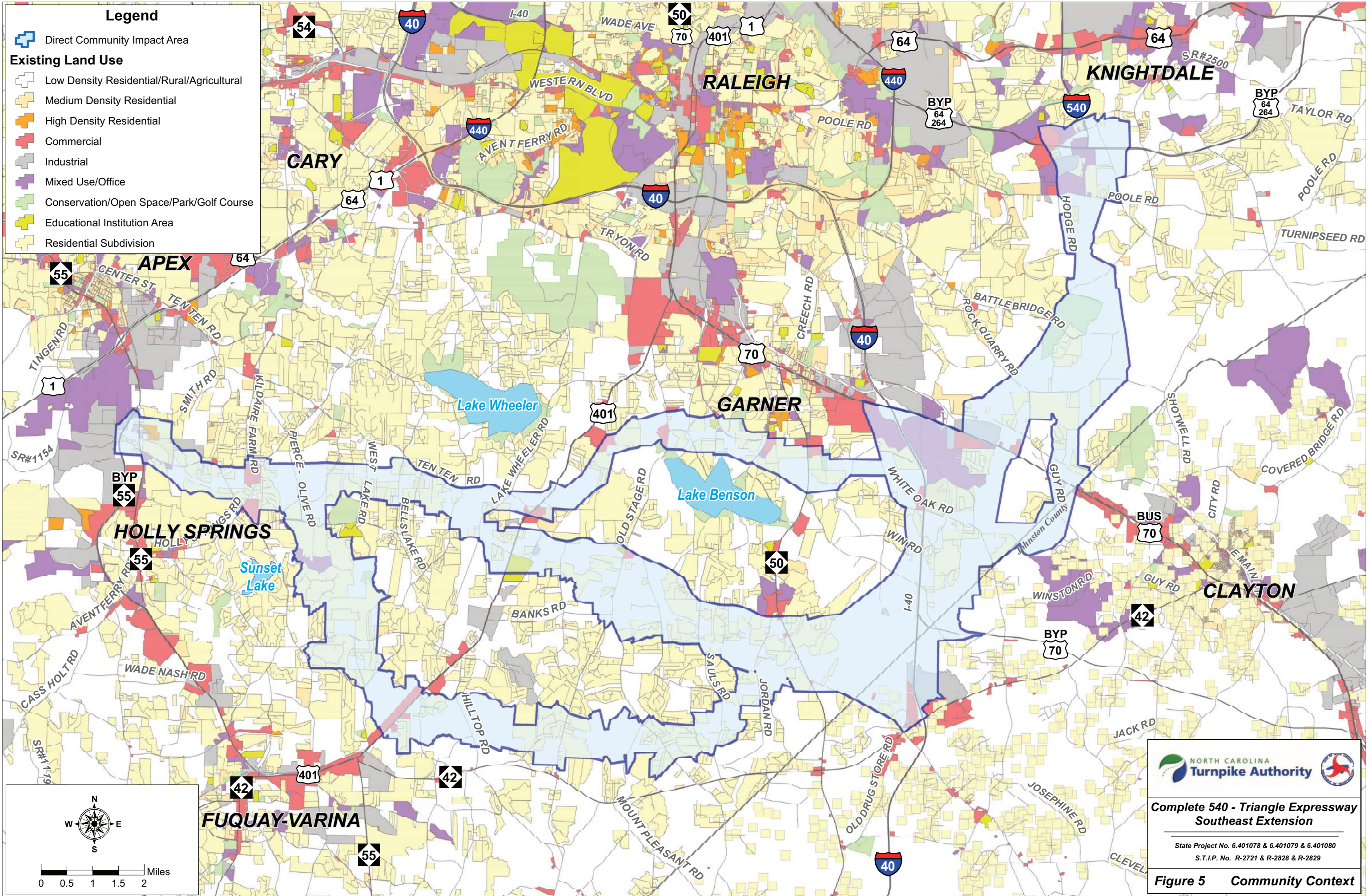
A compass rose indicating North (N), South (S), East (E), and West (W). Below it is a scale bar in miles, ranging from 0 to 2 miles with increments of 0.5 miles.

NORTH CAROLINA Turnpike Authority











Complete 540 - Triangle Expressway Southeast Extension

State Project No. 6.401078 & 6.401079 & 6.401080
S.T.I.P. No. R-2721 & R-2828 & R-2829

Figure 4 Demographic Study Area



Legend

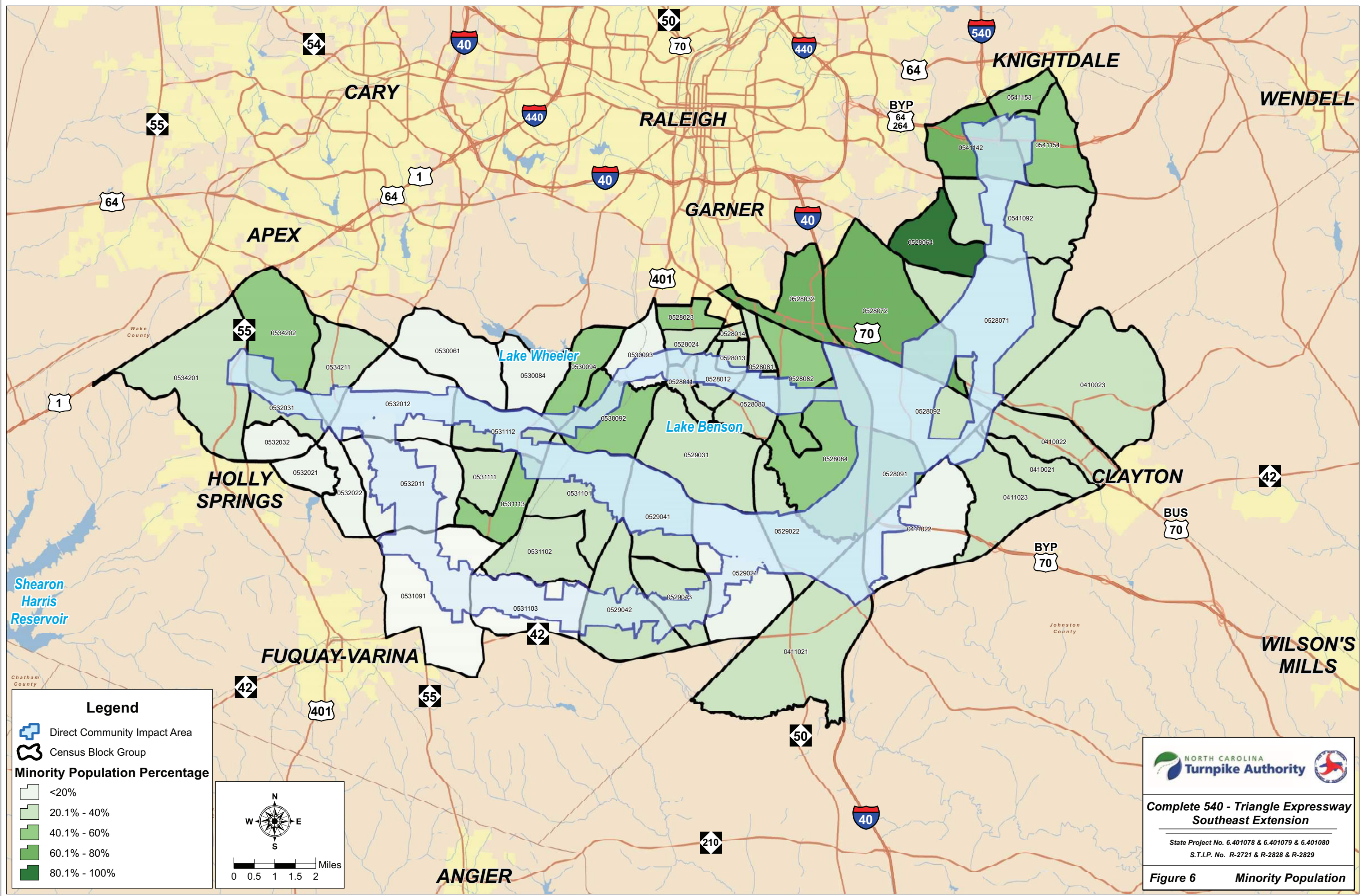
-  Direct Community Impact Area
- Existing Land Use**
-  Low Density Residential/Rural/Agricultural
-  Medium Density Residential
-  High Density Residential
-  Commercial
-  Industrial
-  Mixed Use/Office
-  Conservation/Open Space/Park/Golf Course
-  Educational Institution Area
-  Residential Subdivision



**Complete 540 - Triangle Expressway
Southeast Extension**

State Project No. 6.401078 & 6.401079 & 6.401080
S.T.I.P. No. R-2721 & R-2828 & R-2829

Figure 5 Community Context



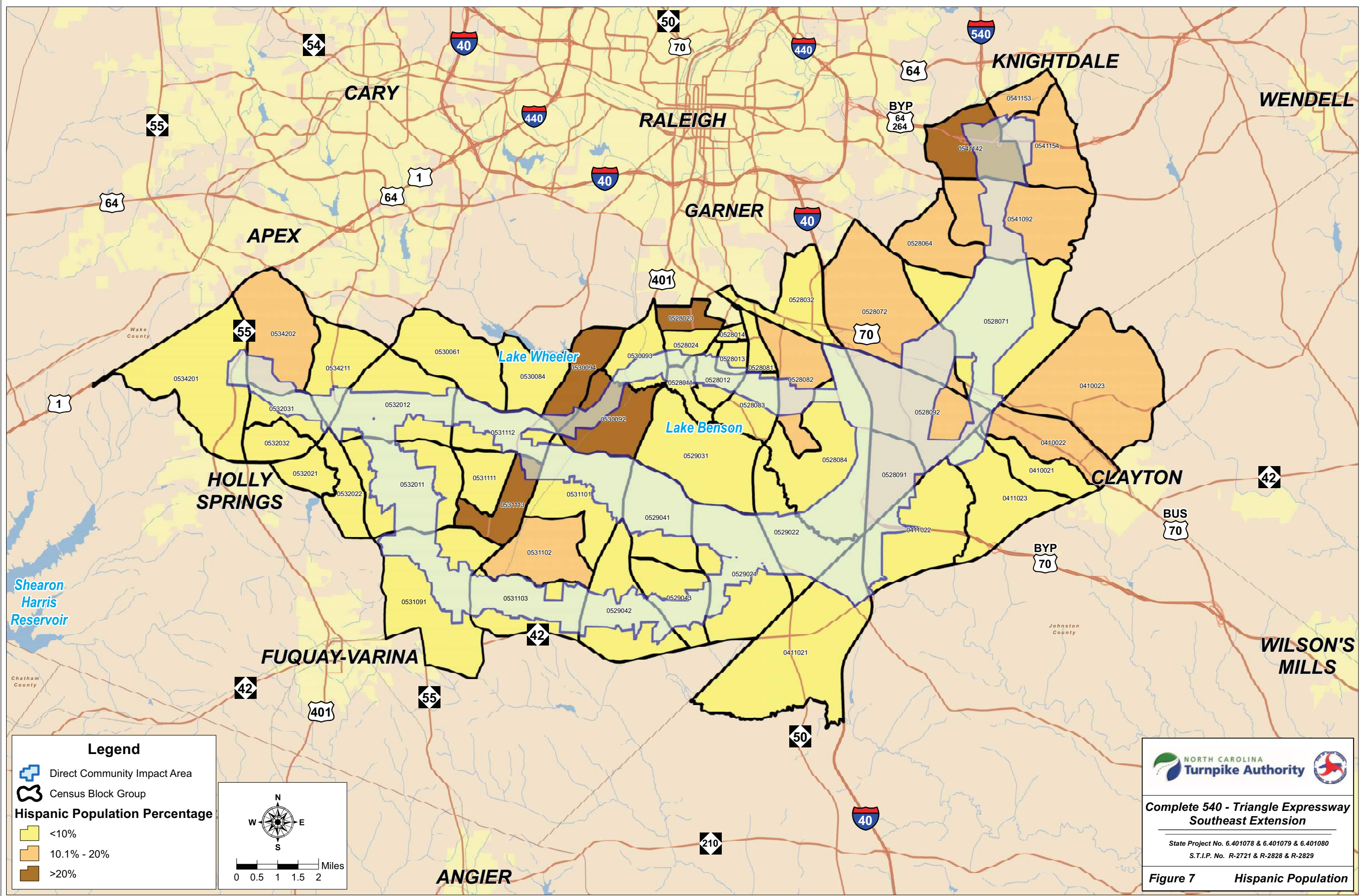


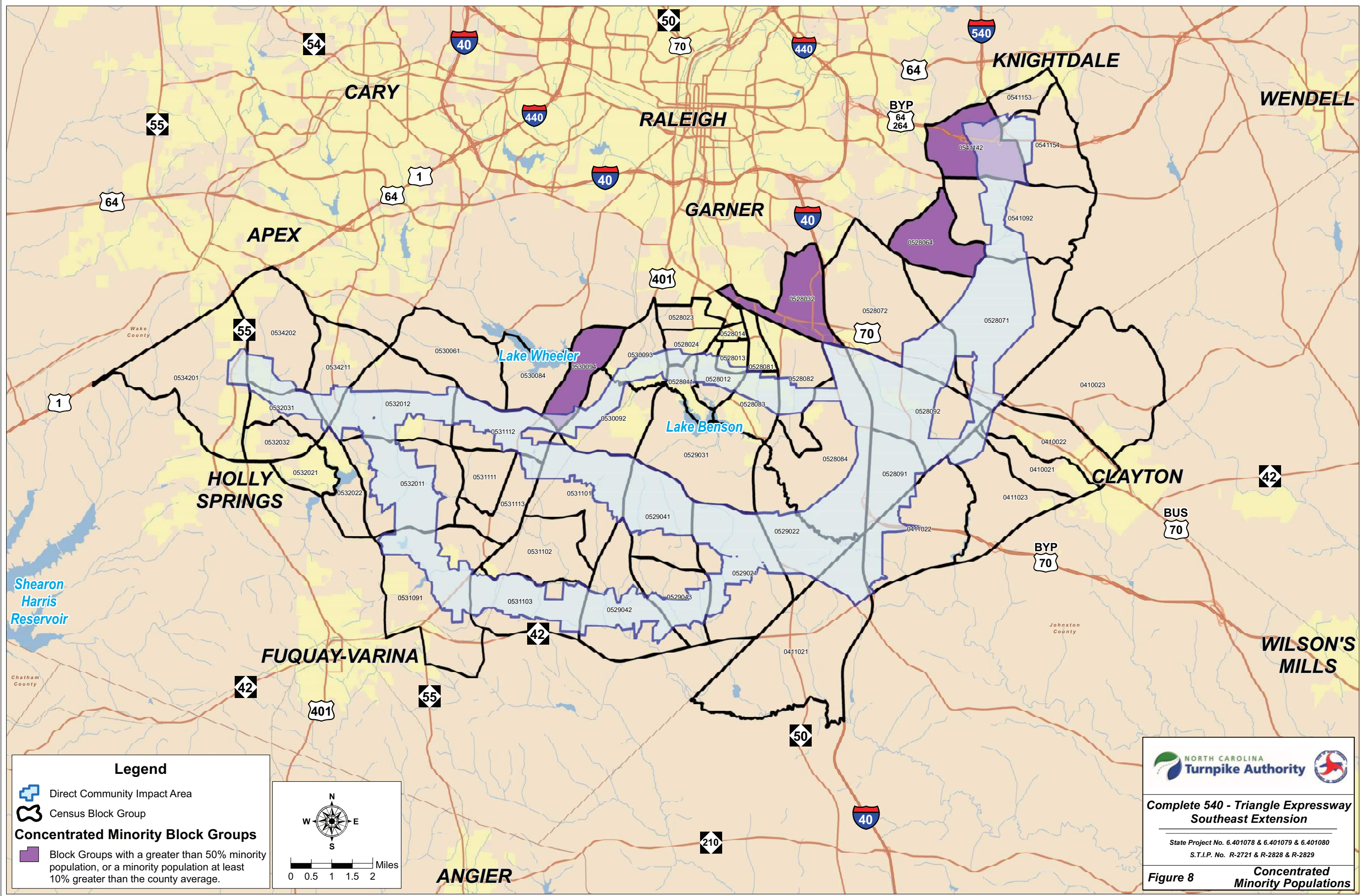
Complete 540 - Triangle Expressway Southeast Extension

 State Project No. 6.401078 & 6.401079 & 6.401080



 S.T.I.P. No. R-2721 & R-2828 & R-2829

Figure 6 **Minority Population**




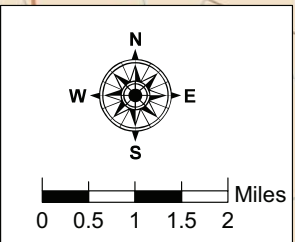


Legend

-  Direct Community Impact Area
-  Census Block Group

Concentrated Minority Block Groups

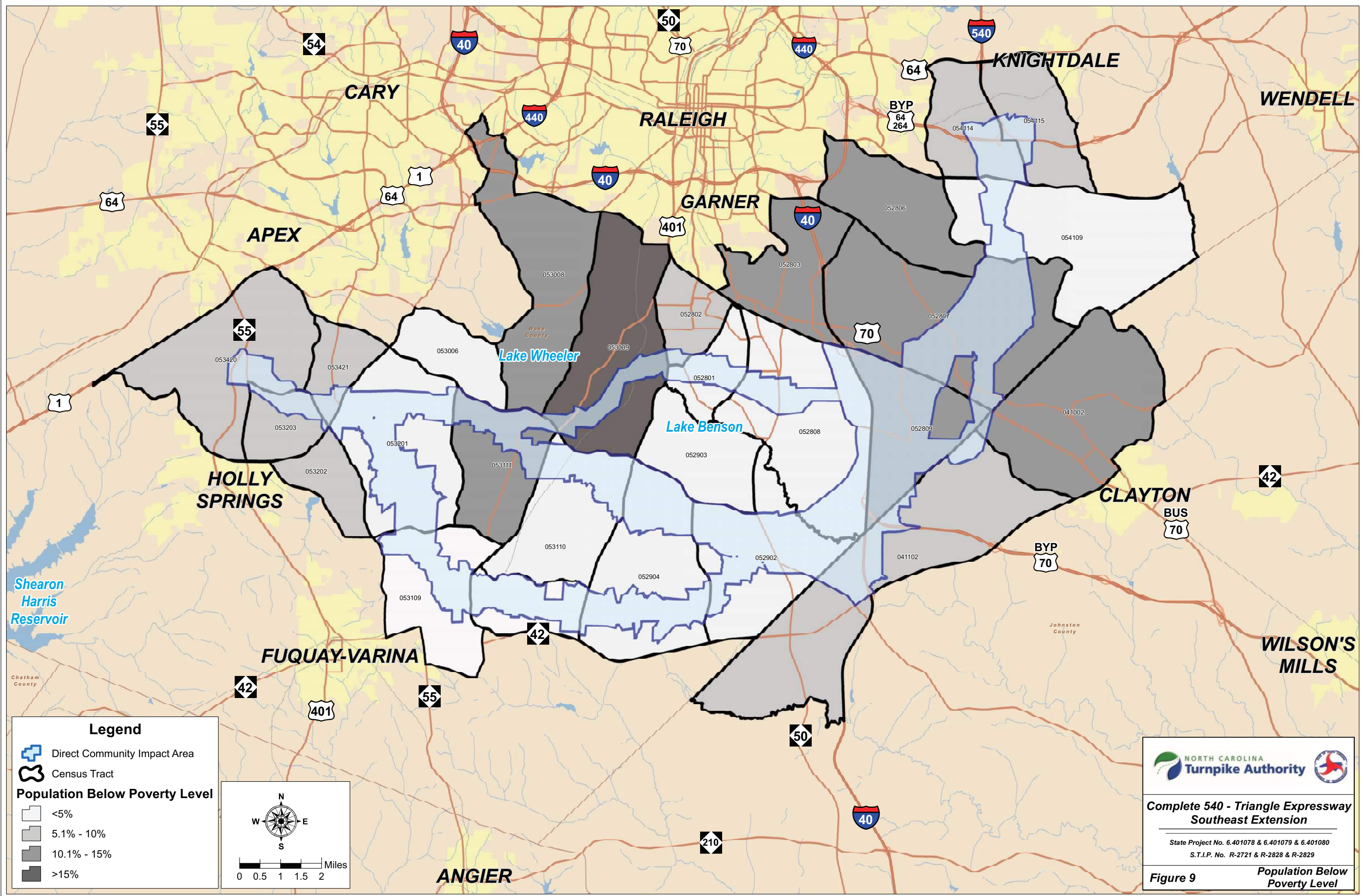
-  Block Groups with a greater than 50% minority population, or a minority population at least 10% greater than the county average.



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Figure 8 Concentrated Minority Populations



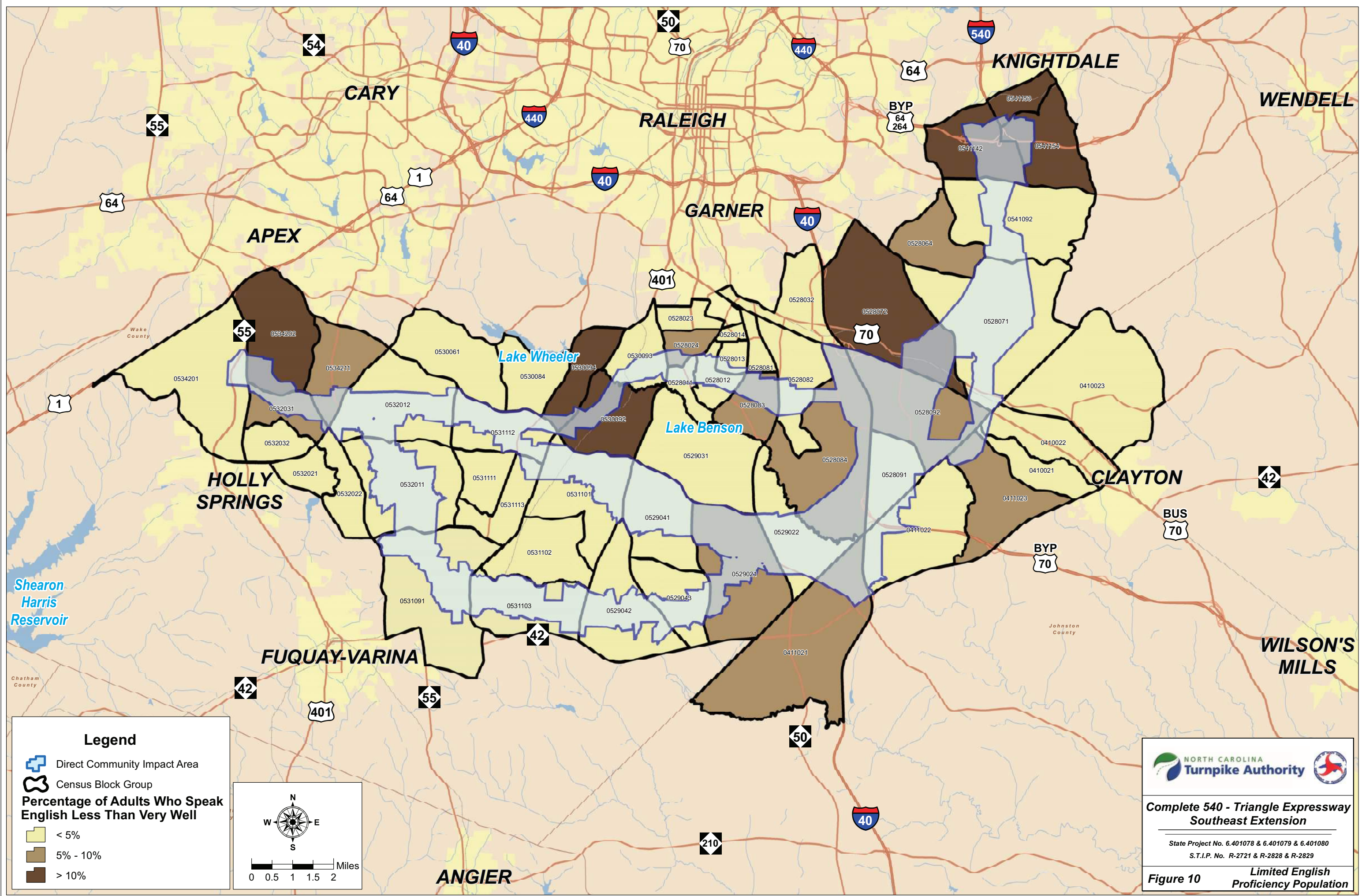


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 State Project No. 6.401078 & 6.401079 & 6.401080

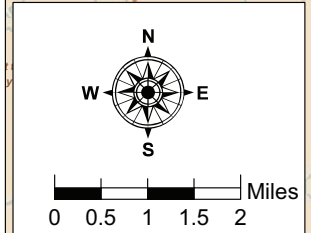
 S.T.I.P. No. R-2721 & R-2828 & R-2829

Figure 9 **Population Below Poverty Level**

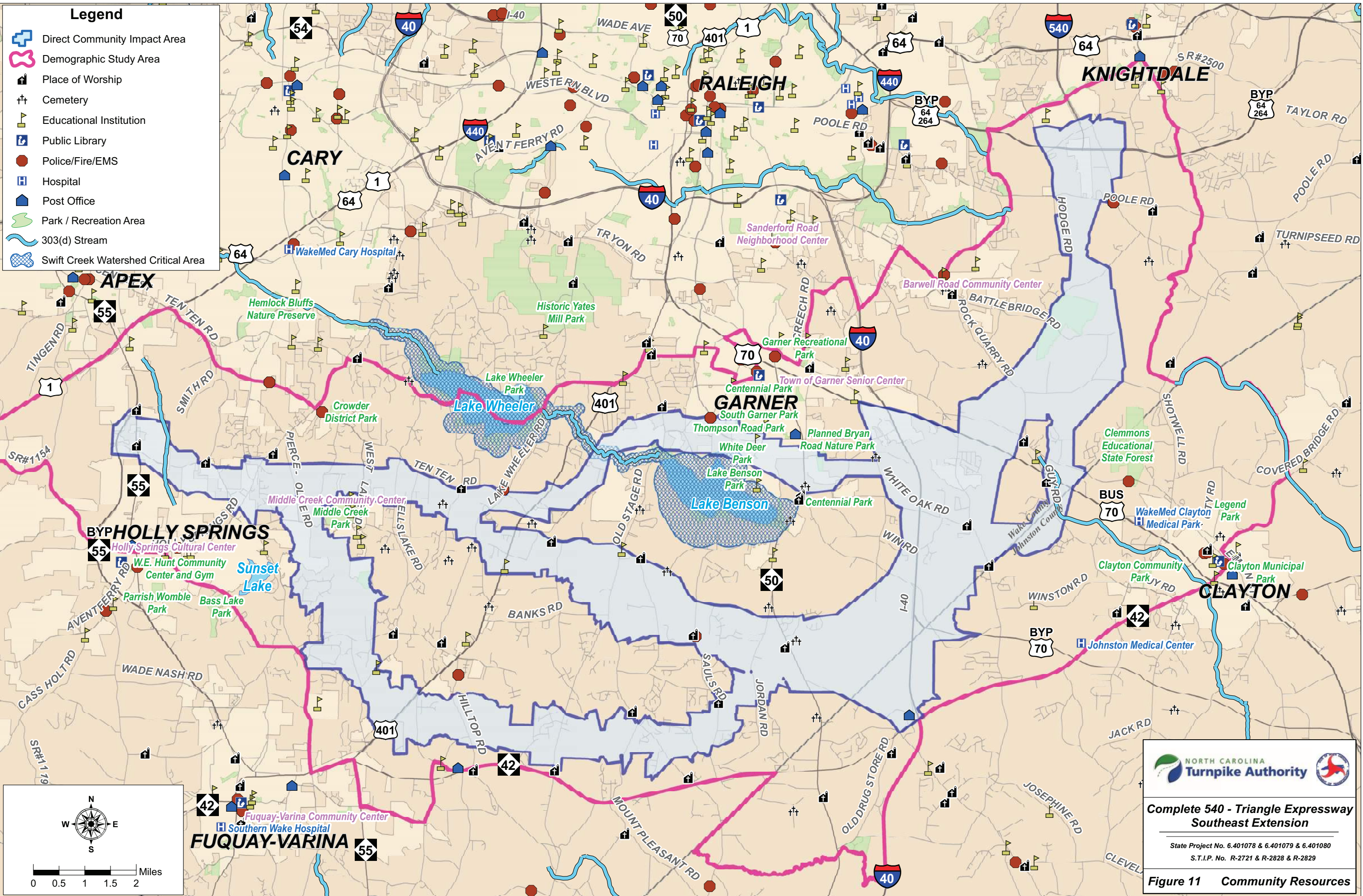


Legend

-  Direct Community Impact Area
-  Census Block Group
- Percentage of Adults Who Speak English Less Than Very Well**
-  < 5%
-  5% - 10%
-  > 10%




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Figure 10 *Limited English Proficiency Population*



- ### Legend
- Direct Community Impact Area
 - Demographic Study Area
 - Place of Worship
 - Cemetery
 - Educational Institution
 - Public Library
 - Police/Fire/EMS
 - Hospital
 - Post Office
 - Park / Recreation Area
 - 303(d) Stream
 - Swift Creek Watershed Critical Area



Scale: 0 0.5 1 1.5 2 Miles

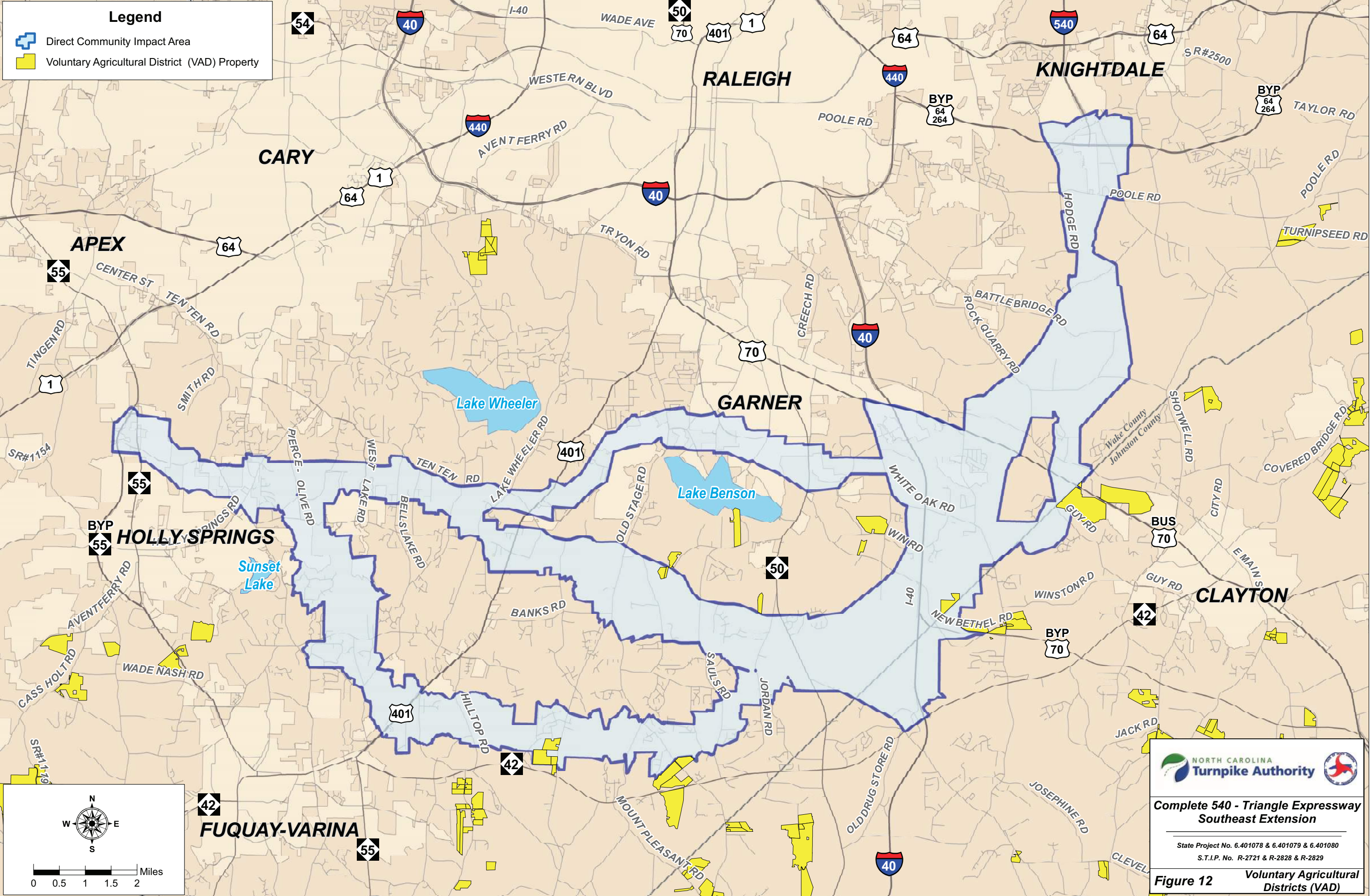
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Figure 11 Community Resources

Legend

-  Direct Community Impact Area
-  Voluntary Agricultural District (VAD) Property



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Figure 12 Voluntary Agricultural Districts (VAD)

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- ▨ PARK BOUNDARY
- ▭ RED CORRIDOR




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Figure 13 **White Deer Park**

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- ▨ PARK BOUNDARY
- ▭ RED CORRIDOR

PLANNED
BRYAN ROAD
NATURE PARK

ATCHISON ST.

200' 0' 200' 400'
100'
(ENGLISH)

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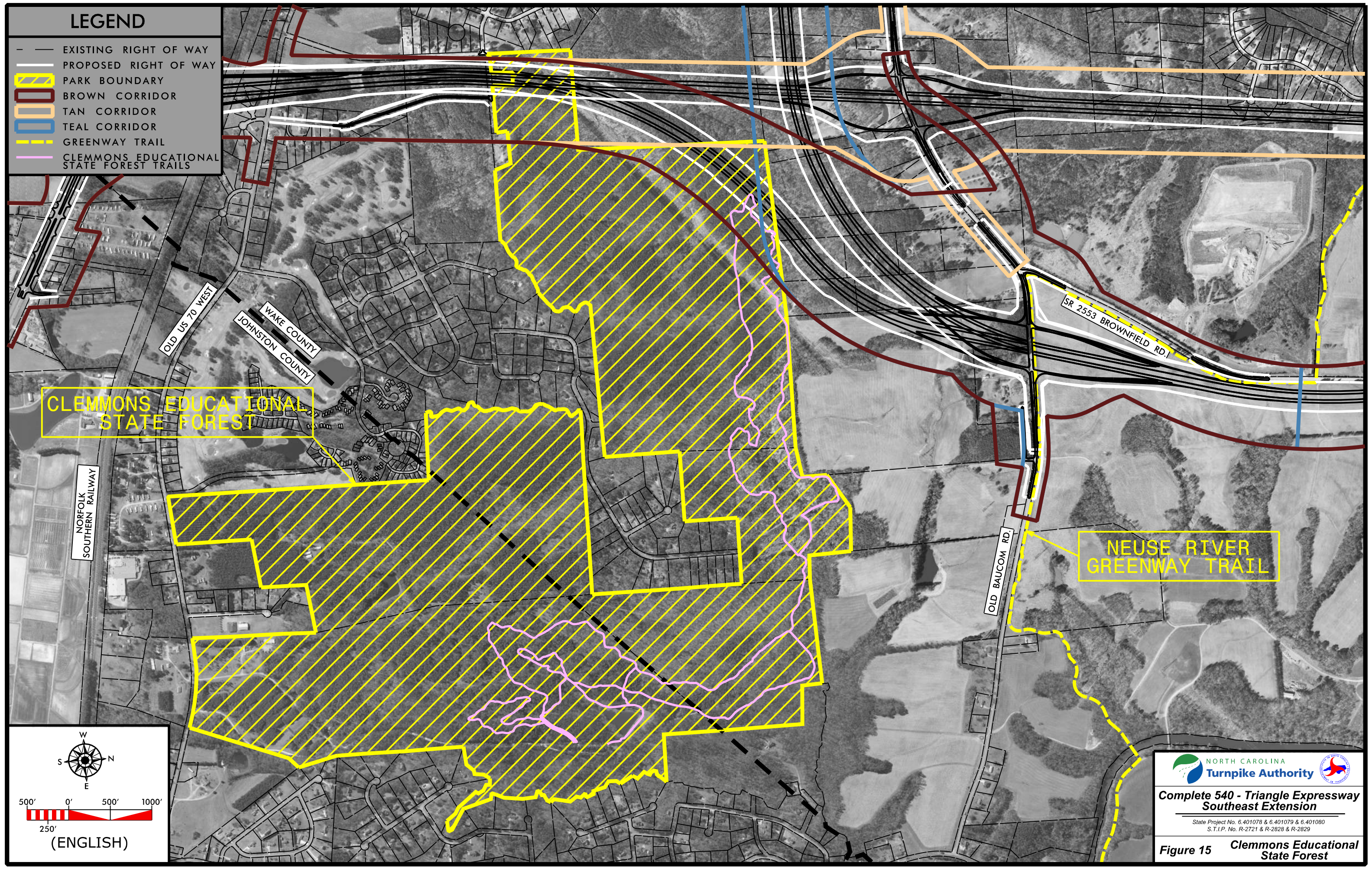
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Figure 14 **Planned Bryan Road Nature Park**

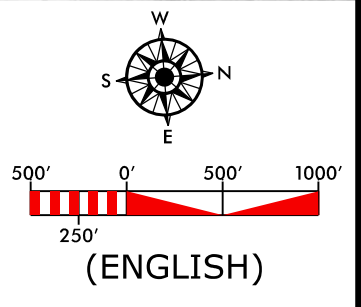
LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- ▨ PARK BOUNDARY
- ▭ BROWN CORRIDOR
- ▭ TAN CORRIDOR
- ▭ TEAL CORRIDOR
- - - GREENWAY TRAIL
- CLEMMONS EDUCATIONAL STATE FOREST TRAILS



CLEMMONS EDUCATIONAL STATE FOREST

NEUSE RIVER GREENWAY TRAIL




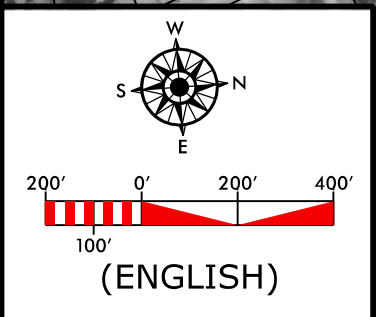

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S.T.I.P. No. R-2721 & R-2828 & R-2829

Figure 15 Clemmons Educational State Forest

LEGEND

- - - EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- ▨ PARK BOUNDARY
- ▭ BROWN CORRIDOR
- CLEMMONS EDUCATIONAL STATE FOREST TRAILS

CLEMMONS EDUCATIONAL STATE FOREST



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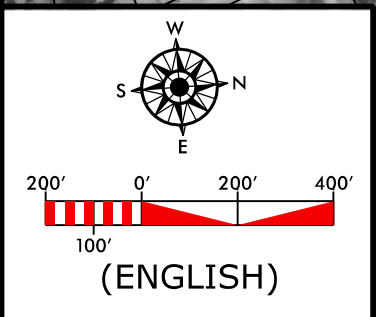
State Project No. 6.401078 & 6.401079 & 6.401080
S.T.I.P. No. R-2721 & R-2828 & R-2829

Figure 15A Clemmons Educational State Forest

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- ▨ PARK BOUNDARY
- ▭ TAN CORRIDOR
- CLEMMONS EDUCATIONAL STATE FOREST TRAILS

CLEMMONS EDUCATIONAL STATE FOREST



NORTH CAROLINA Turnpike Authority

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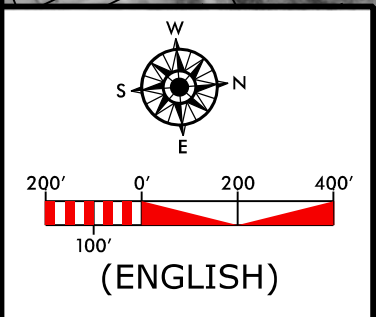
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S.T.I.P. No. R-2721 & R-2828 & R-2829



Figure 15B Clemmons Educational State Forest

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- ▨ PARK BOUNDARY
- ▭ TEAL CORRIDOR
- CLEMMONS EDUCATIONAL STATE FOREST TRAILS

CLEMMONS EDUCATIONAL STATE FOREST



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Figure 15C Clemmons Educational State Forest

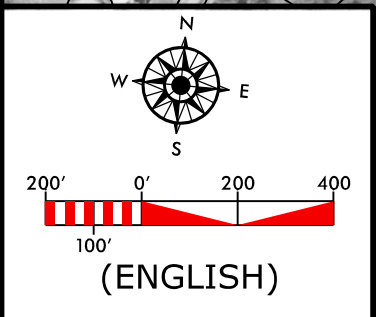
LEGEND

- - - EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- ▨ PARK BOUNDARY
- ▭ PURPLE CORRIDOR



PLANNED
SUNSET OAKS
PARK

MIDDLE CREEK





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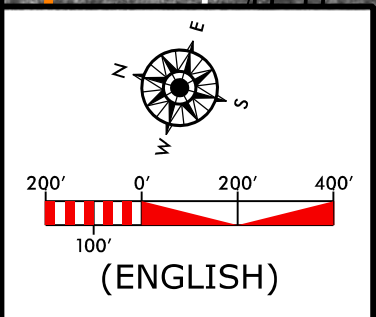
Figure 16 **Planned Sunset
Oaks Park**

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- ▨ PARK BOUNDARY
- ▨ ORANGE CORRIDOR



MIDDLE CREEK
SCHOOL PARK




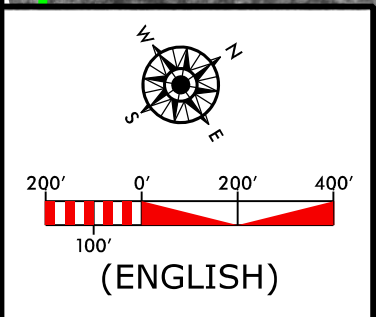
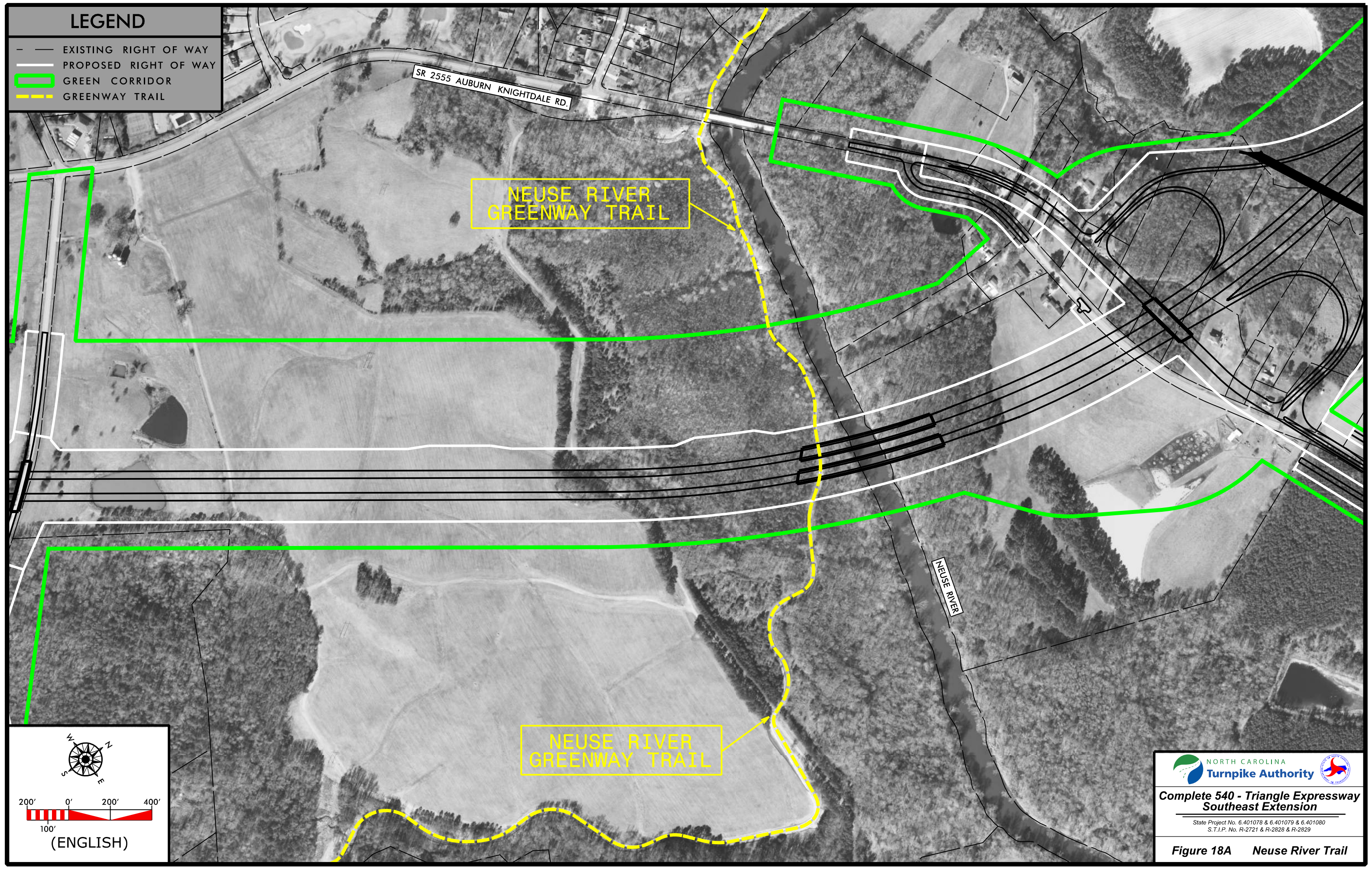

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Figure 17 **Middle Creek
School Park**

LEGEND

- - - EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- █ GREEN CORRIDOR
- - - GREENWAY TRAIL



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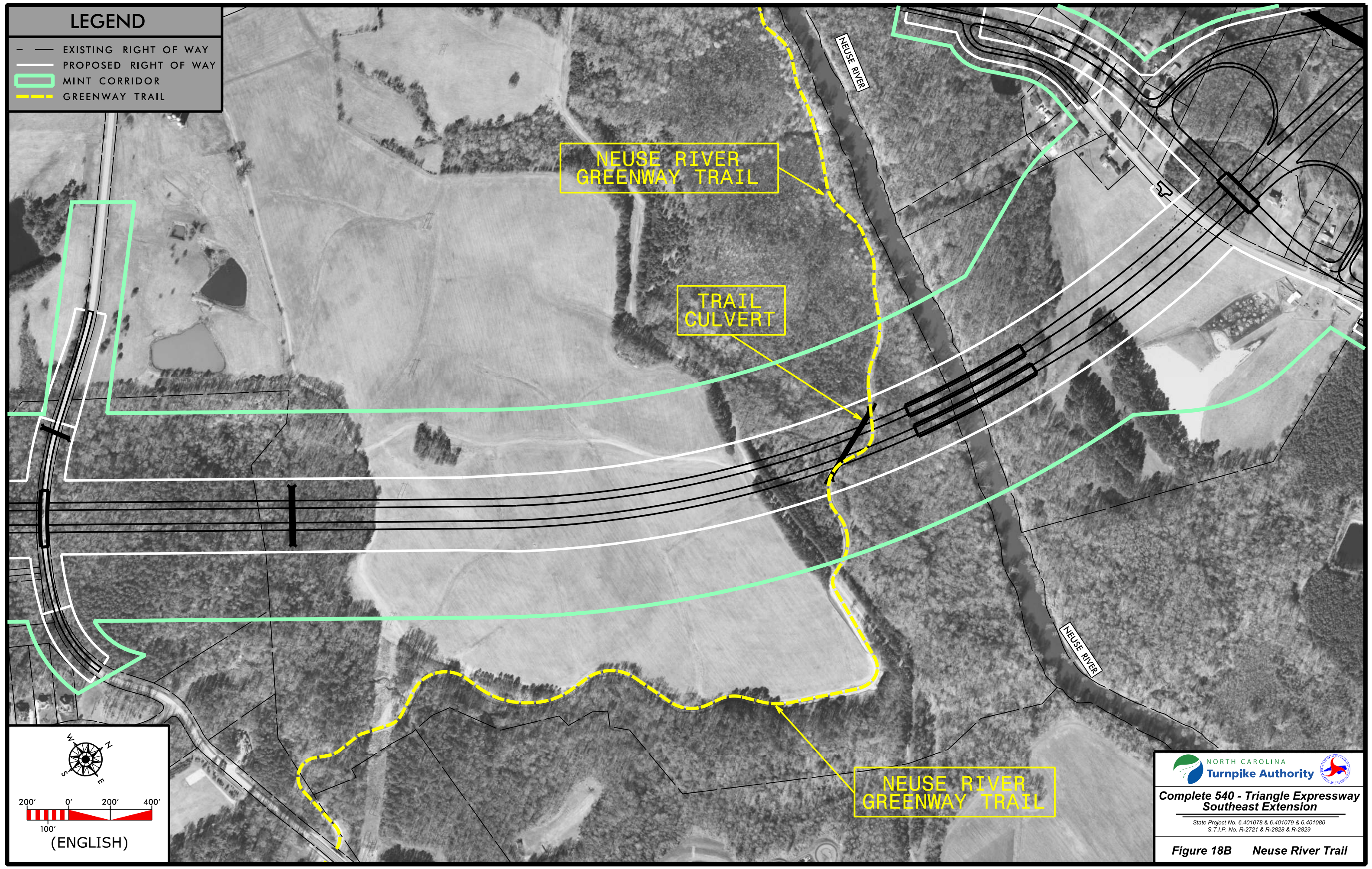
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S.T.I.P. No. R-2721 & R-2828 & R-2829

Figure 18A Neuse River Trail

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- MINT CORRIDOR
- GREENWAY TRAIL



NEUSE RIVER
GREENWAY TRAIL

TRAIL
CULVERT

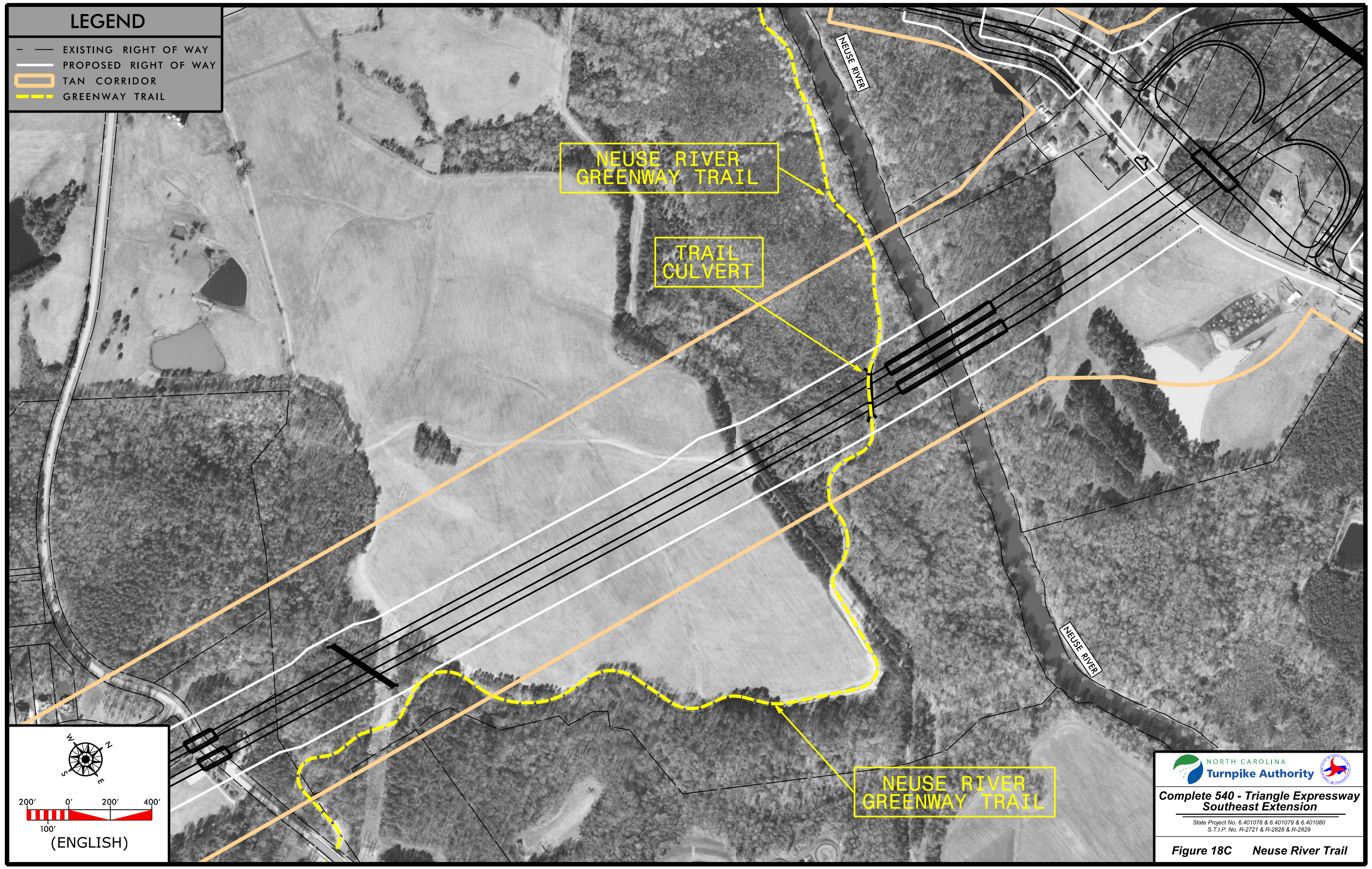
NEUSE RIVER
GREENWAY TRAIL


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S.T.I.P. No. R-2721 & R-2828 & R-2829

Figure 18B Neuse River Trail

LEGEND

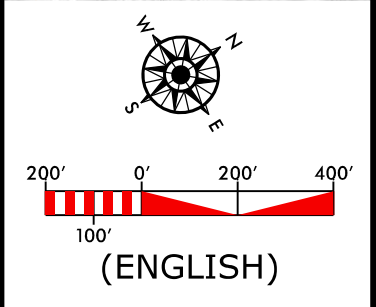
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- TAN CORRIDOR
- GREENWAY TRAIL



NEUSE RIVER
GREENWAY TRAIL

TRAIL
CULVERT

NEUSE RIVER
GREENWAY TRAIL




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Southeast Extension**
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S.T.I.P. No. R-2721 & R-2828 & R-2829

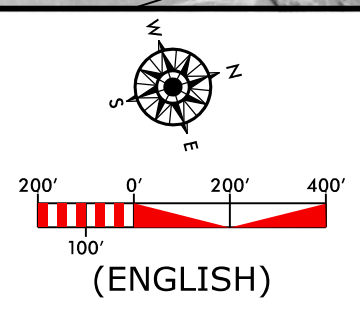
Figure 18C Neuse River Trail

LEGEND

- - - EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- BROWN CORRIDOR
- GREENWAY TRAIL

NEUSE RIVER
GREENWAY TRAIL

NEUSE RIVER
GREENWAY TRAIL



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Figure 18D Neuse River Trail

APPENDICES

Appendix A

Triangle Expressway – Southeast Extension Local Government Interviews

Name/Title	Representing	Time	Other Name/Title
January 29, 2010			
Gina Clapp, Planning Director	Holly Springs	10:00 a.m.	Heather Keefer, Elizabeth Goodson, and Stephanie Sudano (Town Engineering Dept.) Jenny Mizelle (Town Econ. Dev. Dept.) Dick Sears (Town Mayor) Kendra Parish (Town Planning Dept.) Len Bradley (Town Parks & Rec. Dept.)
February 1, 2010			
Chris Hills, Planning Director	Knightdale	4:00 p.m.	Terry Gleason (Town Council) Russell Killen (Town Mayor) Fred Boone (Town Engineer) Seth Lawless and Jennifer Currin (Planning Dept.)
February 3, 2010			
Berry Gray, Planning Director	Johnston County	2:30 p.m.	
February 10, 2010			
Dianne Khin, Planning Director	Apex	3:00 p.m.	Reed Hugerich (Transportation Planner) Russell Dalton (Transportation Engineer) Michael Dean (Planner)
February 11, 2010			
Brad Bass, Planning Director	Garner	3:00 p.m.	
February 16, 2010			
Michael Sorenson, Planning Director	Fuquay-Varina	9:30 a.m.	Andy Hedrick (Town Manager)
February 18, 2010			
Mitchell Silver, Planning Director	Raleigh	11:00 a.m.	Eric Lamb (Public Works Manager) Ken Bowers and Karen Duke (Planning Dept.) Julian Prosser (Asst. City Manager) Robert Hinson and Robert Massengill (Public Utilities Dept.) Victor Lesbock (Parks and Rec. Dept.)
February 23, 2010			
Jeff Ulma, Planning Director	Cary	2:00 p.m.	Ricky Barker, Phillip Smith, and Wayne Nicholas (Planning Dept.) Kristen Dwiggins and Lori Cover (Engineering Dept.)
February 25, 2010			
Tim Gardiner, Long Range Transportation Planner	Wake County	9:00 a.m.	Larry Morgan and Lynn Patrie (Planning Dept.) Tim Maloney (Interim PDI Director) Mark Edmonson (Real Estate Project Manager)
February 26, 2010			
Skip Browder, Planning Director	Clayton	10:00 a.m.	

2010 Local Government Interview Questions

Specific questions were tailored to the interview participant to encourage participants to share points of view. Example questions included:

1. Are there any additional plans, policies, etc., that are relevant to our project?
2. Ask for a summary of current development trends, patterns, etc. Are there any proposed major development projects?
3. Ask for a summary of the community/organization's vision.
4. Does this project support local goals, objectives and policies? Is the project a specific component of any local plans (e.g., is it a part of an economic development plan).
5. What are the current factors influencing development in the community?
6. What are the major employers in the community; do residents generally work within the community or commute to jobs elsewhere?
7. What (recent) past projects (development, transportation, etc.) have had a major impact on the community?
8. What are the key elements of the community's history?
9. What are the jurisdictions' annexation plans (where applicable)?
10. What new schools are being planned or proposed?
11. What are the pedestrian and bike needs/plans in the project study area?
12. Is public transportation available in the area? How much is it used? Who uses it?
13. What local transportation projects are planned? What is the status of those plans?
14. What are the major transportation routes through the area? What are the characteristics of traffic on those routes?
15. What are the key truck/freight movement routes?
16. Verify the locations of rail lines/facilities.
17. Are there any cohesive Limited English Proficiency communities in the area? If so, could they recommend any community contacts?
18. Verify demographic data we've collected; ask for any more current data available.
19. Are there any senior facilities in the area?
20. What are the most important community landmarks? Community gathering places?
21. What are the most significant community boundaries/barriers?
22. Are there working agricultural operations, agricultural conservation districts, or agricultural preservation policies?
23. Are there organized community groups who should be involved in the project?
24. What are the general community feelings about the project?
25. What are the area's key crime statistics, trends, etc.
26. Are there any proposed recreation facilities?
27. Are there any redevelopment plans in the area?
28. What are the plans for future water/sewer service extension?
29. What are the key considerations for EMS services?
30. What input would the jurisdiction like to provide into the study process?
31. What is the best way to maintain contact with the jurisdiction to receive regular updates on development projects, socioeconomic trends, etc.

APPENDIX B
Detailed Population Characteristics Tables

Table 4. Population by Race and Ethnicity (2010)

Jurisdiction	Total Population	Race					Hispanic or Latino Ethnicity*		Total Minority Population#
		White	Black or African American	American Indian or Alaskan Native	Asian	Native Hawaiian or Pacific Islander	Hispanic or Latino	Not Hispanic or Latino	
North Carolina	9,535,483	6,528,950 (68.5%)	2,048,628 (21.5%)	122,110 (1.3%)	208,962 (2.2%)	6,604 (0.1%)	800,120 (8.4%)	8,735,363 (91.6%)	3,311,488 (34.7%)
Wake County	900,933	597,546 (66.3%)	186,510 (20.7%)	4,503 (0.5%)	48,553 (5.4%)	387 (<0.1%)	87,922 (9.8%)	813,011 (90.2%)	340,457 (37.8%)
Raleigh	403,892	232,377 (57.5%)	118,471 (29.3%)	1,963 (0.5%)	17,434 (4.3%)	173 (<0.1%)	46,045 (11.4%)	357,847 (88.6%)	188,688 (46.7%)
Cary	135,234	98,907 (73.1%)	10,787 (8.0%)	559 (0.4%)	17,668 (13.1%)	46 (<0.1%)	10,364 (7.7%)	124,870 (92.3%)	42,032 (31.1%)
Apex	37,476	29,796 (79.5%)	2,862 (7.6%)	106 (0.3%)	2,652 (7.1%)	31 (0.1%)	2,665 (7.0%)	34,811 (93.0%)	9,011 (24.0%)
Garner	25,745	14,888 (57.8%)	8,468 (32.9%)	140 (0.5%)	474 (1.8%)	12 (<0.1%)	2,561 (9.9%)	23,184 (90.1%)	11,956 (46.4%)
Holly Springs	24,661	19,674 (79.8%)	3,101 (12.6%)	103 (0.4%)	724 (2.9%)	13 (0.1%)	1,544 (6.3%)	23,117 (93.7%)	5,958 (24.2%)
Fuquay-Varina	17,937	12,967 (72.3%)	3,527 (19.7%)	110 (0.6%)	361 (2.0%)	5 (<0.1%)	1,738 (9.7%)	16,199 (90.3%)	6,017 (33.5%)
Knightdale	11,401	5,698 (50.0%)	4,368 (38.3%)	66 (0.6%)	193 (1.7%)	6 (<0.1%)	1,299 (11.4%)	10,102 (88.6%)	6,166 (54.1%)
37-183-52801-1	1,371	950 (69.3%)	329 (24.0%)	7 (0.5%)	33 (2.4%)	5 (0.4%)	71 (5.2%)	1,300 (94.8%)	465 (33.9%)
37-183-52801-2	1,334	955 (71.6%)	316 (23.7%)	2 (0.1%)	16 (1.2%)	0 (0.0%)	72 (5.4%)	1,262 (94.6%)	422 (31.6%)
37-183-52801-3	1,825	1,331 (72.9%)	373 (20.4%)	6 (0.3%)	22 (1.2%)	0 (0.0%)	104 (5.7%)	1,721 (94.3%)	546 (29.9%)
37-183-52801-4	621	472 (76.0%)	95 (15.3%)	2 (0.3%)	4 (0.6%)	0 (0.0%)	58 (9.3%)	563 (90.7%)	170 (27.4%)
37-183-52802-3	1,591	989 (62.2%)	408 (25.6%)	5 (0.3%)	6 (0.4%)	0 (0.0%)	321 (20.2%)	1,270 (79.8%)	752 (47.3%)
37-183-52802-4	1,296	898 (69.3%)	284 (21.9%)	4 (0.3%)	9 (0.7%)	0 (0.0%)	114 (8.8%)	1,182 (91.2%)	436 (33.6%)
37-183-52803-2	1,841	554 (30.1%)	1,111 (60.3%)	12 (0.7%)	13 (0.7%)	0 (0.0%)	169 (9.2%)	1,672 (90.8%)	1,340 (72.8%)
37-183-52806-4	6,970	1,654 (23.7%)	4,460 (64.0%)	27 (0.4%)	121 (1.7%)	5 (0.1%)	1,070 (15.4%)	5,900 (84.6%)	5,681 (81.5%)
37-183-52807-1	1,539	1,057 (68.7%)	338 (22.0%)	6 (0.4%)	28 (1.8%)	0 (0.0%)	141 (9.2%)	1,398 (90.8%)	538 (35.0%)
37-183-52807-2	2,849	1,028 (36.1%)	1,485 (52.1%)	20 (0.7%)	26 (0.9%)	6 (0.2%)	397 (13.9%)	2,452 (86.1%)	1,960 (68.8%)
37-183-52808-1	1,699	1,059 (62.3%)	552 (32.5%)	4 (0.2%)	9 (0.5%)	0 (0.0%)	84 (4.9%)	1,615 (95.1%)	667 (39.3%)
37-183-52808-2	2,627	1,434 (54.6%)	950 (36.2%)	28 (1.1%)	51 (1.9%)	3 (0.1%)	284 (10.8%)	2,343 (89.2%)	1,333 (50.7%)
37-183-52808-3	2,099	1,448 (69.0%)	559 (26.6%)	4 (0.2%)	19 (0.9%)	0 (0.0%)	132 (6.3%)	1,967 (93.7%)	705 (33.6%)
37-183-52808-4	2,721	1,719 (63.2%)	726 (26.7%)	33 (1.2%)	90 (3.3%)	0 (0.0%)	263 (9.7%)	2,458 (90.3%)	1,146 (42.1%)
37-183-52809-1	1,168	694 (59.4)	335 (28.7%)	16 (1.4%)	11 (0.9%)	0 (0.0%)	191 (16.4%)	977 (83.6%)	552 (47.3%)
37-183-52809-2	1,426	900 (63.1%)	305 (21.4%)	7 (0.5%)	15 (1.1%)	0 (0.0%)	219 (15.4%)	1,207 (84.6%)	570 (40.0%)
37-183-52902-1	3,270	2,735 (83.6%)	307 (9.4%)	7 (0.2%)	30 (0.9%)	0 (0.0%)	249 (7.6%)	3,021 (92.4%)	631 (19.3%)

Table 4. Population by Race and Ethnicity (2010)

Jurisdiction	Total Population	Race					Hispanic or Latino Ethnicity*		Total Minority Population#
		White	Black or African American	American Indian or Alaskan Native	Asian	Native Hawaiian or Pacific Islander	Hispanic or Latino	Not Hispanic or Latino	
37-183-52902-2	2,238	1,799 (80.4%)	289 (12.9%)	13 (0.6%)	27 (1.2%)	2 (0.1%)	168 (7.5%)	2,070 (92.5%)	541 (24.2%)
37-183-52903-1	2,914	2,266 (77.8%)	464 (15.9%)	14 (0.5%)	26 (0.9%)	2 (0.1%)	161 (5.5%)	2,753 (94.5%)	691 (23.7%)
37-183-52904-1	2,853	2,249 (78.8%)	375 (13.1%)	11 (0.4%)	22 (0.8%)	6 (0.2%)	261 (9.1%)	2,592 (90.9%)	704 (24.7%)
37-183-52904-2	2,658	2,173 (81.8%)	314 (11.8%)	26 (1.0%)	12 (0.5%)	0 (0.0%)	200 (7.5%)	2,458 (92.5%)	590 (22.2%)
37-183-52904-3	1,749	1,429 (81.7%)	198 (11.3%)	5 (0.3%)	5 (0.3%)	6 (0.3%)	79 (4.5%)	1,670 (95.5%)	360 (20.6%)
37-183-53006-1	3,143	2,948 (93.8%)	58 (1.8%)	11 (0.3%)	56 (1.8%)	0 (0.0%)	113 (3.6%)	3,030 (96.4%)	271 (8.6%)
37-183-53008-4	785	698 (88.9%)	32 (4.1%)	7 (0.9%)	20 (2.5%)	0 (0.0%)	17 (2.2%)	768 (97.8%)	91 (11.6%)
37-183-53009-2	3,847	2,586 (67.2%)	379 (9.9%)	189 (4.9%)	127 (3.3%)	12 (0.3%)	1,184 (30.8%)	2,663 (69.2%)	1,752 (45.5%)
37-183-53009-3	953	799 (83.8%)	87 (9.1%)	22 (2.3%)	3 (0.3%)	0 (0.0%)	65 (6.8%)	888 (93.2%)	175 (18.4%)
37-183-53009-4	1,171	727 (62.1%)	76 (6.5%)	8 (0.7%)	2 (0.2%)	2 (0.2%)	500 (42.7%)	671 (57.3%)	585 (50.0%)
37-183-53109-1	5,750	4,900 (85.2%)	451 (7.8%)	10 (0.2%)	78 (1.4%)	9 (0.2%)	426 (7.4%)	5,324 (92.6%)	1,045 (18.2%)
37-183-53110-1	2,208	1,639 (74.2%)	391 (17.7%)	20 (0.9%)	33 (1.5%)	0 (0.0%)	174 (7.9%)	2,034 (92.1%)	649 (29.4%)
37-183-53110-2	1,801	1,393 (77.3%)	234 (13.0%)	8 (0.4%)	3 (0.2%)	0 (0.0%)	233 (12.9%)	1,568 (87.1%)	521 (28.9%)
37-183-53110-3	1,514	1,293 (85.4%)	124 (8.2%)	4 (0.3%)	5 (0.3%)	1 (0.1%)	142 (2.5%)	1,372 (97.5%)	294 (19.4%)
37-183-53111-1	1,373	1,131 (82.4%)	156 (11.4%)	11 (0.8%)	10 (0.7%)	0 (0.0%)	133 (9.7%)	1,240 (90.3%)	324 (23.6%)
37-183-53111-2	1,986	1,601 (80.6%)	249 (12.5%)	12 (0.6%)	13 (0.7%)	3 (0.2%)	144 (7.3%)	1,842 (92.7%)	445 (22.4%)
37-183-53111-3	1,953	1,320 (67.6%)	339 (17.4%)	19 (1.0%)	35 (1.8%)	2 (0.1%)	397 (20.3%)	1,556 (79.7%)	808 (41.4%)
37-183-53201-1	5,910	5,177 (87.6%)	375 (6.3%)	20 (0.3%)	127 (2.1%)	0 (0.0%)	331 (5.6%)	5,579 (94.4%)	937 (15.9%)
37-183-53201-2	4,467	3,845 (86.1%)	286 (6.4%)	9 (0.2%)	164 (3.7%)	10 (0.2%)	232 (5.2%)	4,235 (94.8%)	776 (17.4%)
37-183-53202-1	2,266	2,120 (93.6%)	90 (4.0%)	1 (0.0%)	26 (1.1%)	0 (0.0%)	86 (3.8%)	2,180 (96.2%)	220 (9.7%)
37-183-53202-2	1,968	1,774 (90.1%)	125 (6.4%)	2 (0.1%)	15 (0.8%)	3 (0.2%)	76 (3.9%)	1,892 (96.1%)	244 (12.4%)
37-183-53203-1	2,961	2,064 (69.7%)	532 (18.0%)	24 (0.8%)	15 (5.2%)	8 (0.3%)	206 (7.0%)	2,755 (93.0%)	996 (33.6%)
37-183-53203-2	3,775	3,158 (83.7%)	301 (8.0%)	19 (0.5%)	177 (4.7%)	4 (0.1%)	174 (4.6%)	3,601 (95.4%)	754 (20.0%)
37-183-53420-1	1,954	1,374 (70.3%)	423 (21.6%)	20 (1.0%)	38 (1.9%)	6 (0.3%)	153 (7.8%)	1,801 (92.2%)	660 (33.8%)
37-183-53420-2	4,064	2,460 (60.5%)	942 (23.2%)	25 (0.6%)	251 (6.2%)	11 (0.3%)	528 (13.0%)	3,536 (87.0%)	1,800 (44.3%)
37-183-53421-1	4,946	3,827 (77.4%)	561 (11.3%)	15 (0.3%)	350 (7.1%)	0 (0.0%)	363 (7.3%)	4,583 (92.7%)	1,345 (27.2%)

Table 4. Population by Race and Ethnicity (2010)

Jurisdiction	Total Population	Race					Hispanic or Latino Ethnicity*		Total Minority Population#
		White	Black or African American	American Indian or Alaskan Native	Asian	Native Hawaiian or Pacific Islander	Hispanic or Latino	Not Hispanic or Latino	
37-183-54109-2	1,618	1,091 (67.4%)	356 (22.0%)	17 (1.1%)	12 (0.7%)	0 (0.0%)	201 (12.4%)	1,417 (87.6%)	599 (37.0%)
37-183-54114-2	2,403	1,005 (41.8%)	612 (25.5%)	27 (1.1%)	7 (0.3%)	4 (0.2%)	1,023 (42.6%)	1,380 (57.4%)	1,683 (70.0%)
37-183-54115-3	1,932	965 (49.9%)	761 (39.4%)	6 (0.3%)	36 (1.9%)	1 (0.1%)	226 (11.7%)	1,706 (88.3%)	1,063 (55.0%)
37-183-54115-4	1,654	1,066 (64.4%)	361 (21.8%)	3 (0.2%)	5 (0.3%)	1 (0.1%)	319 (19.3%)	1,335 (80.7%)	703 (42.5%)
Johnston County	168,878	125,349 (74.2%)	25,546 (15.1%)	939 (0.6%)	1,021 (0.6%)	51 (<0.1%)	21,841 (12.9%)	147,037 (87.1%)	51,009 (30.2%)
Clayton	16,116	11,195 (69.5%)	3,507 (21.2%)	65 (0.4%)	224 (1.4%)	2 (<0.1%)	1,725 (10.7%)	14,391 (89.3%)	5,686 (35.3%)
37-101-41002-1	2,632	2,084 (79.2%)	414 (15.7%)	8 (0.3%)	33 (0.3%)	0 (0.0%)	141 (5.4%)	2,491 (94.6%)	629 (23.9%)
37-101-41002-2	1,743	1,219 (69.9%)	345 (19.8%)	5 (0.3%)	12 (0.7%)	0 (0.0%)	184 (10.6%)	1,559 (89.4%)	561 (32.2%)
37-101-41002-3	3,117	2,491 (79.9%)	366 (11.7%)	4 (0.1%)	23 (0.7%)	0 (0.0%)	321 (10.3%)	2,796 (89.7%)	748 (24.0%)
37-101-41102-1	4,186	3,432 (82.0%)	386 (9.2%)	36 (0.9%)	38 (0.9%)	4 (0.1%)	331 (7.9%)	3,855 (92.1%)	880 (21.0%)
37-101-41102-2	2,690	2,261 (84.1%)	343 (12.8%)	13 (0.5%)	10 (0.4%)	5 (0.2%)	101 (3.8%)	2,589 (96.2%)	507 (18.9%)
37-101-41102-3	2,761	2,121 (76.8%)	445 (16.1%)	8 (0.3%)	48 (1.7%)	0 (0.0%)	223 (8.1%)	2,538 (91.9%)	757 (27.4%)
Total Demographic Study Area	132,190	94,362 (71.4%)	25,173 (19.0%)	842 (0.6%)	2,506 (1.9%)	121 (0.1%)	13,555 (10.4%)	118,635 (89.6%)	43,622 (33.0%)

*Hispanic or Latino of any race(s).

#Total population minus non-Hispanic white population.

Source: US Census Bureau (2010) Summary File 1 Total Population (100-Percent Data), Table P8. – RACE and Table P9. – HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE

Table 5. Population by Age Group and Median Age (2010)

Area or Census Tract and Block Group	Total Population	Percent ≤20 Years	Percent ≥69 Years	Median Age
North Carolina	9,535,483	26.8	8.7	38.7
Wake County	900,933	28.8	5.5	35.3
Raleigh	403,892	26.9	5.6	32.8
Cary	135,234	29.5	5.6	37.3
Apex	37,476	34.7	3.7	35.3
Garner	25,745	26.5	8.2	38.6
Holly Springs	24,661	36.8	2.7	33.4
Fuquay-Varina	17,937	31.9	7.7	35.4
Knightdale	11,401	31.7	4.1	33.7
37-183-52801-1	1,371	16.8	6.6	40.0
37-183-52801-2	1,334	27.9	8.1	44.1
37-183-52801-3	1,825	25.3	8.9	43.6
37-183-52801-4	621	23.2	18.4	48.9
37-183-52802-3	1,591	20.6	8	40.3

Table 5. Population by Age Group and Median Age (2010)

Area or Census Tract and Block Group	Total Population	Percent ≤20 Years	Percent ≥69 Years	Median Age
37-183-52802-4	1,296	25.6	10.3	43.7
37-183-52803-2	1,841	24.2	7.7	37.1
37-183-52806-4	6,970	30.1	2	31.4
37-183-52807-1	1,539	36.7	6.2	37.1
37-183-52807-2	2,849	25.9	4.6	33.9
37-183-52808-1	1,699	31.6	13.5	42.1
37-183-52808-2	2,627	20.4	5.5	38.1
37-183-52808-3	2,099	28.2	8.3	44.5
37-183-52808-4	2,721	26.7	4.4	31.7
37-183-52809-1	1,168	25.2	4.5	32.6
37-183-52809-2	1,426	32.7	6.5	39.0
37-183-52902-1	3,270	27.2	5.1	38.3
37-183-52902-2	2,238	29.0	6.2	41.9
37-183-52903-1	2,914	28.4	5.4	41.9
37-183-52904-1	2,853	28.8	4.4	37.9
37-183-52904-2	2,658	26.8	3.4	37.4
37-183-52904-3	1,749	32.1	4.2	40.8
37-183-53006-1	3,143	27.8	4.9	43.9
37-183-53008-4	785	30.8	4.7	47.1
37-183-53009-2	3,847	23.2	3.2	33.0
37-183-53009-3	953	33.2	16.1	49.8
37-183-53009-4	1,171	19.4	4.6	32.3
37-183-53109-1	5,750	33.9	7.6	33.2
37-183-53110-1	2,208	29.3	4.9	37.6
37-183-53110-2	1,801	29.2	4.7	37.8
37-183-53100-3	1,514	34.5	3.2	34.5
37-183-53111-1	1,373	29.0	3.6	37.0
37-183-53111-2	1,986	29.5	4.7	41.9
37-183-53111-3	1,953	27.6	3.7	32.1
37-183-53201-1	5,910	32.4	2.4	35.0
37-183-53201-2	4,467	38.0	3.7	37.4
37-183-53202-1	2,266	34.4	3.3	40.2
37-183-53202-2	1,968	35.1	3.7	44.1
37-183-53203-1	2,961	32.0	2.5	31.9
37-183-53203-2	3,775	34.9	1.8	33.0
37-183-53420-1	1,954	39.8	3.2	33.9
37-183-53420-2	4,064	36.4	2.2	31.5
37-183-53421-1	4,946	34.0	3.8	36.3
37-183-54109-2	1,618	31.9	5.8	40.0
37-183-54114-2	2,403	26.7	3.1	30.4
37-183-54115-3	1,932	34.0	2.1	31.8
37-183-54115-4	1,654	34.1	6.5	39.1
Johnston County	168,878	30.2	6.5	37.4
Clayton	16,116	32.9	5.8	34.9
37-101-41002-1	2,632	27.8	4.2	34.8
37-101-41002-2	1,743	25.2	10.3	41.4
37-101-41002-3	3,117	28.4	6.5	40.7
37-101-41102-1	4,186	33.0	4.5	37.5
37-101-41102-2	2,690	30.9	4.1	38.6
37-101-41102-3	2,761	31.5	4.2	35.1
Total Demographic Study Area	132,190	31.1	4.7	36.5

Source: US Census Bureau (2010) Summary File 1 Total Population (100-Percent Data), Table P12. – SEX BY AGE

Table 6. Median Household Income

Block Group or Jurisdiction	Total Households	Median Household Income	Block Group or Jurisdiction	Total Households	Median Household Income
North Carolina	3,715,565	46,334	371830530092	1,269	80,215
Wake County	348,627	66,006	371830530093	361	81,597
Raleigh	162,573	54,448	371830530094	415	27,039
Cary	52,340	90,250	371830531091	2,001	87,371
Apex	13,427	89,475	371830531101	838	75,066
Garner	10,581	60,842	371830531102	517	59,455
Holly Springs	8,621	89,644	371830531103	558	57,813
Fuquay-Varina	7,110	58,588	371830531111	469	62,942
Knightdale	3,754	72,285	371830531112	770	62,383
371830528011	565	89,526	371830531113	698	36,932
371830528012	533	64,489	371830532011	2,075	105,746
371830528013	795	60,488	371830532012	1,404	88,524
371830528014	373	70,734	371830532021	840	136,689
371830528023	577	64,837	371830532022	714	108,913
371830528024	563	74,250	371830532031	1,304	66,558
371830528032	775	61,128	371830532032	1,160	86,210
371830528064	2,287	57,512	371830534201	503	82,802
371830528071	770	52,250	371830534202	1,430	67,500
371830528072	908	49,292	371830534211	1,744	90,903
371830528081	651	56,595	371830541092	496	47,976
371830528082	1,371	46,958	271830541142	691	64,583
371830528083	714	98,750	371830541153	474	88,387
371830528084	1,122	55,455	371830541154	604	63,542
371830528091	837	83,021	Johnston County	60,759	49,711
371830528092	523	42,157	Clayton	6,335	57,456
371830529021	1,182	61,032	371010410021	1,284	60,526
371830529022	796	79,643	371010410022	595	25,568
371830529031	1,142	86,364	371010410023	1,212	72,500
371830529041	970	84,000	371010411021	1,508	55,550
371830529042	1,049	58,750	371010411022	818	100,664
371830529043	656	65,818	371010411023	1,191	75,647
371830530061	1,088	107,043	Total Demographic Study Area	48,263	73,562
371830530084	401	99,688			

Source: US Census Bureau 2009-2013 American Community Survey Table B19001. – HOUSEHOLD INCOME IN THE PAST 12 MONTHS

Table 7. Poverty Status

Census Tract or Jurisdiction	Total Population for Whom Poverty Status is Determined	Individuals with Income Below Poverty Level	Percent of Individuals Below Poverty Level	Individuals with Income in "Very Poor" Category*	Percent of Individuals in "Very Poor" Category	Individuals with Income in "Near Poor" Category#	Percent of Individuals in "Near Poor" Category#
North Carolina	9,396,989	1,643,389	17.5	723,387	7.7	1,018,830	10.8
Wake County	906,662	99,679	11.0	46,515	5.1	73,302	8.1
Raleigh	394,492	64,072	16.2	30,450	7.7	40,311	10.2
Cary	140,641	8,663	6.2	3,544	2.5	6,708	4.8
Apex	39,042	965	2.5	411	1.0	1,922	3.5
Garner	25,966	2,235	8.3	1,226	4.7	1,800	6.9
Holly Springs	25,977	798	3.1	121	0.5	727	2.8
Fuquay-Varina	19,009	1,949	9.3	728	3.8	2,120	11.1
Knightdale	10,420	532	5.1	434	3.6	703	5.9
37-183-52801	6,378	199	3.1	145	2.3	320	5.0
37-183-52802	6,030	754	12.5	567	9.4	363	6.0
37-183-52803	9,565	1,976	20.7	444	4.6	443	4.6
37-183-52806	15,102	1,917	12.7	1,149	7.6	2,268	15.0
37-183-52807	4,480	509	11.4	346	7.7	655	14.6
37-183-52808	9,248	788	8.5	255	2.8	910	9.8
37-183-52809	3,248	264	8.1	200	6.2	322	9.9
37-183-52902	5,430	358	6.6	224	4.1	694	12.8
37-183-52903	3,187	190	6.0	81	2.5	198	6.2
37-183-52904	7,414	269	3.6	226	3.0	450	6.1
37-183-53006	3,066	38	1.2	15	0.5	99	3.2
37-183-53008	8,421	1,068	12.7	685	8.1	1,011	12.0
37-183-53009	7,693	1,960	25.5	1,092	14.2	1,065	13.8
37-183-53110	5,738	286	5.0	75	1.3	955	16.6
37-183-53111	5,078	891	17.5	164	3.2	297	5.8
37-183-53201	10,928	578	5.3	160	1.5	786	7.2
37-183-53202	5,030	139	2.8	31	0.6	146	2.9
37-183-53203	7,473	434	5.8	0	0.0	410	5.5
37-183-53420	5,266	456	8.7	310	5.9	839	15.9
37-183-53421	5,010	252	5.0	56	1.1	303	6.0
37-183-54109	3,344	354	10.6	192	5.7	171	5.1
37-183-54114	4,675	560	12.0	501	10.7	769	16.4
37-183-54115	8,160	592	7.3	158	1.9	397	4.9
Johnston County	170,329	29,264	17.2	12,084	7.1	18,513	10.9
Clayton	16,536	2,053	11.0	729	4.4	819	4.9
37-101-41002	7,491	907	12.1	286	3.8	397	5.3
37-101-41102	10,213	765	7.5	276	2.7	947	9.3
Total Demographic Study Area	167,668	16,504	9.8	7,638	4.6	15,215	9.1

*Income less than or equal to 50 percent of poverty level.

#Income between poverty level and 150 percent of poverty level.

Source: US Census Bureau 2009-2013 American Community Survey Table B17001. – POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE; Table C17002. – RATIO OF INCOME TO POVERTY LEVEL IN THE PAST 12 MONTHS.

Table 8. Means of Transportation to Work

Block Group or Jurisdiction	Percent Who Drove Alone	Percent Who Carpooled	Percent Who Took Public Transportation	Percent Walking/Biking/Other
North Carolina	81.1	10.4	1.1	7.4
Wake County	80.1	9.5	2.1	9.1
Raleigh	79.3	10.0	2.1	8.8
Cary	80.2	8.4	0.6	10.8
Apex	80.5	9.4	0.6	9.6
Garner	81.5	9.1	0.3	9.0
Holly Springs	79.9	8.6	0.2	11.4
Fuquay-Varina	78.9	11.5	0.0	9.6
Knightdale	80.9	12.2	0.0	6.9
37-183-52801-1	90.1	5.4	0.0	4.5
37-183-52801-2	96.0	2.0	0.0	2.0
37-183-52801-3	83.1	6.6	0.0	10.3
37-183-52801-4	100.0	0.0	0.0	0.0
37-183-52802-3	72.6	17.0	0.0	10.5
37-183-52802-4	80.3	7.9	0.0	11.7
37-183-52803-2	79.7	12.2	0.0	8.1
37-183-52806-4	75.9	19.3	1.1	3.6
37-183-52807-1	95.9	1.1	0.0	3.0
37-183-52807-2	75.4	20.9	0.0	3.7
37-183-52808-1	72.7	22.1	0.0	5.1
37-183-52808-2	79.4	10.5	0.0	10.1
37-183-52808-3	88.2	3.8	0.0	8.1
37-183-52808-4	79.8	8.8	1.4	10.0
37-183-52809-1	87.5	9.8	1.8	0.9
37-183-52809-2	87.1	9.6	0.0	3.3
37-183-52902-1	87.1	7.9	0.0	5.0
37-183-52902-2	88.2	8.5	0.0	3.2
37-183-52903-1	88.9	8.4	0.0	2.7
37-183-52904-1	89.2	5.0	0.0	5.8
37-183-52904-2	78.6	6.0	0.0	15.4
37-183-52904-3	80.2	8.1	0.0	11.7
37-183-53006-1	69.8	9.4	0.0	20.8
37-183-53008-4	73.2	6.1	0.0	20.8
37-183-53009-2	72.1	22.5	0.0	5.4
37-183-53009-3	100.0	0.0	0.0	0.0
37-183-53009-4	78.8	17.7	0.0	3.5
37-183-53109-1	80.8	9.2	0.0	10.0
37-183-53110-1	87.2	8.9	0.2	3.6
37-183-53110-2	83.7	6.3	0.0	9.9
37-183-53110-3	70.3	17.8	0.0	12.0
37-183-53111-1	78.7	13.6	0.0	7.7
37-183-53111-2	90.3	3.6	0.0	6.1
37-183-53111-3	87.4	8.7	0.0	3.8
37-183-53201-1	72.7	9.6	0.0	17.7
37-183-53201-2	76.3	8.7	0.0	15.0
37-183-53202-1	77.5	7.1	0.0	15.4
37-183-53202-2	81.5	9.5	0.0	9.1
37-183-53203-1	87.2	8.5	0.0	4.2
37-183-53203-2	76.0	8.9	0.0	15.0
37-183-53420-1	67.0	9.9	3.3	19.8
37-183-53420-2	92.1	5.7	0.7	1.6
37-183-53421-1	86.2	4.0	0.0	9.8
37-183-54109-2	82.2	7.4	0.0	10.4
37-183-54114-2	77.0	15.5	0.0	7.4

Table 8. Means of Transportation to Work

Block Group or Jurisdiction	Percent Who Drove Alone	Percent Who Carpooled	Percent Who Took Public Transportation	Percent Walking/Biking/Other
37-183-54115-3	75.8	23.9	0.0	0.2
37-183-54115-4	94.8	5.2	0.0	7.4
Johnston County	82.8	11.1	0.2	5.9
Clayton	82.4	15.4	0.0	2.2
37-101-41002-1	84.4	11.5	0.0	4.1
37-101-41002-2	94.1	0.0	0.0	5.9
37-101-41002-3	89.0	7.7	0.0	3.4
37-101-41102-1	84.3	9.9	0.0	5.8
37-101-41102-2	94.0	3.5	0.0	2.5
37-101-41102-3	89.1	9.6	0.0	1.3
Total Demographic Study Area	82.3	9.6	0.2	7.9

Source: US Census Bureau 2009-2013 American Community Survey Table B08301. – MEANS OF TRANSPORT TO WORK

Table 10. Housing Characteristics (2010)

Block Group or Jurisdiction	Renter-occupied housing units (percent)	Vacant Housing Units (percent)	Median value owner-occupied units (\$)
North Carolina	33.3	13.5	153,600
Wake County	34.9	7.0	229,000
Raleigh	46.5	7.5	207,000
Cary	31.2	3.3	303,700
Apex	25.3	5.0	258,500
Garner	34.1	7.0	165,600
Holly Springs	12.6	5.9	236,300
Fuquay-Varina	26.8	8.6	191,500
Knightdale	32.0	10.5	168,800
37-183-52801-1	5.5	1.8	221,900
37-183-52801-2	16.5	4.6	174,700
37-183-52801-3	20.9	3.9	153,100
37-183-52801-4	14.3	7.6	115,500
37-183-52802-3	24.3	7.6	145,400
37-183-52802-4	18.9	5.8	150,700
37-183-52803-2	45.6	11.5	182,300
37-183-52806-4	12.7	4.8	163,300
37-183-52807-1	15.6	5.3	148,000
37-183-52807-2	25.6	10.4	145,100
37-183-52808-1	44.5	7.0	144,900
37-183-52808-2	27.4	8.2	155,900
37-183-52808-3	7.4	5.2	257,600
37-183-52808-4	57.5	6.3	159,300
37-183-52809-1	19.2	6.3	127,800
37-183-52809-2	16.0	7.2	122,200
37-183-52902-1	10.6	5.0	182,000
37-183-52902-2	16.4	6.9	259,700
37-183-52903-1	7.2	5.2	216,000
37-183-52904-1	7.7	4.4	210,400
37-183-52904-2	9.0	4.9	210,600
37-183-52904-3	10.2	4.6	164,200
37-183-53006-1	3.4	3.4	357,600

Table 10. Housing Characteristics (2010)

Block Group or Jurisdiction	Renter-occupied housing units (percent)	Vacant Housing Units (percent)	Median value owner-occupied units (\$)
37-183-53008-4	9.0	5.0	285,600
37-183-53009-2	11.6	6.4	245,900
37-183-53009-3	18.6	7.6	183,800
37-183-53009-4	36.7	9.3	117,700
37-183-53109-1	8.6	5.1	249,400
37-183-53110-1	12.8	5.4	156,800
37-183-53110-2	15.1	7.5	174,600
37-183-53110-3	12.8	5.2	154,500
37-183-53111-1	12.2	3.6	182,500
37-183-53111-2	14.2	4.7	197,500
37-183-53111-3	40.2	4.7	155,000
37-183-53201-1	4.8	4.0	324,400
37-183-53201-2	10.7	4.0	252,900
37-183-53202-1	2.9	6.1	358,600
37-183-53202-2	5.6	2.8	375,200
37-183-53203-1	21.3	5.1	172,400
37-183-53203-2	8.6	1.8	261,800
37-183-53420-1	11.5	5.4	213,200
37-183-53420-2	36.9	5.9	182,900
37-183-53421-1	27.2	4.2	309,100
37-183-54109-2	23.0	6.4	165,900
37-183-54114-2	29.0	13.7	140,400
37-183-54115-3	17.6	12.4	183,200
37-183-54115-4	23.7	10.2	157,300
Johnston County	26.8	8.5	141,200
Clayton	34.6	9.0	152,600
37-101-41002-1	41.5	6.8	147,400
37-101-41002-2	58.7	14.4	129,600
37-101-41002-3	17.4	9.1	176,900
37-101-41102-1	11.1	6.3	206,500
37-101-41102-2	15.3	2.2	210,400
37-101-41102-3	12.2	4.5	180,400
Total Demographic Study Area	18.7	6.0	206,077

Source: US Census Bureau (2010) Summary File 1 Total Population (100-Percent Data), Table H1 & H3 – OCCUPIED STATUS; 2009-2013 American Community Survey Table B25077 – MEDIAN VALUE OF OWNER-OCCUPIED HOUSING UNITS

APPENDIX C
ADULTS WHO SPEAK ENGLISH LESS THAN VERY WELL

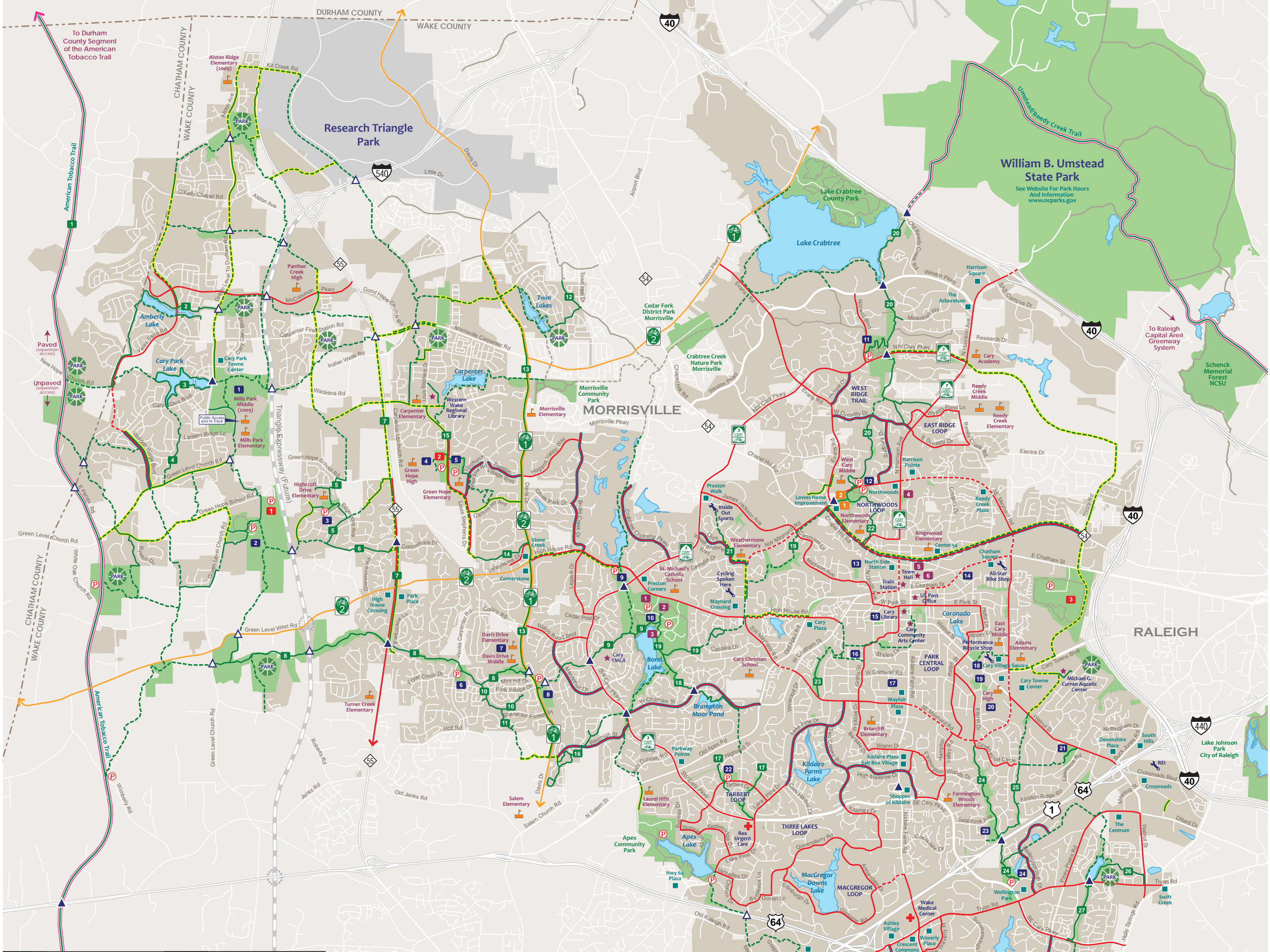
Block Group or Jurisdiction	Total Adult Population for Whom Language Data is Available	Primary Language Group of Adults Who Speak English Less than Very Well				Total LEP
		Spanish	Other Indo-European	Asian/Pacific	Other	
Total Demographic Study Area	126,729	5,695 (4.5%)	354 (0.3%)	404 (0.3%)	461 (0.4%)	6,914 (5.5%)
37-101-41002-1	2,989	44 (1.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	44 (1.5%)
37-101-41002-2	985	24 (2.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	24 (2.4%)
37-101-41002-3	3,104	63 (2.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	63 (2.0%)
37-101-41102-1	4,032	492 (12.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	607 (12.2%)
37-101-41102-2	2,237	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	15 (0.7%)
37-101-41102-3	3,144	89 (2.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	195 (6.2%)
37-183-52801-1	1,522	38 (2.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	38 (2.5%)
37-183-52801-2	1,284	0 (0.0%)	22 (1.7%)	0 (0.0%)	0 (0.0%)	22 (1.7%)
37-183-52801-3	1,976	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
37-183-52801-4	914	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
37-183-52802-3	1,499	191 (12.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	191 (12.7%)
37-183-52802-4	1,380	0 (0.0%)	15 (1.1%)	0 (0.0%)	0 (0.0%)	15 (1.1%)
37-183-52803-2	2,111	24 (1.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	24 (1.4%)
37-183-52806-4	6,239	426 (6.8%)	0 (0.0%)	96 (1.5%)	16 (0.0%)	538 (8.6%)
37-183-52807-1	1,653	6 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (0.4%)
37-183-52807-2	2,471	481 (19.5%)	0 (0.0%)	34 (1.4%)	0 (0.0%)	515 (20.8%)
37-183-52808-1	1,411	17 (1.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	17 (1.2%)
37-183-52808-2	3,466	49 (1.4%)	0 (0.0%)	0 (0.0%)	76 (2.2%)	125 (3.6%)
37-183-52808-3	1,668	23 (1.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	23 (1.4%)
37-183-52808-4	2,218	53 (2.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	53 (2.4%)
37-183-52809-1	1,238	48 (3.9%)	0 (0.0%)	0 (0.0%)	6 (0.5%)	54 (4.4%)
37-183-52809-2	1,674	73 (4.4%)	22 (1.3%)	0 (0.0%)	0 (0.0%)	95 (5.7%)
37-183-52902-1	3,016	184 (6.1%)	103 (3.4%)	0 (0.0%)	0 (0.0%)	67 (2.2%)
37-183-52902-2	2,080	108 (5.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	108 (5.2%)
37-183-52903-1	3,040	15 (0.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	15 (0.5%)

37-183-52904-1	2,596	20 (0.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	20 (0.8%)
37-183-52904-2	2,830	150 (5.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	150 (5.3%)
37-183-52904-3	1,585	0 (0.0%)	11 (0.7%)	0 (0.0%)	0 (0.0%)	11 (0.7%)
37-183-53006-1	3,029	17 (0.6%)	0 (0.0%)	0 (0.0%)	4 (0.1%)	21 (0.7%)
37-183-53008-4	951	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
37-183-53009-2	3,325	606 (18.2%)	25 (0.7%)	51 (1.6%)	0 (0.0%)	682 (20.5%)
37-183-53009-3	733	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
37-183-53009-4	1,116	314 (28.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	314 (28.1%)
37-183-53109-1	5,649	124 (2.2%)	12 (0.2%)	0 (0.0%)	0 (0.0%)	136 (2.4%)
37-183-53110-1	2,542	64 (2.5%)	0 (0.0%)	0 (0.0%)	8 (0.3%)	72 (2.8%)
37-183-53110-2	1,424	6 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (0.4%)
37-183-53110-3	1,416	55 (3.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	55 (3.9%)
37-183-53111-1	1,126	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
37-183-53111-2	2,015	55 (2.7%)	17 (0.8%)	0 (0.0%)	0 (0.0%)	72 (3.6%)
37-183-53111-3	1,557	132 (8.5%)	0 (0.0%)	0 (0.0%)	29 (1.9%)	161 (10.3%)
37-183-53201-1	6,388	72 (1.1%)	102 (1.6%)	29 (0.5%)	0 (0.0%)	203 (3.2%)
37-183-53201-2	3,516	36 (1.0%)	0 (0.0%)	24 (0.7%)	0 (0.0%)	60 (1.7%)
37-183-53202-1	2,725	29 (1.1%)	0 (0.0%)	0 (0.0%)	12 (0.4%)	41 (1.5%)
37-183-53202-2	2,072	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
37-183-53203-1	3,216	55 (1.7%)	15 (0.5%)	0 (0.0%)	227 (7.1%)	297 (9.2%)
37-183-53203-2	3,409	0 (0.0%)	0 (0.0%)	23 (0.7%)	29 (0.9%)	52 (1.5%)
37-183-53420-1	1,211	13 (1.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	13 (1.1%)
37-183-53420-2	3,530	362 (10.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	362 (10.2%)
37-183-53421-1	4,606	95 (2.1%)	15 (0.3%)	101 (2.2%)	0 (0.0%)	211 (4.6%)
37-183-54109-2	1,333	47 (3.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	47 (3.5%)
37-183-54114-2	2,193	695 (31.7%)	43 (2.0%)	46 (2.1%)	0 (0.0%)	784 (35.8%)
37-183-54115-3	1,397	119 (8.5%)	24 (1.7%)	0 (0.0%)	54 (3.9%)	197 (14.1%)
37-183-54115-4	1,888	329 (17.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	329 (17.4%)
Johnston County	159,865	10,240 (6.4%)	203 (0.1%)	137 (0.1%)	99 (0.1%)	10,679 (6.7%)
Wake County	863,927	35,131 (4.1%)	6,714 (0.8%)	10,092 (1.2%)	3,060 (0.4%)	54,997 (6.4%)

Source: US Census Bureau 2009-2013 American Community Survey Table B16004. – LANGUAGE SPOKEN AT HOME BY ABILITY TO SPEAK ENGLISH

APPENDIX D
Bicycle Routes Map

bike & hike CARY



GREENWAYS		PARKS/NATURAL AREAS	
1	American Tobacco Trail 4.67 mi Chatham County Segment of 22.5 mile AT1	1	Mills Park (opening in 2010) Green Level to Durham/Realty Mill Park Drive
2	Amberly Lake Greenway 0.98 mi Yates Stone Rd. Within Amberly Planned Development	2	Thomas Brooks Park 2008 Green Level Church Road
3	Cary Park Lake Greenway 1.87 mi Green Level to Durham Road. Within Cary Park POD	3	Sears Farm Road Park
4	Southbridge Greenway 0.28 mi Lantern Ridge Lane Within Southbridge POD	4	Green Hope High School/Park 2500 Casper Upchurch Road
5	Green Hope School Greenway 1.04 mi Sears Farm Road Park to Research Branch Greenway	5	Green Hope Elementary School/Park 2700 Lake Sandhills Road
6	Batchelor Branch Greenway 0.78 mi Within Reserve Subdivision, NC 55 to Palmway Place	6	White Oak Park 2128 White Oak Road
7	NC Hwy 55 Multi-Use Trail 1.21 mi Parkinson Lane to Cornetta Drive	7	Davis Drive School/Park 2101 Davis Drive
8	White Oak Creek Greenway 1.56 mi Bond Park to MacArthur Drive	8	Preston Soccer Fields 601 N. Dunes Road
9	Park Village Greenway 0.69 mi Park Village Recreation Area to Park Village Drive	9	Fred G. Bond Metro Park 2008 Green Level Church Road
10	Sherwood Greens Greenway 0.26 mi Greenwood Forest Place to Research Parkway	10	North Cary Park 2151 NW Maynard Road
11	Indian Creek Greenway 0.31 mi Airport Boulevard to Town Hall Drive	11	Robert V. Godbold Park 2151 NW Maynard Road
12	Davis Drive Multi-Use Trail 3.29 mi Davis Drive Park to Montview Carpenter Road	12	Lexie Lane Park 20 N. Dunes Road
13	Stonycreek Greenway 0.60 mi Davis Drive to Carpenter Upchurch Road	13	Urban Park 214 E. Chatham Street
14	Louis Stephens Multi-Use Trail 1.36 mi Cary Tennis Park to Morrisville Parkway	14	Heater Park (natural area) 400 S. West Street
15	Bishops Gate Greenway 1.39 mi Westhigh Street to Bishops Gate POD	15	Rose Street Park 110 Rose Street
16	Annie Jones Greenway 1.11 mi Annie Jones Park, Gasthouse Drive to Lake Pine Drive	16	R.S. Dunham Park 2123 Dunham Street
17	Oxford Hunt Greenway 1.21 mi West Chatham Street to Research Parkway	17	Lions Park 815 Tanglewood Drive
18	Black Creek Greenway 1.80 mi Bond Park, Southside to Maynard Road	18	Walnut Street Park 420 Walnut Street
19	Black Creek Greenway 3.80 mi Chapel Hill Road to Old Reedy Creek Road	19	Annie L. Jones Park 2123 Dunham Street
20	Glenkirk Greenway 0.23 mi Old Weatherstone Way, Within Glenkirk POD	20	MacDonald Woods Park 111 Thurston Drive
21	Northwoods Greenway 0.87 mi Godbold Park to Northwoods Elementary (Chapel Hill Road)	21	Harold D. Ritter Park 100 S. Chatham Street
22	Higgins Greenway 0.55 mi SW Maynard Road to Danforth Drive	22	Hemlock Bluffs Nature Preserve 1015 S. Chatham Street
23	Hinshaw Greenway 1.66 mi Koka Booth Park to MacArthur Wood Park to Greenwood Circle	23	Future Park 8701 Phony Road
24	Pirates Cove Greenway 0.42 mi Watson Street to Tryon Manor Drive	24	Middle Creek School/Park 151 S. 830th Creek Park Avenue
25	Tryon Village Greenway 0.42 mi Watson Street to Tryon Manor Drive	25	SK-8 Cary (at Godbold Park) 200 NW Maynard Road (919) 387-2079
26	Swift Creek Greenway 0.72 mi Tryon Road to Cary Parkway	26	Godbold Dog Park 200 NW Maynard Road
27	Swift Creek Greenway 0.88 mi Victoria Farm Road to Research Parkway	27	Koka Booth Amphitheatre 800 Regency Parkway (919) 462-2028
28	Symphony Lake Greenway 1.33 mi Koka Booth Amphitheatre, Within Regency Park POD	28	Future Dog Park 8701 Phony Road
29	Regency Park Greenway 0.58 mi Along Regency Parkway to Symphony Lake	29	USA Baseball National Training Complex 2727 Lake Sandhills Road (919) 462-2081
30	Kildaire Farm Multi-Use Trail 1.30 mi Swift Creek Greenway to Forest Run Place	30	WakeMed Soccer Park 200 E. Chatham Street (919) 858-0454
31	Camp Branch Greenway 0.62 mi Ten Ten Road, Within Southside Parkway	31	Cary High School 200 E. Chatham Street (919) 462-4041
32	Churchill Estates Greenway 0.50 mi Ten Ten Road, Churchill Estates Subdivision	32	Jordan Hall Arts Center 908 North Harrison Avenue (919) 469-4009
33		33	Herbert C. Young Community Center 119 S. Chatham Street (919) 462-4041
		34	Page-Walker Arts & History Center 119 S. Chatham Street (919) 462-4041
		35	Stevens Nature Center at Hemlock Bluffs Nature Preserve 2616 Keston Farm Road (919) 387-5980
		36	Middle Creek Community Center 151 S. 830th Creek Park Avenue (919) 771-1295

SPECIAL USE FACILITIES	
1	USA Baseball National Training Complex
2	WakeMed Soccer Park
3	Cary High School
4	Bond Park Community Center
5	Bond Park Arts Center
6	Jordan Hall Arts Center
7	Herbert C. Young Community Center
8	Page-Walker Arts & History Center
9	Stevens Nature Center at Hemlock Bluffs Nature Preserve
10	Middle Creek Community Center

STAFFED FACILITIES	
1	USA Baseball National Training Complex
2	WakeMed Soccer Park
3	Cary High School
4	Bond Park Community Center
5	Bond Park Arts Center
6	Jordan Hall Arts Center
7	Herbert C. Young Community Center
8	Page-Walker Arts & History Center
9	Stevens Nature Center at Hemlock Bluffs Nature Preserve
10	Middle Creek Community Center

Bike Route Descriptions

West Ridge Trail (2.1 miles):
The West Ridge Trail is a spur off the East Ridge Loop and provides access to the Black Creek Trail via connection points along Dynasty Drive. The trail continues north along Dynasty Drive, a residential road striped with bike lanes. A short section on Cary Parkway leads to Thorpe Boulevard and access to...

East Ridge Trail (1.6 miles):
This short northeast Cary loop is located at the eastern end of the West Ridge Trail. Wyatt's Pond Lane and Reedy Creek Road take riders past Reedy Creek Middle School. East Dynasty Drive forms the southern boundary of the loop.

MacGregor Loop (2.8 miles):
This short loop can be combined with the Three Lakes Loop for a quiet and pleasant ride through one of Cary's best-known neighborhoods. There are a few short, steep hills and several golf cart crossings.

NC Bike Route 1 (8.5 miles):
Along Davis Drive. This route is part of the Carolina Connection, which NCDOT has designated as a portion of US Bike Route 1, which runs from Maine to Florida.

NC Bike Route 2 (11.2 miles):
Along High House Road from Davis Drive. This is part of the Mountains-to-the-Sea Route, which extends 700 miles from Murphy to Monticello, NC. Extending into rural western Wake and eastern Chatham County, this route is a favorite of Triangle club cyclists for recreational rides to Green Level and Jordan Lake.

Cary Bike Route #3 (7.8 miles):
This signed route runs along southwest and northwest Cary Parkway and serves as a connection between numerous bicycle loops. Portions of the route have 14' wide outside lanes, while other segments are narrow with little or no shoulder. This route is recommended for experienced cyclists only.

Cary Bike Route #7 (3.0 miles):
Serving the northern half of Cary, this signed route runs along Harrison Avenue in the north forming the eastern edge of the West Ridge and Northwoods Loops. Located on a major thoroughfare, this route is recommended for experienced cyclists only.

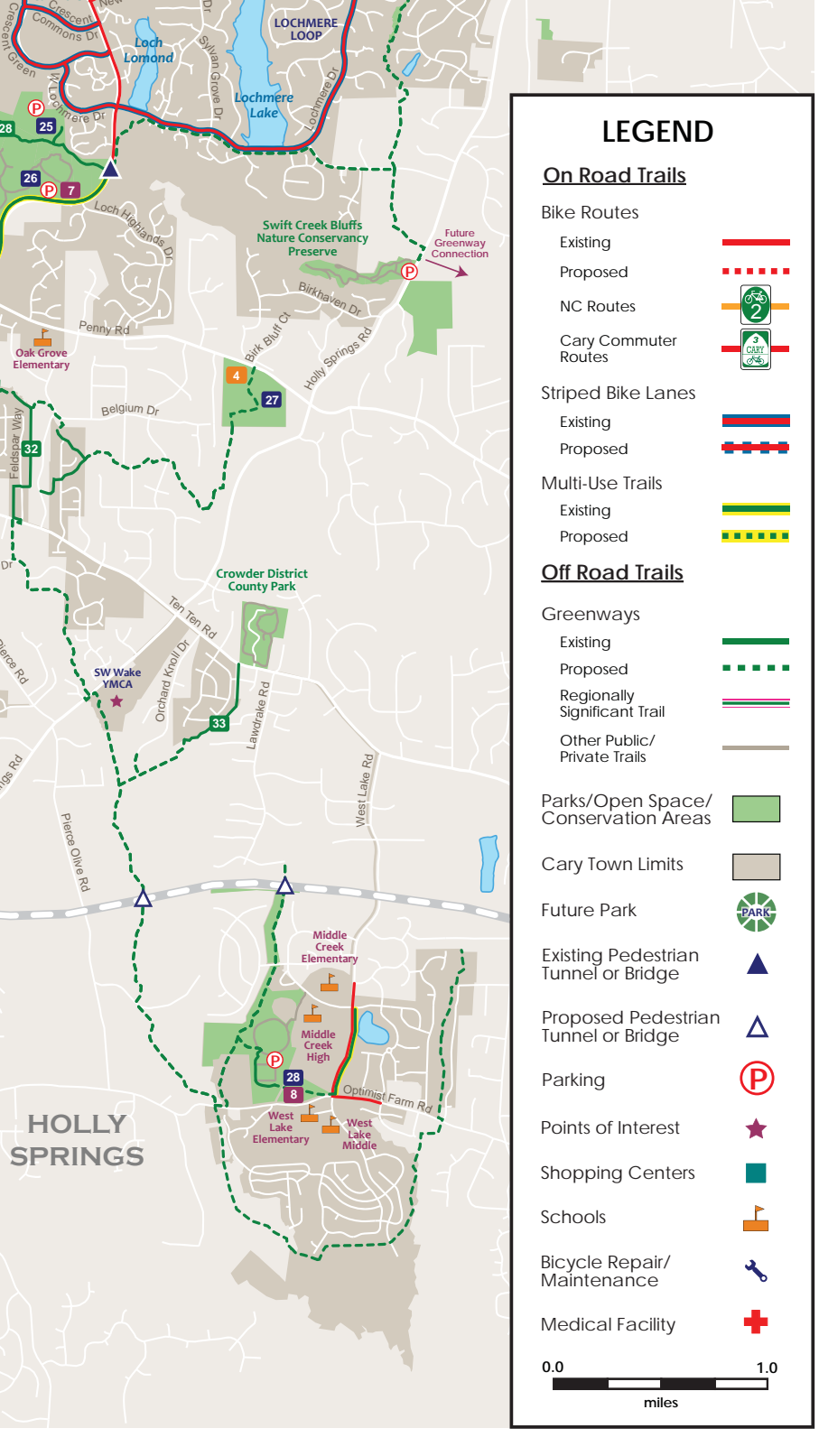
Legend

On Road Trails

- Bike Routes
 - Existing
 - Proposed
 - NC Routes
 - Cary Commuter Routes
- Striped Bike Lanes
 - Existing
 - Proposed
- Multi-Use Trails
 - Existing
 - Proposed
- Off Road Trails
 - Greenways
 - Existing
 - Proposed
 - Regionally Significant Trail
 - Other Public/Private Trails

Parks/Open Space/Conservation Areas

- Cary Town Limits
- Future Park
- Existing Pedestrian Tunnel or Bridge
- Proposed Pedestrian Tunnel or Bridge
- Parking
- Points of Interest
- Shopping Centers
- Schools
- Bicycle Repair/Maintenance
- Medical Facility



For information about public transit connections look for the C-Tran Bus Map or the Triangle Transit Map at Town of Cary facilities and other locations around Cary. Information can be found at the following websites:

www.townofcary.org www.getriangle.org

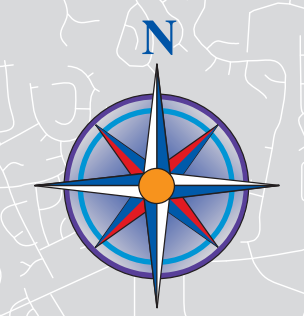
(919)485-RIDE triangletransit.org

APPENDIX E
Transit Route Maps

SYMBOLS / Símbolos

- Regular Route/Ruta de autobús
- Connecting Routes/Rutas que conectan
- Deviated Service/Servicio poco frecuente
- Landmark/Señales
- Moore Sq. Station Transit Mall/La Estación De los Buses
- State Capitol/Capital del Estado
- Hospital/Hospital
- Park&Ride/Parque y Monta
- Transfer Point/Punto De Transferencia
- CAT/TTA Transfer/Transferencia De CAT y TTA

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Designed by Smartmaps, Inc.



Express Routes / Rutas del Expres

- 40X Wake Tech Express
- 55X Poole Road Express
- 70X Brier Creek Express

Regional Routes / Rutas de TTA

- TTA Triangle Transit Service to Cary, Garner, Knightdale, Research Triangle Park (RTP), Wake Forest, Wendell and Zebulon.

TTA routes do not change on the same schedule as CAT routes. For current TTA information please call 919-485-RIDE (7433) or visit www.gotriangle.org.

Las rutas del TTA no cambian durante la misma programación como las rutas del CAT. Para información actual del TTA por favor llame al 919-485-RIDE (7433) o visite www.gotriangle.org.

TIMED TRANSFER LOCATIONS / Paradas con Transferencia Sincronizada

ROUTES / RUTAS	LOCATION / LUGAR
1 24L	Capital & Spring Forest
1 25L	Triangle Town Center
6 23L	Crabtree Valley Mall
7 7L	Wilmington & Pecan
11L	Avent Ferry Shopping Ctr.
15 15L	WakeMed

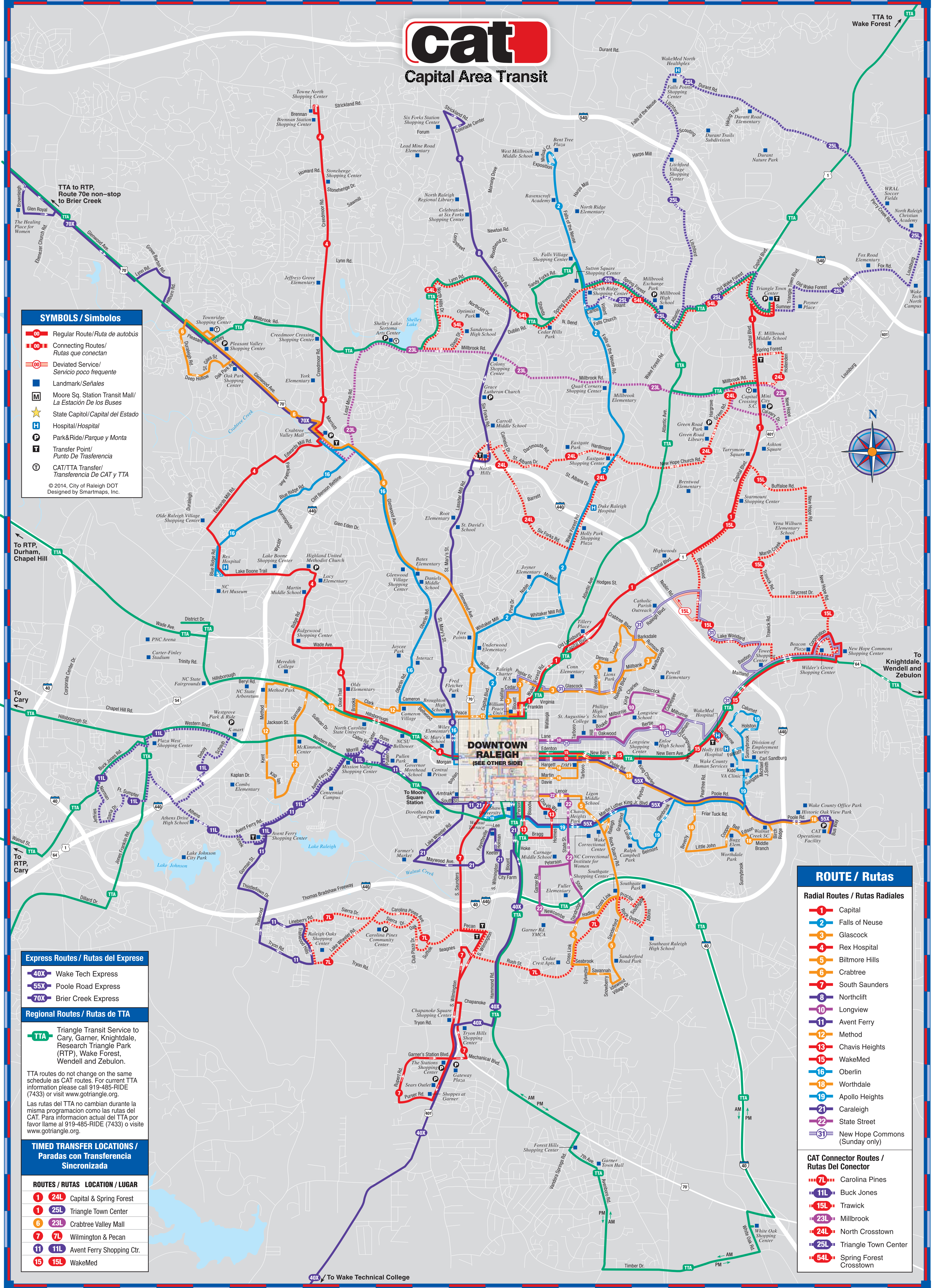
ROUTE / Rutas

Radial Routes / Rutas Radiales

- 1 Capital
- 2 Falls of Neuse
- 3 Glascock
- 4 Rex Hospital
- 5 Biltmore Hills
- 6 Crabtree
- 7 South Saunders
- 8 Northcliff
- 10 Longview
- 11 Avent Ferry
- 12 Method
- 13 Chavis Heights
- 15 WakeMed
- 16 Oberlin
- 18 Worthdale
- 19 Apollo Heights
- 21 Caraleigh
- 22 State Street
- 31 New Hope Commons (Sunday only)

CAT Connector Routes / Rutas Del Conector

- 7L Carolina Pines
- 11L Buck Jones
- 15L Trawick
- 23L Millbrook
- 24L North Crosstown
- 25L Triangle Town Center
- 54L Spring Forest Crosstown



DOWNTOWN RALEIGH
(SEE OTHER SIDE)

40X To Wake Technical College

To Knightdale, Wendell and Zebulon

To RTP, Durham, Chapel Hill

To Cary

To RTP, Cary



For more information:
(919) 485-RIDE/7433
www.townofcary.org



Get real-time location and schedule information with **GoLive**

ROUTE LISTING

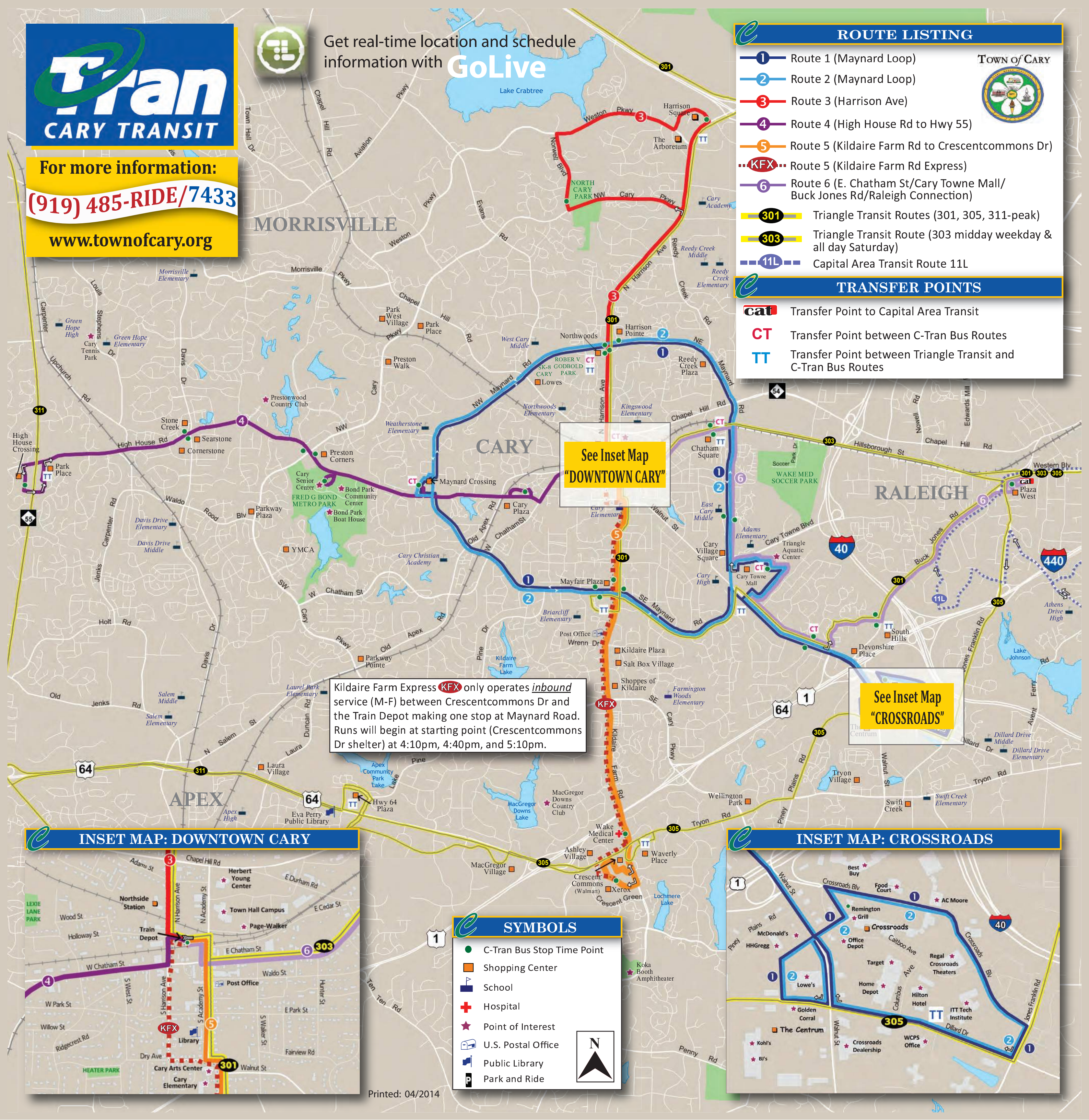
TOWN OF CARY

- 1 Route 1 (Maynard Loop)
- 2 Route 2 (Maynard Loop)
- 3 Route 3 (Harrison Ave)
- 4 Route 4 (High House Rd to Hwy 55)
- 5 Route 5 (Kildaire Farm Rd to Crescentcommons Dr)
- KFX Route 5 (Kildaire Farm Rd Express)
- 6 Route 6 (E. Chatham St/Cary Towne Mall/Buck Jones Rd/Raleigh Connection)

- 301 Triangle Transit Routes (301, 305, 311-peak)
- 303 Triangle Transit Route (303 midday weekday & all day Saturday)
- 11L Capital Area Transit Route 11L

TRANSFER POINTS

- cat Transfer Point to Capital Area Transit
- CT Transfer Point between C-Tran Bus Routes
- TT Transfer Point between Triangle Transit and C-Tran Bus Routes



See Inset Map
"DOWNTOWN CARY"

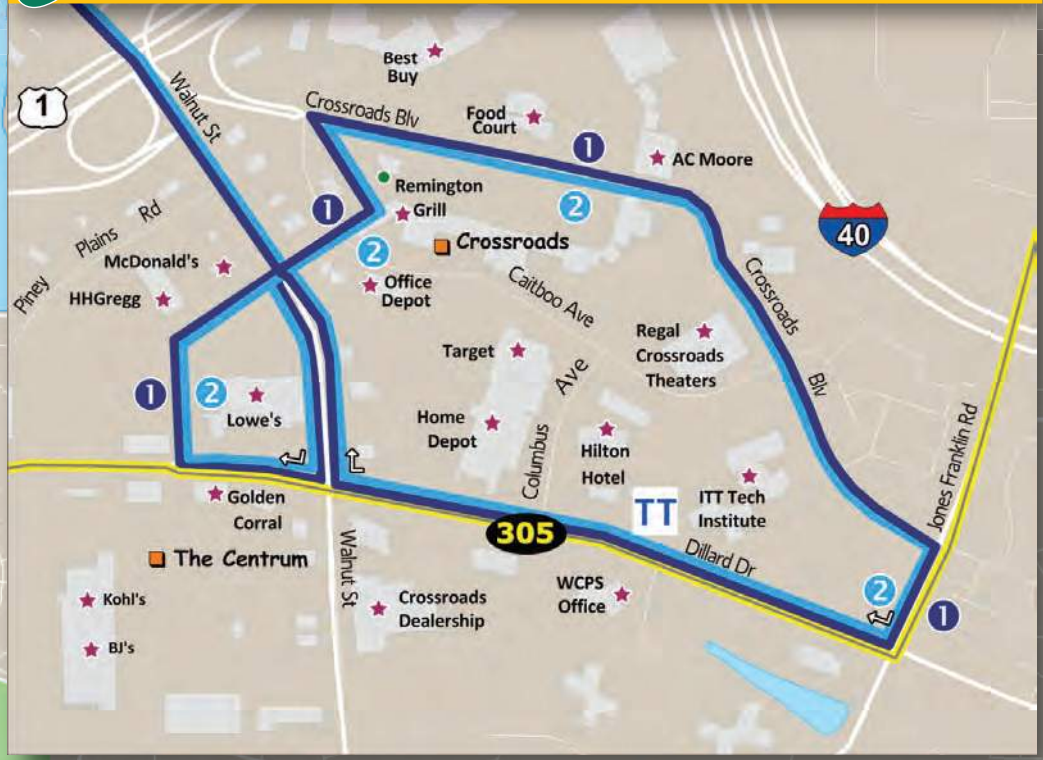
Kildaire Farm Express (KFX) only operates *inbound* service (M-F) between Crescentcommons Dr and the Train Depot making one stop at Maynard Road. Runs will begin at starting point (Crescentcommons Dr shelter) at 4:10pm, 4:40pm, and 5:10pm.

See Inset Map
"CROSSROADS"

INSET MAP: DOWNTOWN CARY



INSET MAP: CROSSROADS



SYMBOLS

- C-Tran Bus Stop Time Point
- Shopping Center
- ▲ School
- + Hospital
- ★ Point of Interest
- ✉ U.S. Postal Office
- 📖 Public Library
- P Park and Ride

APPENDIX F

Farmland Conversion Impact Rating Forms

NOTE: FCIR scores are calculated by County. To determine a complete score for the DSAs for this project, which is in two counties, a weighted average of the score for each DSA in Wake and Johnston Counties was prepared based on the relative length of the DSA in each county. The weighted averages are highlighted on the attached FCIR forms.

**FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS**

PART I (To be completed by Federal Agency)		3. Date of Land Evaluation Request 9/12/14	4. Sheet 1 of 10
1. Name of Project Complete 540 - Southeast Extension		5. Federal Agency Involved FHWA	
2. Type of Project New Location Roadway		6. County and State WAKE COUNTY North Carolina	
PART II (To be completed by NRCS)		1. Date Request Received by NRCS 9/15/14	2. Person Completing Form Milton Cortes
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		4. Acres Irrigated / Average Farm Size n/a / 103 acres	
5. Major Crop(s) CORN	6. Farmable Land in Government Jurisdiction Acres: 467,992 % 85	7. Amount of Farmland As Defined in FPPA Acres: 446,451 % 79	
8. Name Of Land Evaluation System Used WAKE Co., NC LESA	9. Name of Local Site Assessment System n/a	10. Date Land Evaluation Returned by NRCS 09/30/2014	

PART III (To be completed by Federal Agency)	Alternative Corridor For Segment <u>N/A</u>			
	Alternative 1	Alternative 2	Alternative 3	Alternative 4
A. Total Acres To Be Converted Directly	2310.2	2295.9	2190.3	2209.4
B. Total Acres To Be Converted Indirectly, Or To Receive Services				
C. Total Acres In Corridor	2310.2	2295.9	2190.3	2209.4

PART IV (To be completed by NRCS) Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	995.31	964.03	976.40	1033.84
B. Total Acres Statewide And Local Important Farmland	958.92	980.07	885.35	841.92
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.4317	0.4355	0.4169	0.4202
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	58	58	58	58

PART V (To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)	69	70	71	71
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PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))	Maximum Points	68	69	71	71
1. Area in Nonurban Use	15	7	7	7	7
2. Perimeter in Nonurban Use	10	5	5	6	6
3. Percent Of Corridor Being Farmed	20	5	5	7	7
4. Protection Provided By State And Local Government	20	1	1	1	1
5. Size of Present Farm Unit Compared To Average	10	4	4	5	5
6. Creation Of Nonfarmable Farmland	25	2	2	3	3
7. Availability Of Farm Support Services	5	5	5	5	5
8. On-Farm Investments	20	12	12	13	13
9. Effects Of Conversion On Farm Support Services	25	2	2	3	3
10. Compatibility With Existing Agricultural Use	10	5	5	6	6
TOTAL CORRIDOR ASSESSMENT POINTS	160	48	48	57	57

weighted average

PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)	100	68	69	71	71
Total Corridor Assessment (From Part VI above or a local site assessment)	160	48	48	57	57
TOTAL POINTS (Total of above 2 lines)	260	116	117	128	128

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>
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5. Reason For Selection:

Signature of Person Completing this Part:

DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

Clear Form

**FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS**

PART I (To be completed by Federal Agency)	3. Date of Land Evaluation Request 9/12/14	4. Sheet 2 of 10
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1. Name of Project Complete 540 - TriEx Southeast Extension	5. Federal Agency Involved FHWA
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2. Type of Project New Location Roadway	6. County and State WAKE COUNTY North Carolina
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PART II (To be completed by NRCS)	1. Date Request Received by NRCS 9/15/14	2. Person Completing Form Milton Cortes
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3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	4. Acres Irrigated / Average Farm Size n/a / 103 acres
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5. Major Crop(s) CORN	6. Farmable Land in Government Jurisdiction Acres: 467,992 % 85	7. Amount of Farmland As Defined in FPPA Acres: 446,451 % 79
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8. Name Of Land Evaluation System Used WAKE Co. NC LESA	9. Name of Local Site Assessment System n/a	10. Date Land Evaluation Returned by NRCS 09/30/2014
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PART III (To be completed by Federal Agency)	Alternative Corridor For Segment <u>N/A</u>			
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	Alternative 5	Alternative 6	Alternative 7	Alternative 8
A. Total Acres To Be Converted Directly	2311.8	2245.6	2239.7	2657.7
B. Total Acres To Be Converted Indirectly, Or To Receive Services				
C. Total Acres In Corridor	2311.8	2245.6	2239.7	2657.7

PART IV (To be completed by NRCS) Land Evaluation Information				
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A. Total Acres Prime And Unique Farmland	1009.80	1098.86	1078.25	1146.86
B. Total Acres Statewide And Local Important Farmland	949.16	873.28	870.58	1140.67
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.4388	0.4220	0.4345	0.5124
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	58	58	58	58

PART V (To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)	71	73	75	72
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PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))	Maximum Points	70	73	75	72
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1. Area in Nonurban Use	15	7	4	4	8
2. Perimeter in Nonurban Use	10	5	3	3	6
3. Percent Of Corridor Being Farmed	20	5	2	2	7
4. Protection Provided By State And Local Government	20	1	1	1	1
5. Size of Present Farm Unit Compared To Average	10	4	3	3	5
6. Creation Of Nonfarmable Farmland	25	2	7	7	3
7. Availability Of Farm Support Services	5	5	5	5	5
8. On-Farm Investments	20	12	6	6	13
9. Effects Of Conversion On Farm Support Services	25	2	1	1	3
10. Compatibility With Existing Agricultural Use	10	5	2	2	3
TOTAL CORRIDOR ASSESSMENT POINTS	160	48	28	28	57

PART VII (To be completed by Federal Agency)				
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Relative Value Of Farmland (From Part V)	100	70	73	75	72
Total Corridor Assessment (From Part VI above or a local site assessment)	160	48	28	28	57
TOTAL POINTS (Total of above 2 lines)	260	118	101	103	129

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>
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5. Reason For Selection:

Signature of Person Completing this Part:	DATE
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NOTE: Complete a form for each segment with more than one Alternate Corridor



weighted average

**FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS**

PART I (To be completed by Federal Agency)	3. Date of Land Evaluation Request 9/12/14	4. Sheet 3 of 10
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1. Name of Project Complete 540 - TriEx Southeast Extension	5. Federal Agency Involved FHWA
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2. Type of Project New Location Roadway	6. County and State WAKE COUNTY North Carolina
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PART II (To be completed by NRCS)	1. Date Request Received by NRCS 9/15/14	2. Person Completing Form Milton Cortes
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3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	4. Acres Irrigated / Average Farm Size N/A / 103 acres
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5. Major Crop(s) CORN	6. Farmable Land in Government Jurisdiction Acres: 467,992 % 85	7. Amount of Farmland As Defined in FPPA Acres: 446,451 % 79
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8. Name Of Land Evaluation System Used Wake Co., NC LESA	9. Name of Local Site Assessment System N/A	10. Date Land Evaluation Returned by NRCS 09/30/2014
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PART III (To be completed by Federal Agency)	Alternative Corridor For Segment <u>N/A</u>
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	Alternative 9	Alternative 10	Alternative 11	Alternative 12
A. Total Acres To Be Converted Directly	2643.4	2513.4	2532.5	2659.3
B. Total Acres To Be Converted Indirectly, Or To Receive Services				
C. Total Acres In Corridor	2643.4	2513.4	2531.5	2659.3

PART IV (To be completed by NRCS) Land Evaluation Information	
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A. Total Acres Prime And Unique Farmland	1142.98	1128.71	1186.32	1197.75
B. Total Acres Statewide And Local Important Farmland	1127.22	1041.32	998.02	1094.52
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.5101	0.4902	0.4842	0.5134
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	58	58	58	58

PART V (To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)				
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	71	72	70	71
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PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))	Maximum Points				
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1. Area in Nonurban Use	15	8	9	9	8
2. Perimeter in Nonurban Use	10	5	7	7	6
3. Percent Of Corridor Being Farmed	20	5	9	9	7
4. Protection Provided By State And Local Government	20	1	1	1	1
5. Size of Present Farm Unit Compared To Average	10	5	6	6	5
6. Creation Of Nonfarmable Farmland	25	3	4	4	3
7. Availability Of Farm Support Services	5	5	5	5	5
8. On-Farm Investments	20	13	14	14	13
9. Effects Of Conversion On Farm Support Services	25	3	3	3	3
10. Compatibility With Existing Agricultural Use	10	6	7	7	6
TOTAL CORRIDOR ASSESSMENT POINTS	160	57	65	65	57

weighted average

PART VII (To be completed by Federal Agency)	
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Relative Value Of Farmland (From Part V)	100	71	71	69	71
Total Corridor Assessment (From Part VI above or a local site assessment)	160	57	65	65	57
TOTAL POINTS (Total of above 2 lines)	260	128	136	136	128

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>
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5. Reason For Selection:

Signature of Person Completing this Part:	DATE
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NOTE: Complete a form for each segment with more than one Alternate Corridor

**FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS**

PART I (To be completed by Federal Agency)		3. Date of Land Evaluation Request 9/12/14	4. Sheet 4 of 10
1. Name of Project Complete 540 - Southeast Extension		5. Federal Agency Involved FHWA	
2. Type of Project New Location Roadway		6. County and State WAKE COUNTY North Carolina	
PART II (To be completed by NRCS)		1. Date Request Received by NRCS 9/15/14	2. Person Completing Form Milton Cortes
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		4. Acres Irrigated / Average Farm Size n/a / 103 acres	
5. Major Crop(s) CORN	6. Farmable Land in Government Jurisdiction Acres: 467,992 % 85		7. Amount of Farmland As Defined in FPPA Acres: 446,451 % 79
8. Name of Land Evaluation System Used Wake Co., NC, LESA	9. Name of Local Site Assessment System n/a	10. Date Land Evaluation Returned by NRCS 09/30/2014	

PART III (To be completed by Federal Agency)	Alternative Corridor For Segment <u>N/A</u>			
	Alternative 13	Alternative 14	Alternative 15	Alternative 16
A. Total Acres To Be Converted Directly	2434.3	2420.0	2290.1	2309.1
B. Total Acres To Be Converted Indirectly, Or To Receive Services				
C. Total Acres In Corridor	2434.3	2420.0	2290.1	2309.1

PART IV (To be completed by NRCS) Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	1070.02	1073.45	1051.81	1109.78
B. Total Acres Statewide And Local Important Farmland	1064.48	1051.03	954.32	920.18
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.4781	0.4737	0.4446	0.4476
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	58	58	58	58

PART V (To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)	73	73	72	72
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PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))	Maximum Points	73	73	71	71
	1. Area in Nonurban Use	15	7	8	8
2. Perimeter in Nonurban Use	10	5	5	6	6
3. Percent Of Corridor Being Farmed	20	5	5	7	7
4. Protection Provided By State And Local Government	20	1	1	1	1
5. Size of Present Farm Unit Compared To Average	10	4	4	5	5
6. Creation Of Nonfarmable Farmland	25	2	2	3	3
7. Availability Of Farm Support Services	5	5	5	5	5
8. On-Farm Investments	20	12	12	13	13
9. Effects Of Conversion On Farm Support Services	25	2	2	3	3
10. Compatibility With Existing Agricultural Use	10	5	5	6	6
TOTAL CORRIDOR ASSESSMENT POINTS	160	48	48	57	57

weighted average

PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)	100	73	73	71	71
Total Corridor Assessment (From Part VI above or a local site assessment)	160	48	48	57	57
TOTAL POINTS (Total of above 2 lines)	260	121	121	128	128

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>
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5. Reason For Selection:

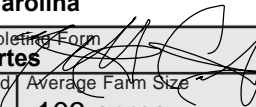
Signature of Person Completing this Part:

DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

Clear Form

**FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS**

PART I (To be completed by Federal Agency)		3. Date of Land Evaluation Request 9/12/14	4. Sheet 5 of 10
1. Name of Project Complete 540 - TriEx Southeast Extension		5. Federal Agency Involved FHWA	
2. Type of Project New Location Roadway		6. County and State WAKE COUNTY North Carolina	
PART II (To be completed by NRCS)		1. Date Request Received by NRCS 9/15/14	2. Person Completing Form Milton Cortes 
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		4. Acres Irrigated / Average Farm Size n/a / 103 acres	
5. Major Crop(s) CORN	6. Farmable Land in Government Jurisdiction Acres: 467,992 % 85	7. Amount of Farmland As Defined in FPPA Acres: 446,451 % 79	
8. Name of Land Evaluation System Used Wake Co., NC LESA	9. Name of Local Site Assessment System n/a	10. Date Land Evaluation Returned by NRCS 09/30/2014	

PART III (To be completed by Federal Agency)		Alternative Corridor For Segment <u>N/A</u>			
		Alternative 17			
A. Total Acres To Be Converted Directly		2435.9			
B. Total Acres To Be Converted Indirectly, Or To Receive Services					
C. Total Acres In Corridor		2435.9			

PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland		1105.90			
B. Total Acres Statewide And Local Important Farmland		1018.33			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted		0.4672			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value		58			

PART V (To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)		72			
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PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))		Maximum Points	72				
1. Area in Nonurban Use	15	7					
2. Perimeter in Nonurban Use	10	5					
3. Percent Of Corridor Being Farmed	20	5					
4. Protection Provided By State And Local Government	20	1					
5. Size of Present Farm Unit Compared To Average	10	4					
6. Creation Of Nonfarmable Farmland	25	2					
7. Availability Of Farm Support Services	5	5					
8. On-Farm Investments	20	12					
9. Effects Of Conversion On Farm Support Services	25	2					
10. Compatibility With Existing Agricultural Use	10	5					
TOTAL CORRIDOR ASSESSMENT POINTS	160	48	0	0	0		

weighted average

PART VII (To be completed by Federal Agency)						
Relative Value Of Farmland (From Part V)		100	72	0	0	0
Total Corridor Assessment (From Part VI above or a local site assessment)		160	48	0	0	0
TOTAL POINTS (Total of above 2 lines)		260	120	0	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>
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5. Reason For Selection:

Signature of Person Completing this Part:

DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

Clear Form

**FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS**

PART I (To be completed by Federal Agency)		3. Date of Land Evaluation Request 9/12/14	4. Sheet 6 of 10
1. Name of Project Complete 540 - TriEx Southeast Extension		5. Federal Agency Involved FHWA	
2. Type of Project New Location Roadway		6. County and State JOHNSTON COUNTY North Carolina	
PART II (To be completed by NRCS)		1. Date Request Received by NRCS 9/15/14	2. Person Completing Form Milton Cortes
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		4. Acres Irrigated - Average Farm Size n/a 156 acres	
5. Major Crop(s) CORN	6. Farmable Land in Government Jurisdiction Acres: 390,735 % 76		7. Amount of Farmland As Defined in FPPA Acres: 379,107 % 74
8. Name Of Land Evaluation System Used Johnston Co., NC LESA	9. Name of Local Site Assessment System n/a	10. Date Land Evaluation Returned by NRCS 09/30/2014	

PART III (To be completed by Federal Agency)	Alternative Corridor For Segment <u>N/A</u>			
	Alternative 1	Alternative 2	Alternative 3	Alternative 4
A. Total Acres To Be Converted Directly	112.72	112.72	196.0	196.0
B. Total Acres To Be Converted Indirectly, Or To Receive Services				
C. Total Acres In Corridor	112.72	112.72	196.0	196.0

PART IV (To be completed by NRCS) Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	35.86	63.32	121.48	121.48
B. Total Acres Statewide And Local Important Farmland	33.41	33.41	51.25	51.25
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.0255	0.0255	0.0456	0.0456
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	69	69	69	69

PART V (To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)	49	49	53	53
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PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))	Maximum Points				
1. Area in Nonurban Use	15				
2. Perimeter in Nonurban Use	10				
3. Percent Of Corridor Being Farmed	20				
4. Protection Provided By State And Local Government	20				
5. Size of Present Farm Unit Compared To Average	10				
6. Creation Of Nonfarmable Farmland	25				
7. Availability Of Farm Support Services	5				
8. On-Farm Investments	20				
9. Effects Of Conversion On Farm Support Services	25				
10. Compatibility With Existing Agricultural Use	10				
TOTAL CORRIDOR ASSESSMENT POINTS	160	0	0	0	0

SEE WAKE COUNTY FORM
FOR THESE ALTERNATIVES

PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)	100	49	49	53	53
Total Corridor Assessment (From Part VI above or a local site assessment)	160	0	0	0	0
TOTAL POINTS (Total of above 2 lines)	260	49	49	53	53

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>
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5. Reason For Selection:

Signature of Person Completing this Part:

DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

Clear Form

**FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS**

PART I (To be completed by Federal Agency)		3. Date of Land Evaluation Request 9/12/14	4. Sheet 7 of 10
1. Name of Project Complete 540 - TriEx Southeast Extension		5. Federal Agency Involved FHWA	
2. Type of Project New Location Roadway		6. County and State JOHNSTON COUNTY North Carolina	
PART II (To be completed by NRCS)		1. Date Request Received by NRCS 9/15/14	2. Person Completing Form Milton Cortes
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		4. Acres Irrigated Average Farm Size n/a 156 acres	
5. Major Crop(s) CORN	6. Farmable Land in Government Jurisdiction Acres: 390,735 % 76		7. Amount of Farmland As Defined in FPPA Acres: 379,107 % 74
8. Name Of Land Evaluation System Used Johnston Co., NC LESA	9. Name of Local Site Assessment System n/a	10. Date Land Evaluation Returned by NRCS 09/30/2014	

	Alternative Corridor For Segment N/A			
	Alternative 5	Alternative 6	Alternative 7	Alternative 8
A. Total Acres To Be Converted Directly	112.2	0	0	48.66
B. Total Acres To Be Converted Indirectly, Or To Receive Services				
C. Total Acres In Corridor	112.2	0	0	48.66

PART IV (To be completed by NRCS) Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	60.87	0	0	30.32
B. Total Acres Statewide And Local Important Farmland	35.86	0	0	9.35
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.0255			0.0105
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	69			69

PART V (To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)	49			51
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PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))	Maximum Points				
1. Area in Nonurban Use	15				
2. Perimeter in Nonurban Use	10				
3. Percent Of Corridor Being Farmed	20				
4. Protection Provided By State And Local Government	20				
5. Size of Present Farm Unit Compared To Average	10				
6. Creation Of Nonfarmable Farmland	25				
7. Availability Of Farm Support Services	5				
8. On-Farm Investments	20				
9. Effects Of Conversion On Farm Support Services	25				
10. Compatibility With Existing Agricultural Use	10				
TOTAL CORRIDOR ASSESSMENT POINTS	160	0	0	0	0

**SEE WAKE COUNTY FORM
FOR THESE ALTERNATIVES**

PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)	100	49	0	0	51
Total Corridor Assessment (From Part VI above or a local site assessment)	160	0	0	0	0
TOTAL POINTS (Total of above 2 lines)	260	49	0	0	51

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>
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5. Reason For Selection:

Signature of Person Completing this Part:

DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

Clear Form

**FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS**

PART I (To be completed by Federal Agency)		3. Date of Land Evaluation Request 9/12/14	4. Sheet 8 of 10
1. Name of Project Complete 540 - TriEx Southeast Extension		5. Federal Agency Involved FHWA	
2. Type of Project New Location Roadway		6. County and State JOHNSTON COUNTY North Carolina	
PART II (To be completed by NRCS)		1. Date Request Received by NRCS 9/15/14	2. Person Completing Form Milton Cortes
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		4. Acres Irrigated Average Farm Size n/a 156 Acres	
5. Major Crop(s) CORN	6. Farmable Land in Government Jurisdiction Acres: 390,735 % 76	7. Amount of Farmland As Defined in FPPA Acres: 379,107 % 74	
8. Name Of Land Evaluation System Used Johnston Co., NC LESA	9. Name of Local Site Assessment System n/a	10. Date Land Evaluation Returned by NRCS 09/30/2014	

PART III (To be completed by Federal Agency)	Alternative Corridor For Segment <u>N/A</u>			
	Alternative 9	Alternative 10	Alternative 11	Alternative 12
A. Total Acres To Be Converted Directly	48.3	137.1	137.1	48.3
B. Total Acres To Be Converted Indirectly, Or To Receive Services				
C. Total Acres In Corridor	48.3	137.1	137.1	48.3

PART IV (To be completed by NRCS) Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	30.32	88.48	88.48	30.32
B. Total Acres Statewide And Local Important Farmland	9.35	27.19	27.19	9.35
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.0105	0.0305	0.0305	0.0105
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	69	69	69	69

PART V (To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)	51	54	54	51
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PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))	Maximum Points				
1. Area in Nonurban Use	15				
2. Perimeter in Nonurban Use	10				
3. Percent Of Corridor Being Farmed	20				
4. Protection Provided By State And Local Government	20				
5. Size of Present Farm Unit Compared To Average	10	SEE WAKE COUNTY FORM			
6. Creation Of Nonfarmable Farmland	25	FOR THESE ALTERNATIVES			
7. Availability Of Farm Support Services	5				
8. On-Farm Investments	20				
9. Effects Of Conversion On Farm Support Services	25				
10. Compatibility With Existing Agricultural Use	10				
TOTAL CORRIDOR ASSESSMENT POINTS	160	0	0	0	0

PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)	100	51	54	54	51
Total Corridor Assessment (From Part VI above or a local site assessment)	160	0	0	0	0
TOTAL POINTS (Total of above 2 lines)	260	51	54	54	51

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>
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5. Reason For Selection:

Signature of Person Completing this Part:

DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

Clear Form

**FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS**

PART I (To be completed by Federal Agency)		3. Date of Land Evaluation Request 9/12/14	4. Sheet 9 of 10
1. Name of Project Complete 540 - TriEx Southeast Extension		5. Federal Agency Involved FHWA	
2. Type of Project New Location Roadway		6. County and State JOHNSTON COUNTY North Carolina	
PART II (To be completed by NRCS)		1. Date Request Received by NRCS 9/15/14	2. Person Completing Form Milton Cortes
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		4. Acres Irrigated n/a	Average Farm Size 156 Acres
5. Major Crop(s) CORN	6. Farmable Land in Government Jurisdiction Acres: 390,735 % 76	7. Amount of Farmland As Defined in FPPA Acres: 379,107 % 74	
8. Name Of Land Evaluation System Used Johnston Co., NC LESA	9. Name of Local Site Assessment System n/a	10. Date Land Evaluation Returned by NRCS 09/30/2014	

PART III (To be completed by Federal Agency)	Alternative Corridor For Segment <u>N/A</u>			
	Alternative 13	Alternative 14	Alternative 15	Alternative 16
A. Total Acres To Be Converted Directly	48.3	48.3	137.1	137.1
B. Total Acres To Be Converted Indirectly, Or To Receive Services				
C. Total Acres In Corridor	48.3	48.3	137.1	137.1

PART IV (To be completed by NRCS) Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	30.32	30.32	88.48	88.48
B. Total Acres Statewide And Local Important Farmland	9.35	9.35	27.19	27.19
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.0105	0.0105	0.0305	0.0305
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	68	68	68	68

PART V (To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)	51	51	54	54
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PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))	Maximum Points				
1. Area in Nonurban Use	15				
2. Perimeter in Nonurban Use	10				
3. Percent Of Corridor Being Farmed	20				
4. Protection Provided By State And Local Government	20				
5. Size of Present Farm Unit Compared To Average	10				
6. Creation Of Nonfarmable Farmland	25				
7. Availability Of Farm Support Services	5				
8. On-Farm Investments	20				
9. Effects Of Conversion On Farm Support Services	25				
10. Compatibility With Existing Agricultural Use	10				
TOTAL CORRIDOR ASSESSMENT POINTS	160	0	0	0	0

PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)	100	51	51	54	54
Total Corridor Assessment (From Part VI above or a local site assessment)	160	0	0	0	0
TOTAL POINTS (Total of above 2 lines)	260	51	51	54	54

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>
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5. Reason For Selection:

Signature of Person Completing this Part:

DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

Clear Form

**FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS**

PART I (To be completed by Federal Agency)		3. Date of Land Evaluation Request 9/12/14	4. Sheet <u>10</u> of <u>10</u>
1. Name of Project Complete 540 - TriEx Southeast Extension		5. Federal Agency Involved FHWA	
2. Type of Project New Location Roadway		6. County and State JOHNSTON COUNTY North Carolina	
PART II (To be completed by NRCS)		1. Date Request Received by NRCS 9/15/14	2. Person Completing Form Milton Cortes
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		4. Acres Irrigated / Average Farm Size n/a / 156 Acres	
5. Major Crop(s) CORN	6. Farmable Land in Government Jurisdiction Acres: 390,735 % 76	7. Amount of Farmland As Defined in FPPA Acres: 379,107 % 74	
8. Name Of Land Evaluation System Used Johnston Co., NC LESA	9. Name of Local Site Assessment System n/a	10. Date Land Evaluation Returned by NRCS 09/30/2014	

PART III (To be completed by Federal Agency)	Alternative Corridor For Segment <u>N/A</u>			
	Alternative 17			
A. Total Acres To Be Converted Directly	48.3			
B. Total Acres To Be Converted Indirectly, Or To Receive Services				
C. Total Acres In Corridor	48.3			

PART IV (To be completed by NRCS) Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	30.32			
B. Total Acres Statewide And Local Important Farmland	9.35			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.0105			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	68			

PART V (To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)	51			
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PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))	Maximum Points				
1. Area in Nonurban Use	15				
2. Perimeter in Nonurban Use	10				
3. Percent Of Corridor Being Farmed	20				
4. Protection Provided By State And Local Government	20				
5. Size of Present Farm Unit Compared To Average	10				
6. Creation Of Nonfarmable Farmland	25				
7. Availability Of Farm Support Services	5				
8. On-Farm Investments	20				
9. Effects Of Conversion On Farm Support Services	25				
10. Compatibility With Existing Agricultural Use	10				
TOTAL CORRIDOR ASSESSMENT POINTS	160	0	0	0	0

SEE WAKE COUNTY FORM
FOR THESE ALTERNATIVES

PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)	100	51	0	0	0
Total Corridor Assessment (From Part VI above or a local site assessment)	160	0	0	0	0
TOTAL POINTS (Total of above 2 lines)	260	51	0	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>
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5. Reason For Selection:

Signature of Person Completing this Part:

DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

Clear Form