



GoTriangle

Short-Range Transit Plan

Final Report

November 2018

N NELSON
NYGAARD

GO  *Triangle*

Executive Summary

The Triangle region of North Carolina is undergoing a period of rapid growth and change. More than 2 million people already call the Triangle home, and the region grows by more than 80 people a day. To help safeguard and improve quality of life, voters in Durham County approved a half-cent sales tax to invest in transit improvements in 2011, followed by Orange County voters in 2012 and Wake County in 2016.

The counties' individual transit plans will create a regional network that provides alternatives to driving on increasingly congested roads and opens up access to more jobs, education, and health care opportunities for everyone.

GoTriangle plays a key role in the expansion of the regional transit system. Providing fixed-route bus, paratransit, and vanpool services, GoTriangle already helps thousands of Triangle residents and visitors move around the region each day by connecting people with major activity and job centers in Wake, Durham, and Orange Counties. The agency is also planning for the implementation of light rail connecting Durham and Chapel Hill and commuter rail connecting Wake County communities with Raleigh and Durham. The development of the regional bus network over the next several years is crucial to preparing the region for high-capacity services and continuing to connect people with jobs and opportunities beyond the future high-capacity network.

The GoTriangle Short-Range Transit Plan (SRTP) provides an integrated blueprint for how the agency will develop and implement regional bus service through FY 2027 and is centered on the following three goals:

- Make service faster and more time-competitive.
- Provide more frequent service.
- Provide more all-day service.

Existing Conditions and Market Analysis

The Existing Conditions and Market Analysis chapter reviews trends in GoTriangle operational data and assesses population and employment density and travel demand to better understand GoTriangle's transit ridership market.

The market analysis revealed that GoTriangle does a good job serving areas with high transit propensity across the region. GoTriangle also does a good job of serving regional commute trips in areas that can support fixed-route transit services. However, the origins of a large volume of commute trips in the region are highly dispersed and would be difficult to serve with traditional fixed-route transit.

Service Analysis

The Service Analysis chapter analyzes the performance of existing fixed-route service operated by GoTriangle to identify strengths and weaknesses of the current system. GoTriangle's strongest routes 1) connect major regional activity and job centers with good pedestrian environments, 2) operate at relatively high frequencies, and/or 3) operate all day, seven days a week, in corridors where service does not compete with parallel services.

The weaker routes in GoTriangle's system 1) are infrequent and/or operated at limited times of day and days of the week, 2) serve areas with poor pedestrian environments, where destinations are far from the road and/or there are poor/no sidewalks on which people can walk safely to their destinations, and/or 3) serve areas of low job and/or population density.

Public Involvement

The Public Involvement chapter summarizes the results of two phases of public outreach activities conducted to inform the recommendations in the GoTriangle SRTP. Phase I outreach gauged perceptions of the existing transit network and priorities for service improvements. This phase was used to develop potential service improvements which were further evaluated during Phase II outreach. Phase II sought public feedback on proposed changes to the transit system and was used to inform the final SRTP recommendations.

Recommendations

The SRTP recommendations build on the market analysis, service analysis, and public input to identify service changes that would maintain or strengthen the strongest parts of existing services, improve the weaker parts, and work toward the goals of faster, more frequent service available at more times during the day. Key near-term (by FY 2024) recommendations include:

- **Improve speed, consistency, and frequency of service in the US 15-501 corridor.** Remove the peak-period deviation from Route 400 and add a stop at Patterson Place to Route 405. The revised services would provide a combined 15-minute frequency during weekday peak periods between downtown Durham, Duke/VA Hospitals, Patterson Place, and UNC Chapel Hill.
- **Improve speed and consistency between Chapel Hill and the Regional Transit Center (RTC).** Use I-40 at all times on Route 800 between Southpoint and the RTC rather than using NC-54 during off-peak times.
- **Support flourishing Orange-Durham commute service with increased frequency and speed.** Double commute service between Mebane, Hillsborough, and Durham on Route ODX while increasing efficiency by using faster roadways and eliminating out-of-direction, underutilized reverse commute service.
- **Increase reliability of commuter service between Hillsborough and Chapel Hill.** Streamline Route 420 to use faster roadways and avoid delays.
- **Add key connections and service to growing regional destinations.** Replace service between Cary and the RTC with new Route 310, providing service to Morrisville and Wake Tech RTP campus in western Wake County.
- **Offer more opportunities to connect to Raleigh-Durham International Airport from NCSU and downtown Raleigh.** Add service later at night and add more frequent service on weekends to Route 100.

- **Fill in service gaps on key regional connections.** Add midday, night, and weekend service between Raleigh and Apex on Route 305. Convert Routes 102 (Garner-Raleigh) and KRX (Knightdale-Raleigh Express) to all-day services operated by GoRaleigh.
- **Make commuter service between North Raleigh and RTP more time competitive.** Replace Route 201 with new Route NRX service along I-540 between Triangle Town Center and the RTC.

The 2027 plan includes additional recommendations to improve and strengthen the regional transit network between FY 2025 and FY 2027, including:

- **Expand hours of service and frequency in key regional corridors.** Expand service on Route 310 to provide service later at night and add more frequent weekend service.
- **Support North Raleigh commuter service with increased frequency and park-and-ride access.** Double frequency on a new Route NRX service between Triangle Town Center and the RTC and add park-and-ride capacity in the I-540 corridor to support ridership growth.
- **Leverage transit investments in the NC-147 and I-40 corridor to provide improved Durham-Raleigh Express service.** Combine resources from Routes 105, 700, and DRX to provide all-day weekday express service between Duke/VA Hospitals, downtown Durham, NC State University, and downtown Raleigh. The route would add a stop at a relocated RTC but receive additional peak period trips and new, 30-minute midday service on weekdays.

The GoTriangle SRTP also includes recommendations for additional service enhancements that GoTriangle may wish to consider if additional resources become available. Unfunded recommendations include filling in midday service gaps on GoTriangle's peak-only commute routes, increasing the span and frequency of core services, and adding service to high-ridership routes.

Finally, the SRTP includes a discussion of capital improvements associated with GoTriangle bus service improvements. This includes two transit centers, a new bus maintenance facility, park-and-ride enhancements, and improvements to bus stops throughout the region.

Together, the recommendations included in the GoTriangle SRTP respond to existing conditions, market factors, and customer input to create a strong regional network that seeks to meet current and future customers' needs while maintaining sound stewardship of the taxpayers' investment in the regional transit system.

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1 Introduction

GoTriangle is the regional public transportation provider for the Research Triangle region of Wake, Durham, and Orange Counties in North Carolina. GoTriangle provides fixed-route bus, paratransit, and vanpool services and is planning for the implementation of high capacity transit services in the three-county service area, including light rail connecting Durham and Chapel Hill and commuter rail connecting Wake County communities with Raleigh and Durham. The region is also planning for Bus Rapid Transit (BRT) on Wake County's busiest urban corridors. While not sponsored by GoTriangle, this new service will play an important role in the regional transit network and how GoTriangle services develop in the future.

Over the past several years, each of GoTriangle's three constituent counties developed plans to improve the public transit networks in the counties, which were subsequently approved by voters. These county plans set the stage for major investments in transit service and infrastructure in the region and provide funding for each of the transit agencies within the three counties to improve transit services. Since GoTriangle provides service in all three counties, funding for enhanced GoTriangle service is included in each of the county plans.

This document brings together work completed for GoTriangle under the auspices of each county transit plan to provide an integrated blueprint for how the agency will develop and implement regional bus service through FY 2027 (July 1, 2026-June 30, 2027). While Wake County embarked on a significant planning and analysis effort to develop the future transit network included in the Wake County Transit Plan approved by voters in 2016, Durham and Orange Counties developed and approved their county transit plans several years earlier. Therefore, much of the analysis focus of this plan (existing conditions, market analysis, and service analysis sections) is on GoTriangle services operating in Durham and Orange Counties, which were in need of a fresh look at trends and opportunities in the rapidly growing and changing Research Triangle region.

Short-Range Transit Plan Goals

The GoTriangle Short-Range Transit Plan (SRTTP) aims to achieve the following three goals, which are frequently cited by riders and non-riders alike as reasons to ride transit more often:

- **Make service faster and more time-competitive.** Whether or not they own a personal automobile, people have a choice in how they travel. GoTriangle service should be fast and connect people to regional destinations in a reasonable amount of time. In some cases, this means shifting some of the local-access service to the local transit providers in the region and ensuring good connections between GoTriangle buses and local buses.
- **Provide more frequent service.** Frequent service allows people to "show up and go" rather than plan their lives around a transit schedule. This encourages use of transit for spontaneous travel.

- **Provide more all-day service.** While GoTriangle provides a core network of services across the region that operate all day, seven days a week, many routes provide service only during peak commute periods on weekdays. This means some people who take GoTriangle services have limited options in the middle of the day and at night to return to where they started. Expanding service to more times of day and days of the week makes transit more useful for more people.

Report Organization

In addition to this Introduction, the report is organized into the following chapters:

- **Chapter 2 Existing Conditions and Market Analysis.** This chapter highlights previous planning studies and provides an assessment of population and employment density and travel demand to assess the distribution of the transit ridership market, focusing primarily on Orange and Durham Counties.
- **Chapter 3 Service Analysis.** This chapter analyzes the performance of existing fixed-route service operated by GoTriangle in Orange County and Durham Counties to identify strengths and weaknesses of the current system.
- **Chapter 4 Public Involvement.** This chapter summarizes the results of public involvement and outreach activities conducted to inform the recommendations in the GoTriangle Short-Range Transit Plan.
- **Chapter 5 Recommendations.** This chapter builds on the market analysis, service analysis, and public input to identify service changes that would maintain or strengthen the strongest parts of existing services, improve the weaker parts, and work toward the goals of faster, more frequent service available at more times during the day.

2 Existing Conditions and Market Analysis

This chapter contains a trend analysis assessing system-wide ridership and revenue performance factors for GoTriangle using National Transit Database (NTD) data for GoTriangle services in Orange, Durham, and Wake Counties. The market analysis assesses several demographic characteristics within Durham and Orange Counties and commute patterns between Durham, Orange, and Wake counties to determine how well GoTriangle is providing service to high demand areas.

TREND ANALYSIS

This trend analysis compares current GoTriangle performance with past performance. The trends in this section paint a data-driven picture of performance relative to previous years, which in turn helps to shape recommendations for future service improvements.

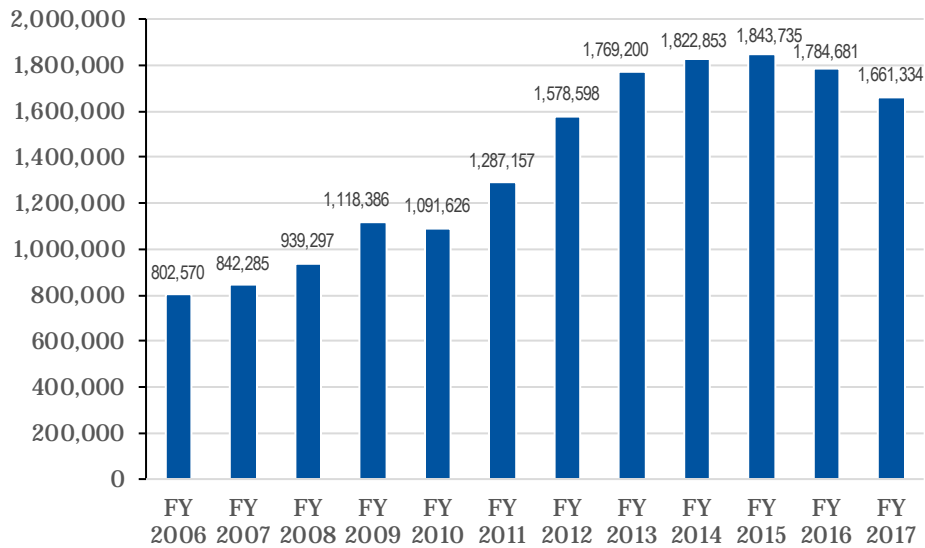
This section assesses six fixed-route performance indicators for the 12-year period from FY 2006 through FY 2017. These indicators are:

- Annual passenger trips
- Annual revenue hours
- Annual farebox revenue
- Annual revenue miles
- Passengers per revenue hour
- Passengers per revenue mile

Figure 2-1 through Figure 2-6 present these performance indicators for the years specified. The figures reveal the following key findings:

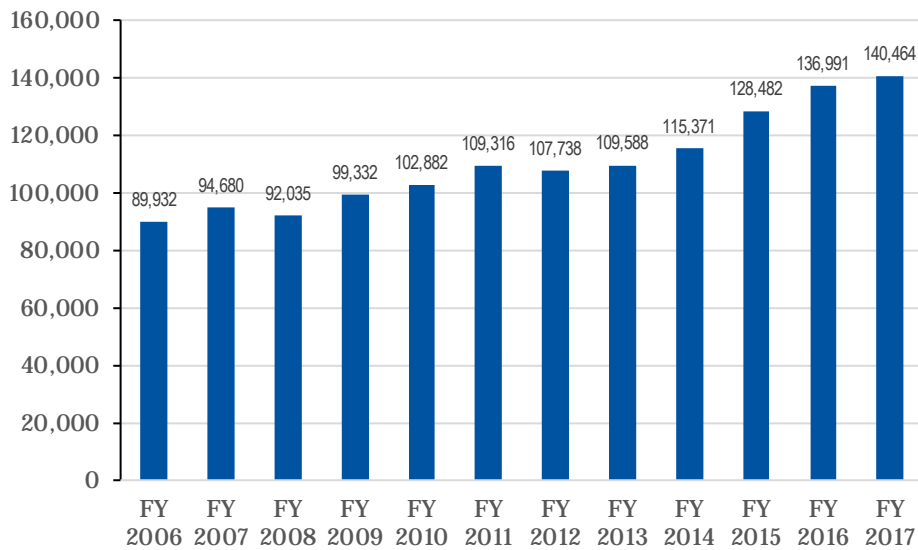
- Annual passenger trips (Figure 2-1) increased by 62% from FY 2010 to FY 2013, but has been decreasing since FY 2015, consistent with national trends.
- Annual revenue hours (Figure 2-2) and revenue miles (Figure 2-4) have increased as GoTriangle has added County Plan-funded service.
- Changes in ridership have been accompanied by changes in productivity; passengers per revenue hour and passengers per revenue mile (Figure 2-5 and Figure 2-6) have generally increased from FY 2010 to FY 2013, but have continued to decrease since FY 2013.

Figure 2-1 Annual Passenger Trips



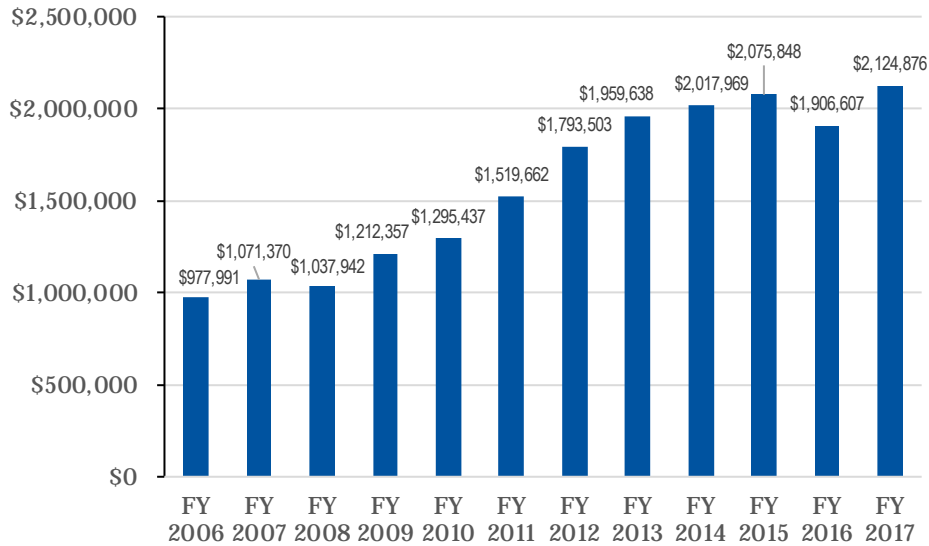
Source: iNTD Research Triangle Regional Public Transportation Authority, FY2006 – FY2015, GoTriangle 2017

Figure 2-2 Annual Revenue Hours



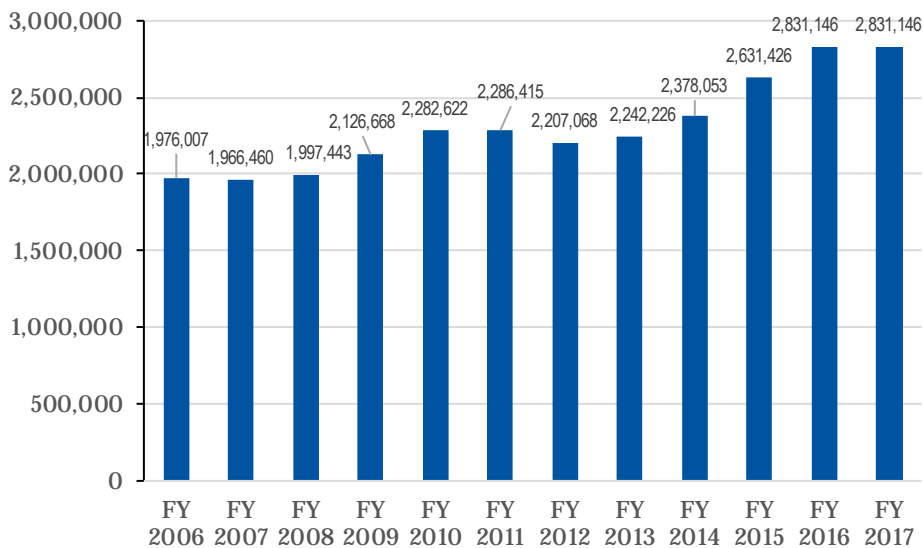
Source: iNTD Research Triangle Regional Public Transportation Authority, FY2006 – FY2015, GoTriangle 2017

Figure 2-3 Annual Farebox Revenue



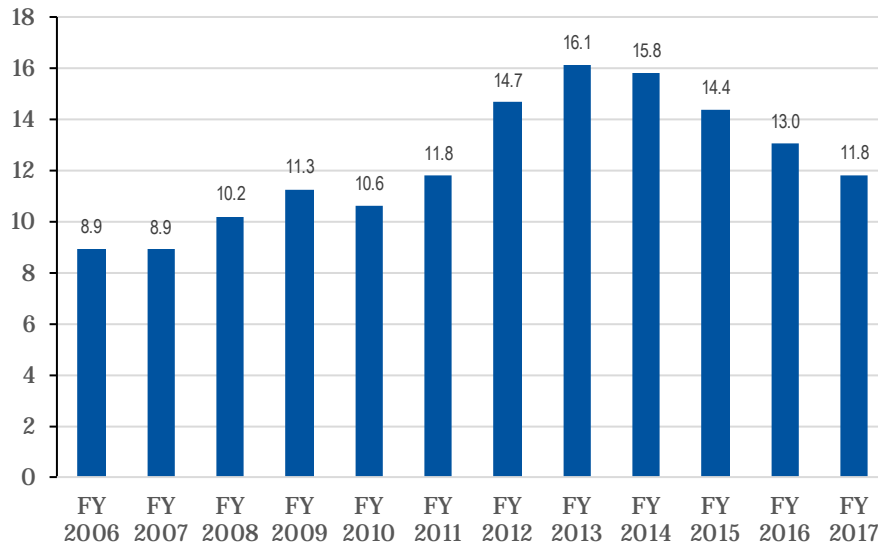
Source: iNTD Research Triangle Regional Public Transportation Authority, FY2006 – FY2015, GoTriangle 2017

Figure 2-4 Annual Revenue Miles



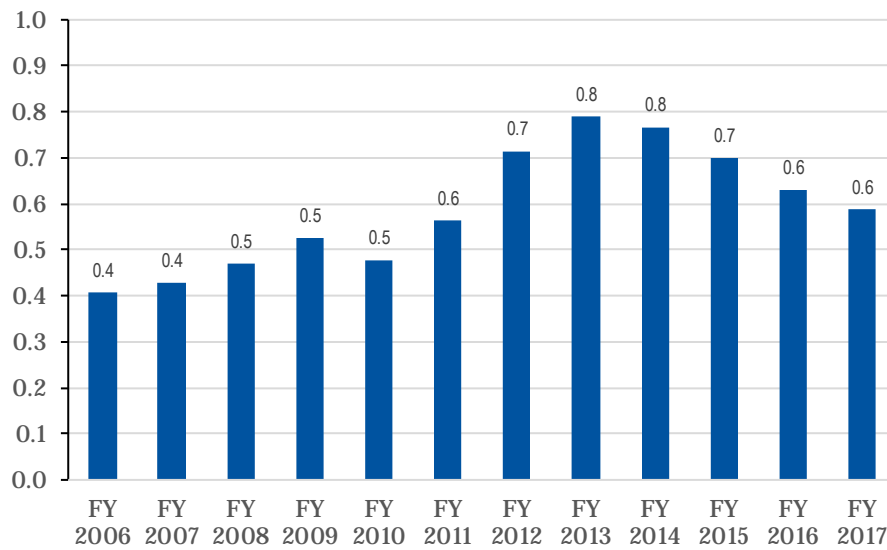
Source: iNTD Research Triangle Regional Public Transportation Authority, FY2006 – FY2015, GoTriangle 2017

Figure 2-5 Passengers per Revenue Hour



Source: iNTD Research Triangle Regional Public Transportation Authority, FY2006 – FY2015, GoTriangle 2017

Figure 2-6 Passengers per Revenue Mile



Source: iNTD Research Triangle Regional Public Transportation Authority, FY2006 – FY2015, GoTriangle 2017

MARKET ANALYSIS

This analysis presents demographic and other characteristics associated with the market for transit ridership. The analysis focuses on Durham and Orange Counties because, as mentioned in Chapter 1, the recent Wake County Transit Plan effort included a market analysis for transit services in Wake County. This analysis has been documented in *Wake Transit Plan: A Wake County Transit Investment Strategy Report* (November 2016), and *Wake County Transit Alternatives* (May 2015) – incorporated as Appendices A and B, respectively – and includes an evaluation of:

- Demographic trends and transit propensity indicators
- Walkability—how easy/difficult it is to travel on foot, since most transit trips start as walking trips
- How people in Wake County travel now, and what proportion of people use different travel options such as driving alone, carpooling, taking transit, walking, and cycling.
- Existing and anticipated congestion on area roads and highways
- Regional travel flows—at a high level, where people are traveling to/from in the region

Similar to the Wake County effort, this section conducts a market analysis for transit service in Durham and Orange counties. The purpose of this analysis is twofold: (1) to identify gaps in transit service in areas with high demand, and conversely (2) to identify overserved areas where transit demand is weak. To do so, it uses a set of eight indicators typically associated with transit ridership. Several of the indicators provide the basis for a composite Transit Propensity Index (TPI), which in turn highlights the potential for transit use in Durham and Orange Counties.

Figure 2-7 lists each indicator included in this analysis, along with (1) whether the data is linked to the place of residence or place of work (2) the unit of measure, (3) the data source, and (4) the geographic level. It also identifies which indicators are used to build the TPI.

Figure 2-7 Market Analysis Indicators

Indicator	By place of	Unit	Source	Geography	TPI
Population	Residence	People per acre	2010 Census	Block group	No
Low income	Residence	People earning less than 200% of the federal poverty line per acre	2011 – 2015 ACS ¹	Block group	Yes
People with disabilities	Residence	People with disabilities per acre	2009 – 2013 ACS	Block group	Yes
Young adults	Residence	Population aged 18-24 inclusive per acre	2010 Census	Block group	No
Seniors	Residence	Population aged 65 and over per acre	2010 Census	Block group	Yes
Rental units	Residence	Rental units per acre	2011 – 2015 ACS	Block group	Yes
Zero-vehicle households	Residence	Households without access to a vehicle per acre	2011 – 2015 ACS	Block group	Yes

¹ American Community Survey, five-year estimates

Indicator	By place of	Unit	Source	Geography	TPI
Commute Travel Demand	Residence	Workers living in Durham County that work in Durham or Orange County	2014 LODS	Census Tract	No

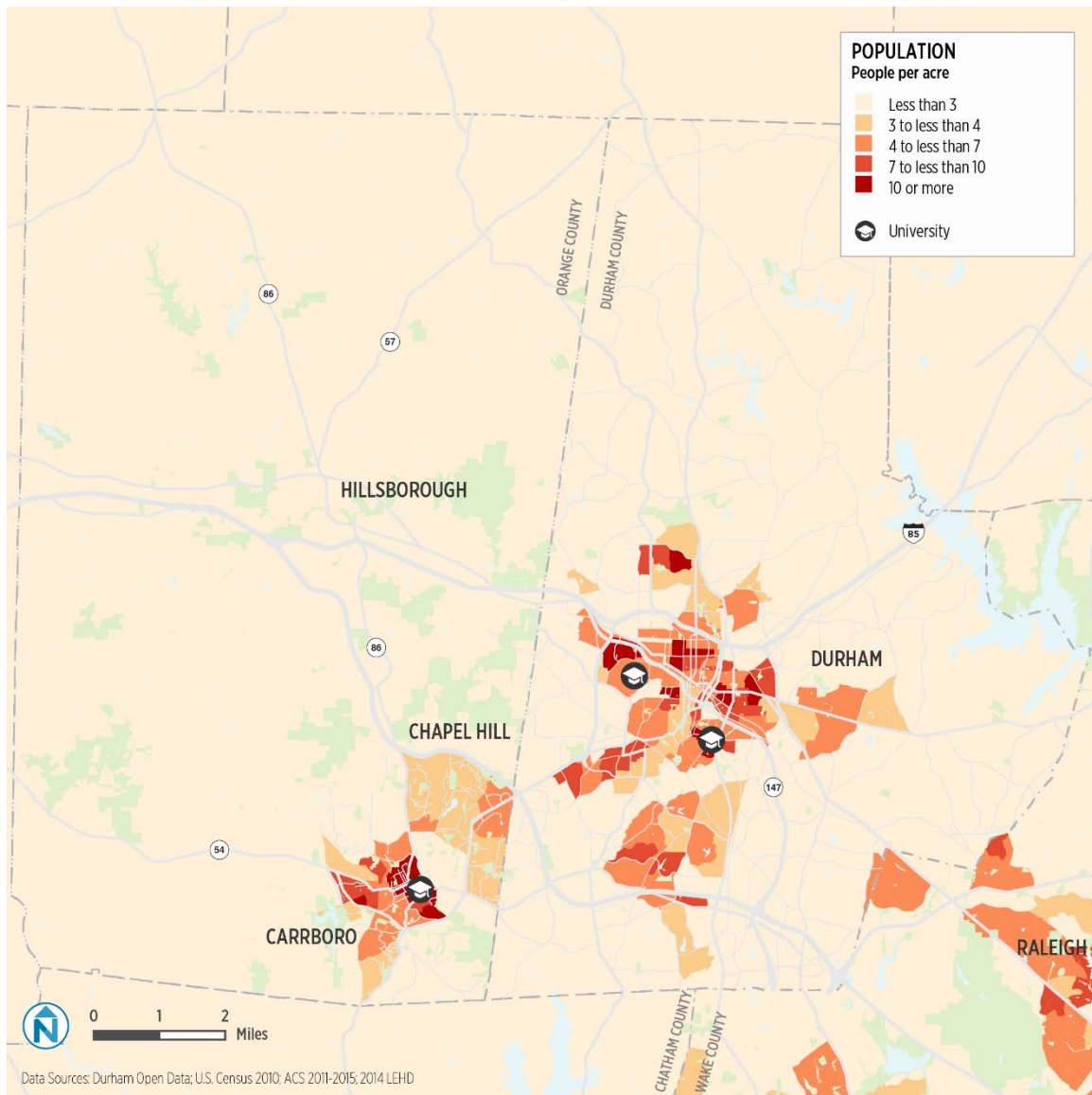
Population

Population density is a key determinant of transit demand. Population densities are highest (10 or more people per acre) in the following areas:

- **Durham**
 - North of Duke University, along Erwin Road between US 15-501 and NC-147/Durham Freeway
 - In the neighborhoods between West Chapel Hill Street and Morehead Avenue southeast of Duke University
 - Surrounding Duke East Campus in neighborhoods north and south of Markham Road
 - Surrounding North Carolina Central University (NCCU) between Roxboro Street and Alston Avenue
 - In East Durham neighborhoods along Holloway Street between Roxboro Street and Alston Avenue, and Miami Boulevard and Spruce Street
 - In North Durham, between Guess Road and US 15-501 and south of Horton Road
- **Chapel Hill**
 - North of Franklin Street between North Columbia Street and East Main Street
- **Carrboro**
 - Downtown Carrboro between NC 54 and East Main Street

Figure 2-8 presents population density for block groups in Durham and Orange Counties.

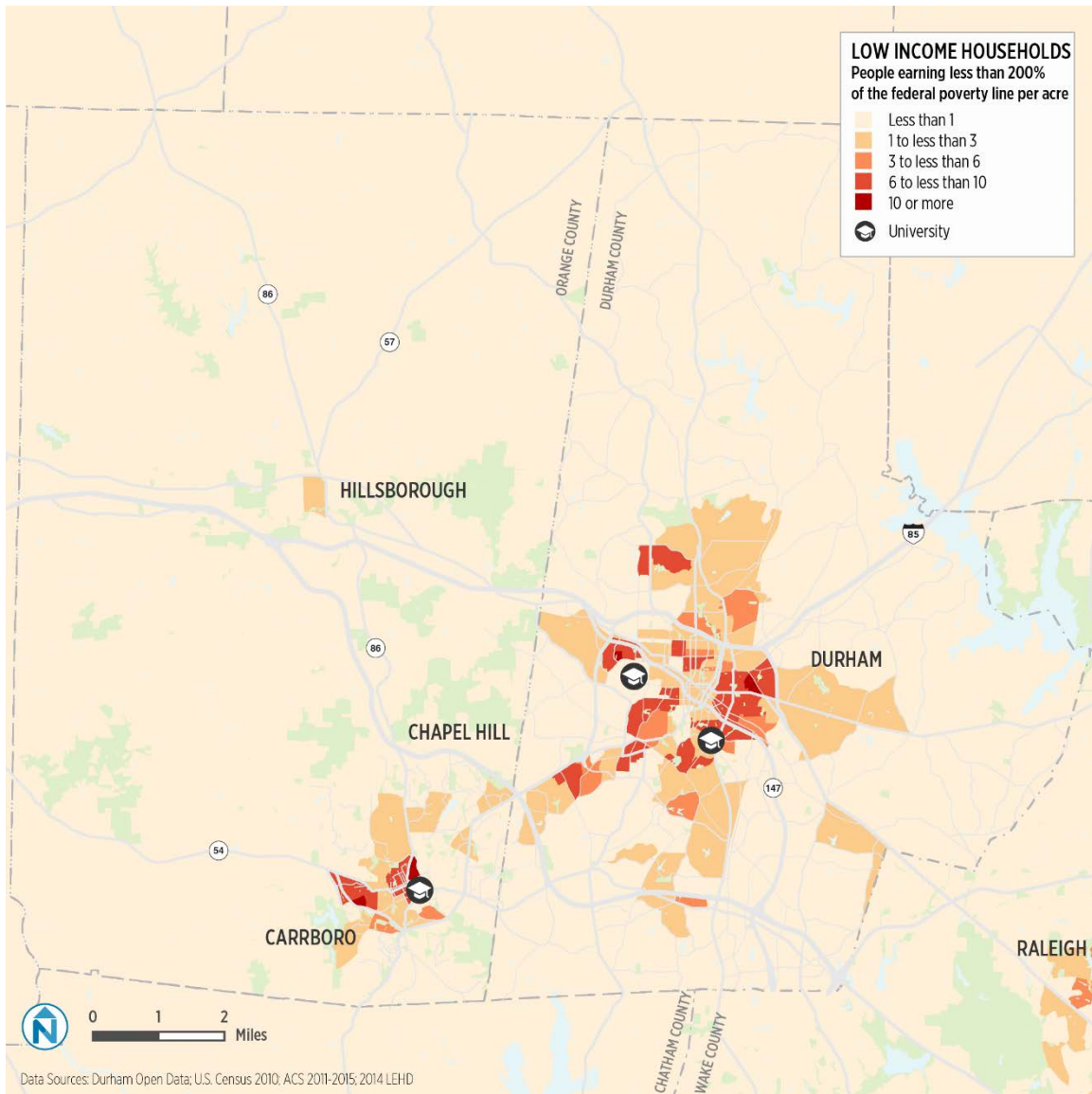
Figure 2-8 Population Density



Low-Income Populations

As shown in Figure 2-9, low-income populations are clustered in the neighborhoods immediately north and east of Duke University, Wellons Village, neighborhoods surrounding UNC-Chapel Hill, and in downtown Carrboro. There appears to be some correlation between low-income areas and student residence locations, particularly surrounding Duke University and UNC-Chapel Hill.

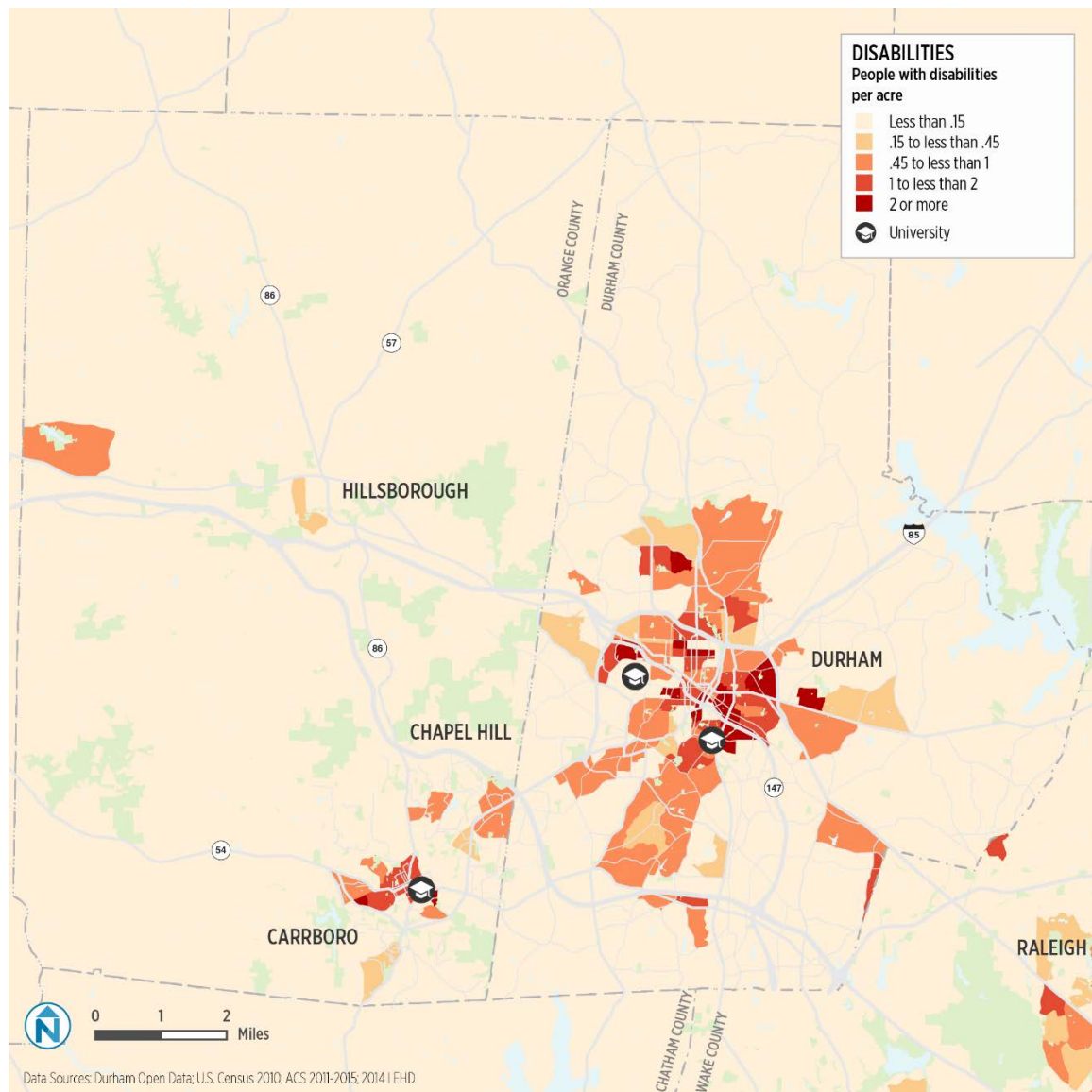
Figure 2-9 Low-Income Population Density



People with Disabilities

People with disabilities living in Durham and Orange Counties are clustered in downtown Durham, Chapel Hill, and Carrboro. Certain pockets contain more than one person with a disability per acre, including the areas immediately north of Duke, areas north of NCCU, east Durham neighborhoods west of Highway 70, neighborhoods south of Horton Road in north Durham, between Highway 157 and Highway 501, areas surrounding UNC-Chapel Hill, and neighborhoods in Carrboro along Main Street. Figure 2-10 presents the density of people with disabilities in Durham and Orange Counties.

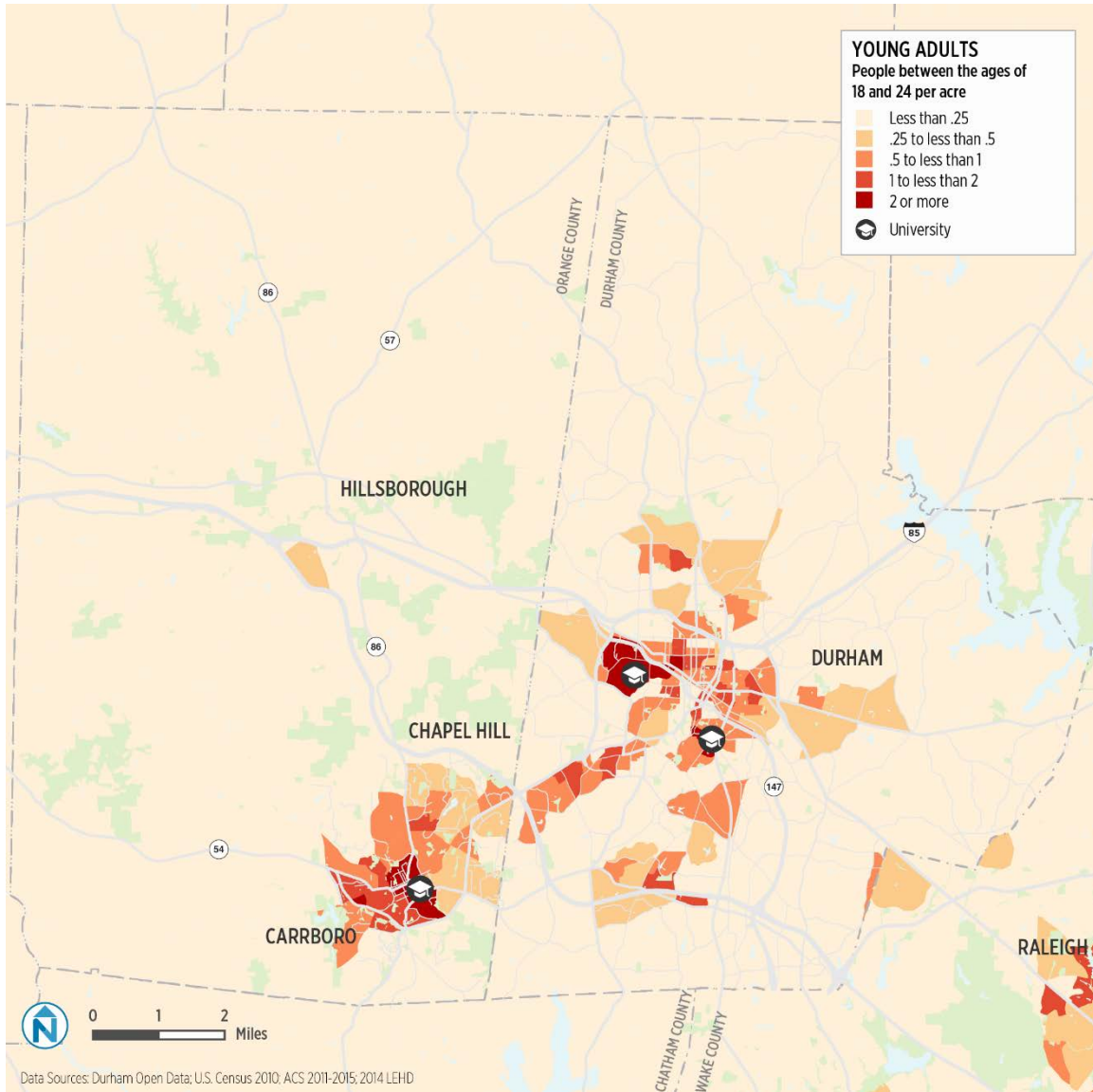
Figure 2-10 Density of People with Disabilities



Young Adults

Adults between the ages of 18 and 24 are more likely to take transit than adults over the age of 24. Young adults are concentrated in the neighborhoods immediately surrounding UNC-Chapel Hill, Duke, and NCCU. The density of young adults in the outer parts of Durham is very low. Figure 2-11 presents the densities of young adults in Durham and Orange Counties at the block group level.

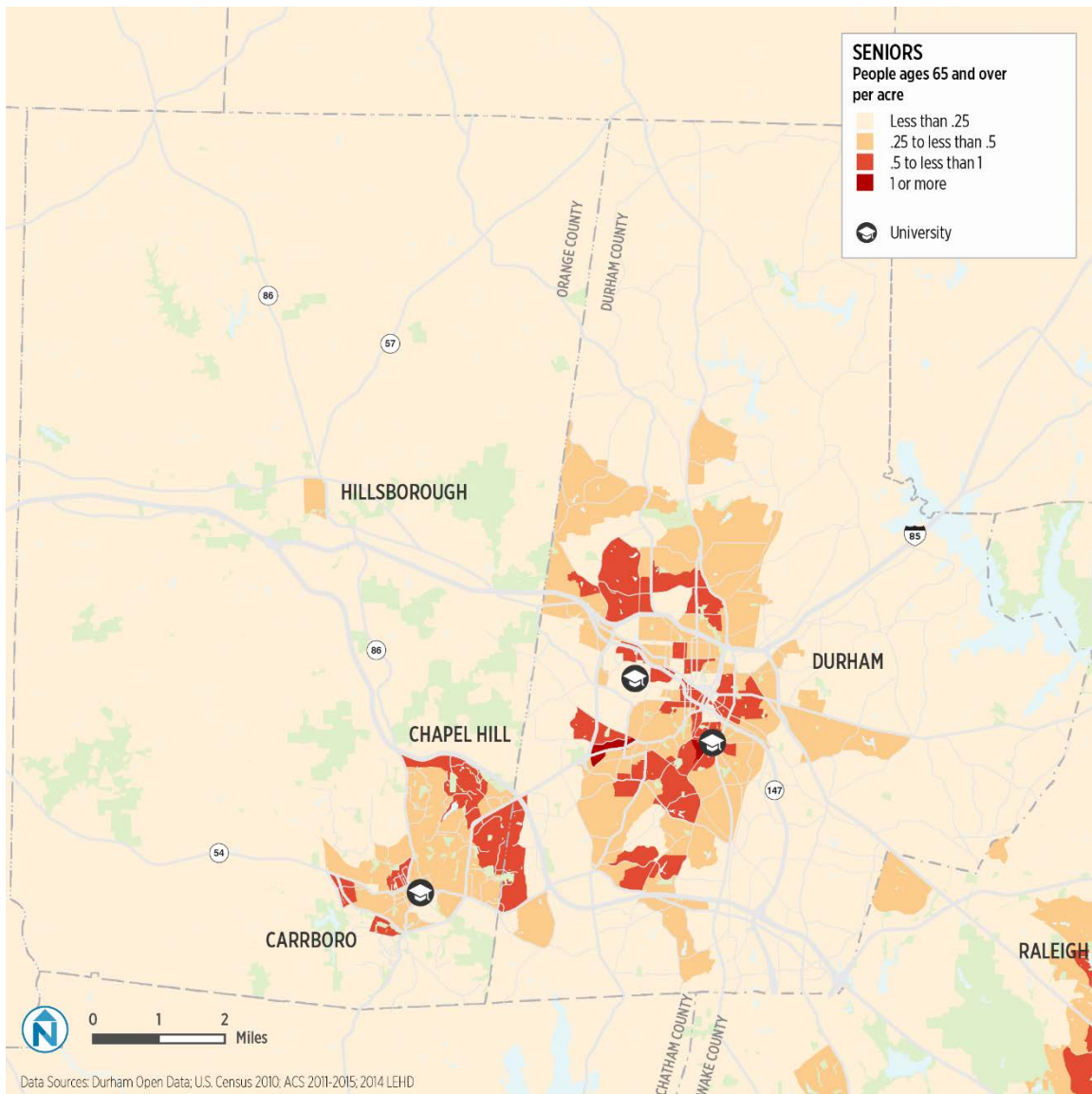
Figure 2-11 Density of Adults Aged 18 to 24



Seniors

Durham and Chapel Hill are young cities, with relatively few seniors (aged 65 and over) residing in the city. Certain areas—most notably the retirement communities at Highway 501/Durham-Chapel Hill Boulevard and I-85 interchange and neighborhood immediately southwest of NCCU—have higher densities of seniors. However, very few neighborhoods have more than one person aged 65 or over per acre. Figure 2-12 shows the density of seniors in Durham and Orange Counties at the block group level.

Figure 2-12 Density of Adults Aged 65 Years and Over



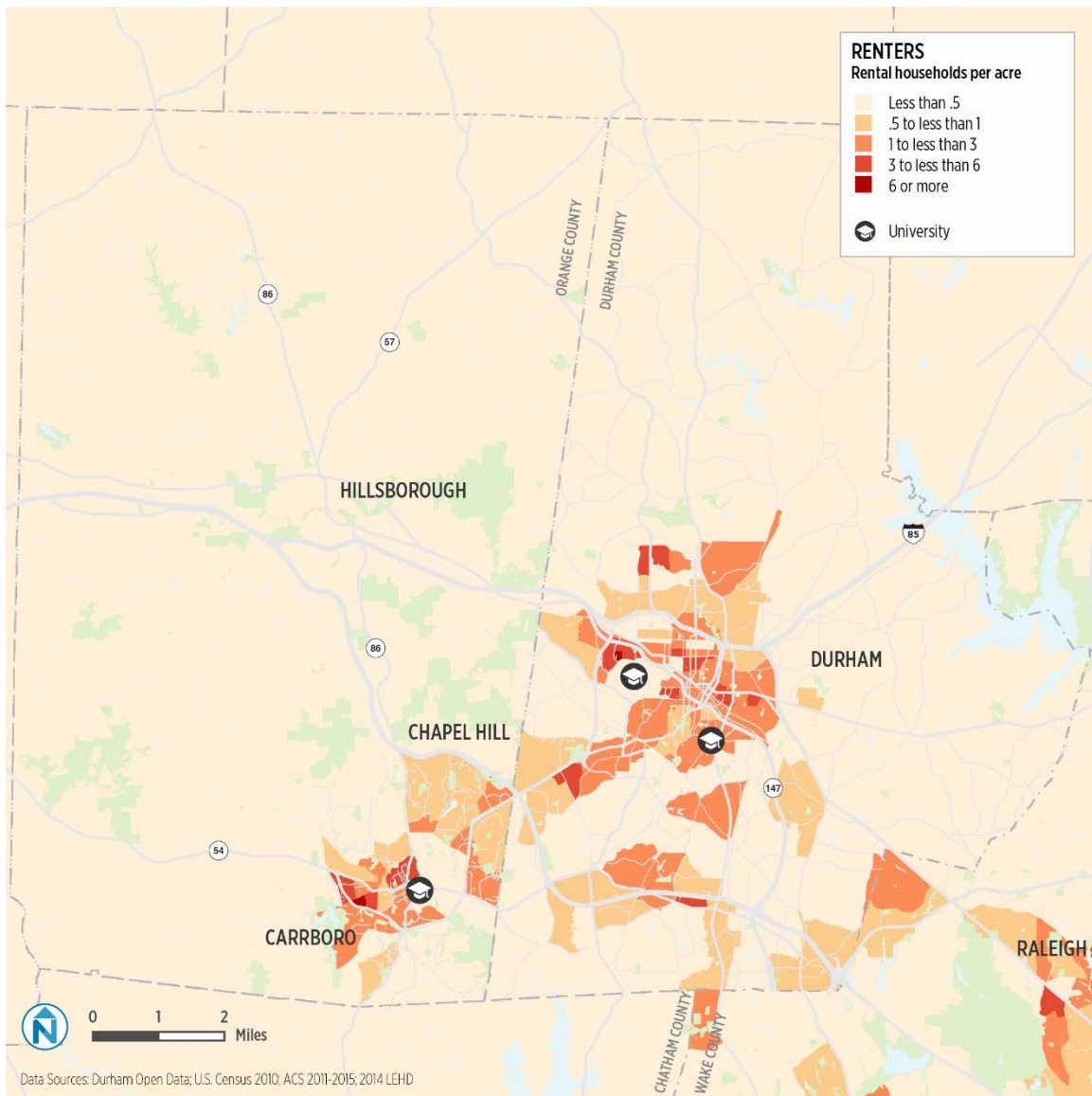
Rental Units

There is a relationship between transit ridership and rental units. Clusters of rental units are distributed in several different neighborhoods throughout the city and tend to be located along major highways. Areas with a high density of rental units are:

- Immediately north of Duke along Erwin Road
- Downtown Durham along W Markham Avenue
- North Durham in the vicinity of Horton Road
- East Durham along Highway 98
- Southwest Durham along Highway 501/Durham-Chapel Hill Boulevard
- North of UNC-Chapel Hill's Campus
- Downtown Carrboro between State Road 54 and East Main Street

Figure 2-13 displays the density of rental units in Durham and Orange Counties at the block group level.

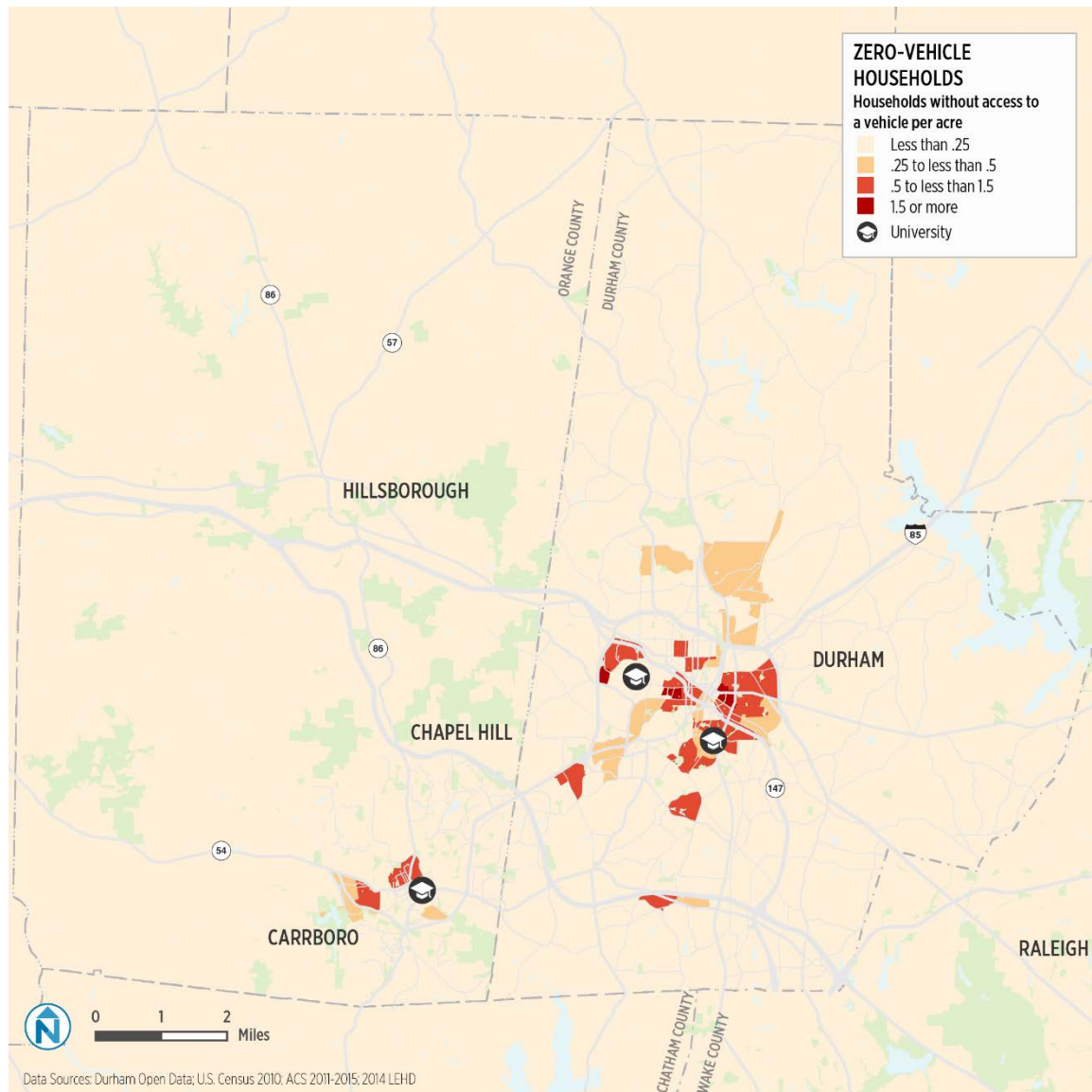
Figure 2-13 Density of Rental Units



Zero-Vehicle Households

On average, very few households do not have access to a motor vehicle. However, some areas of Durham and Chapel Hill have sufficient density of zero-vehicle households to support transit. These include a few neighborhoods north and west of UNC-Chapel Hill's campus, areas adjacent to Duke to the north and east, the Durham downtown core, and many of the neighborhoods in East Durham between East Geer Street, Highway 70, Cornwallis Road, and Roxboro Street. There are also several neighborhoods in south Durham with sufficient density of zero-vehicle households, including around Streets at Southpoint. Figure 2-14 presents the density of zero-vehicle households in Durham and Orange Counties at the block group level.

Figure 2-14 Density of Households without Access to a Motor Vehicle



Transit Propensity Index

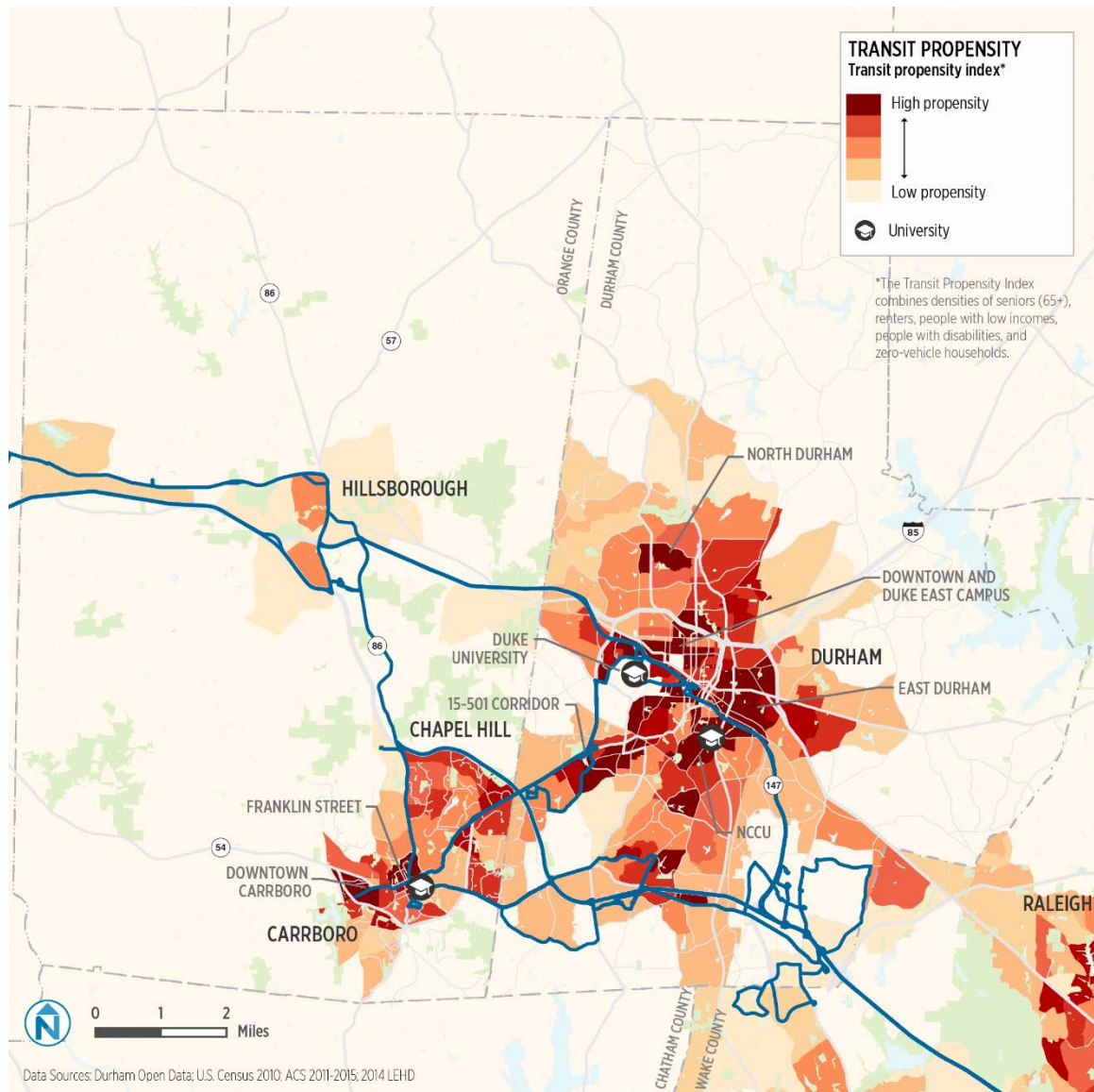
For the purposes of this analysis, propensity to take transit is based on the density of five combined indicators: seniors (ages 65 and up), people with low incomes (less than 200% of the federal poverty line), people with disabilities, rental units, and zero-vehicle households.

Based on the index, the largest demand for transit is clustered into eight general areas:

- **Duke University.** This area includes the neighborhoods to the north of Duke University that have a high density of rental units and student housing immediately north of Duke along Erwin Road, and neighborhoods east of the university where there are high concentrations of people with low incomes.
- **Downtown Durham and Duke's East Campus.** High demand is located along Markham Avenue both east and west of the center city and neighborhoods surrounding Duke University East Campus.
- **East Durham neighborhoods.** The neighborhoods with highest demand are located in the eastern portion of Durham along the Highway 98 corridor. This includes neighborhoods as far east as Sherron Road.
- **US 15-501/Durham-Chapel Hill Boulevard corridor.** Neighborhoods adjacent to the US 15-501/Durham-Chapel Hill Boulevard corridor heading west to Chapel Hill display high transit propensity characteristics.
- **Southeast Durham and NCCU.** The neighborhoods immediately surrounding NCCU.
- **North Durham.** Neighborhoods in north Durham in the vicinity of Horton Road, as well as neighborhoods east of Highway 501.
- **Franklin Street in Chapel Hill.** Neighborhoods north of UNC-Chapel Hill's campus between Martin Luther King Jr. Boulevard and North Greensboro along East Main Street and West Franklin Street have a high propensity for transit.
- **Downtown and West Carrboro.** The neighborhoods with highest demand are located around the Jones Ferry Road corridor, the Old Fayetteville Road corridor, and North Greensboro Street corridor.

Figure 2-15 presents the TPI for block groups in Durham and Orange Counties and labels the areas with the largest transit demand.

Figure 2-15 Transit Propensity Index



Key findings from the TPI analysis include:

- **GoTriangle does a good job serving some areas with high transit propensity across the region.** This includes UNC-Chapel Hill and Duke University campuses, downtown Durham, downtown Chapel Hill, and downtown Carrboro.
- **While not shown on the map, local transit providers serve other high transit propensity areas in the region.** GoTriangle connects into local transit networks at key locations, including Durham Station, the Duke/VA Hospitals area, Franklin Street in Chapel Hill, Patterson Place in the US 15-501 corridor, and the Regional Transit Center in southeast Durham County near RTP.

GoTriangle services focus on longer-distance regional trips connecting major activity centers in the region. In Durham and Orange Counties, local service is provided by GoDurham, Chapel Hill Transit, and Orange County Public Transportation. These agencies operate a network of local

services that connect riders to locations within their communities as well as to hubs where riders can access regional services provided by GoTriangle.

It is also important to note that transit propensity is only part of transit travel demand. Population characteristics provide an indicator of who might be more likely to travel using public transportation, but they do not dictate the places where those people may wish to travel.

The final aspect of transit market analysis for this study is a review of commute travel demand. The next section reviews commute flows in the region and evaluates how well existing GoTriangle services match regional commute patterns.

Commute Travel Demand

GoTriangle is a regional service that serves large regional employment centers in Durham, Orange, and Wake Counties. Figure 2-16 and Figure 2-17 shows where Durham and Orange County residents work while Figure 2-18 and Figure 2-19 show major commute lines from Durham and Orange county residents that are employed at major regional employment locations, such as RTP, Downtown Raleigh, and Duke Raleigh Hospital. It is important to note that these maps show commute lines from the centroids of Census tracts, which can be quite large, especially in low density areas. A strong commute line from a large, low density census tract does not infer that fixed-route transit could be supported by this commute pattern.

Figure 2-16 shows major commute trips made by Durham County residents. Duke University, Duke Hospital, and the Durham VA Medical Center is the major employment center for Durham County residents. Many of these residents are commuting from the Hope Valley area, neighborhoods between Erwin Road and Highway 501, the Croasdaile Village area, and North Durham. The only major employment destination for Durham County residents in Orange County is the UNC area.

Figure 2-17 shows major commute trips made by Orange County residents. The universities, particularly UNC and Duke, appear to be the regional employment destinations for Orange County residents. Those living in Chapel Hill and Carrboro tend to commute towards UNC while those living in north or west Orange County tend to commute towards Duke or Hillsborough.

A major regional employment center is Research Triangle Park (RTP). Figure 2-18 shows workers employed in RTP that live in Durham or Orange Counties. Many workers commute from neighborhoods around the RTP area, particularly residential areas south and east of Durham.

Finally, Figure 2-19 shows workers employed in Wake County that live in Durham or Orange Counties. Primarily, employees travel from residential neighborhoods on the outskirts of Durham (i.e. around North Durham or Joyland areas) to Duke Raleigh Hospital, large office parks south of Interstate 40, or to Downtown Raleigh. However, in general, few Durham and Orange County residents travel to Wake County for work.

Key findings from these travel demand maps include:

- **Commute demand in Durham and Orange Counties is highly focused** on employment at Duke/VA Hospitals, downtown Durham, and UNC Chapel Hill and less on RTP.
- **GoTriangle does a good job of serving regional commute trips** in areas that can support fixed-route transit services (Mebane/Hillsborough to downtown Durham/Duke/VA Hospitals, downtown Durham, Duke/VA Hospitals to UNC).

- **Much of the intra-county commute demand in Durham and Orange Counties is either served by, or more appropriate for service by a local transit provider.** Intra-county trips tend to be shorter and better-suited to local transit service that picks up at multiple stops on the way to a regional job center.
- While there is commute demand from Durham County into Wake County job centers, the origin locations are highly dispersed.

Figure 2-16 Commute Travel Demand for Workers Living in Durham County who Work in Durham or Orange County

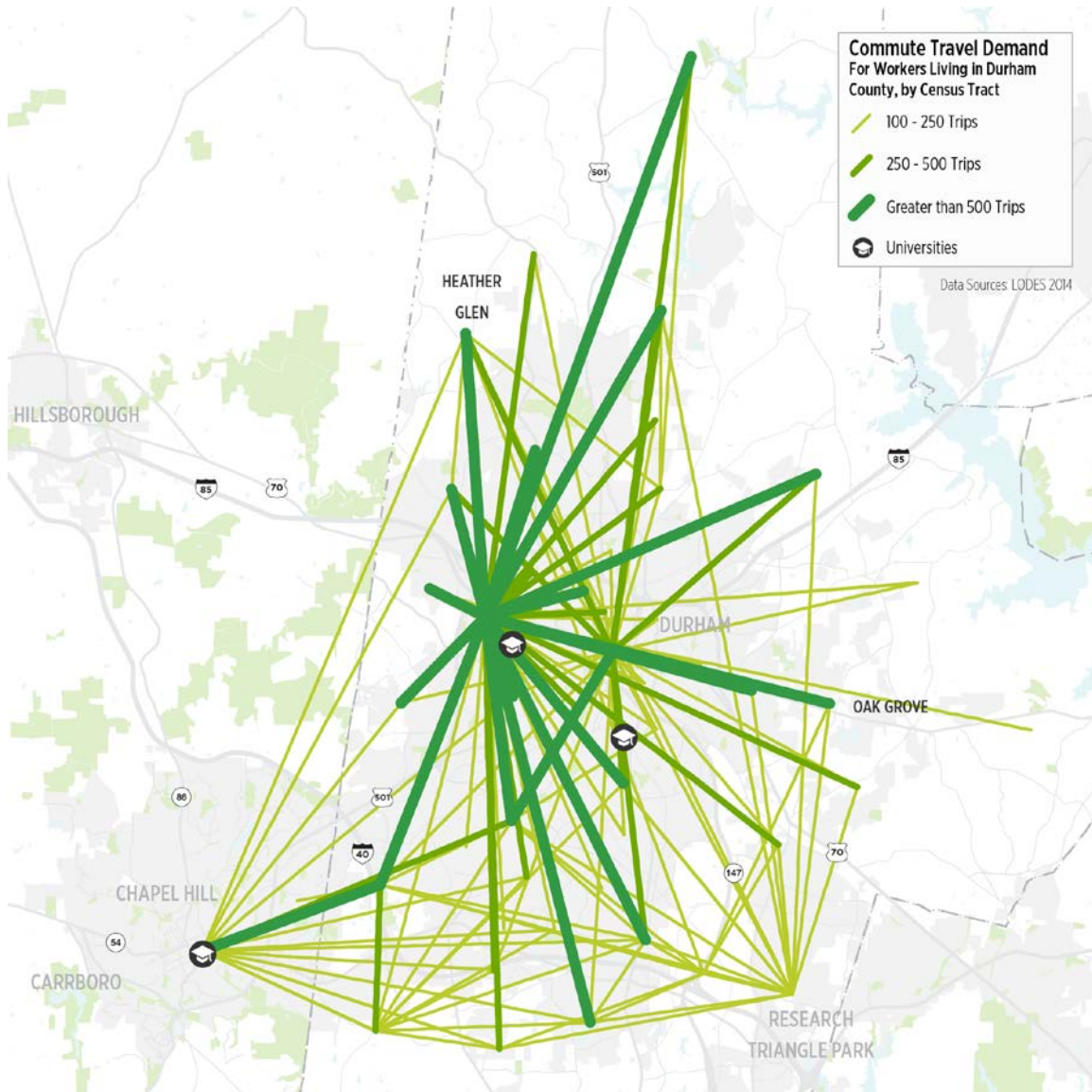


Figure 2-17 Commute Travel Demand for Workers Living in Orange County who Work in Durham or Orange County

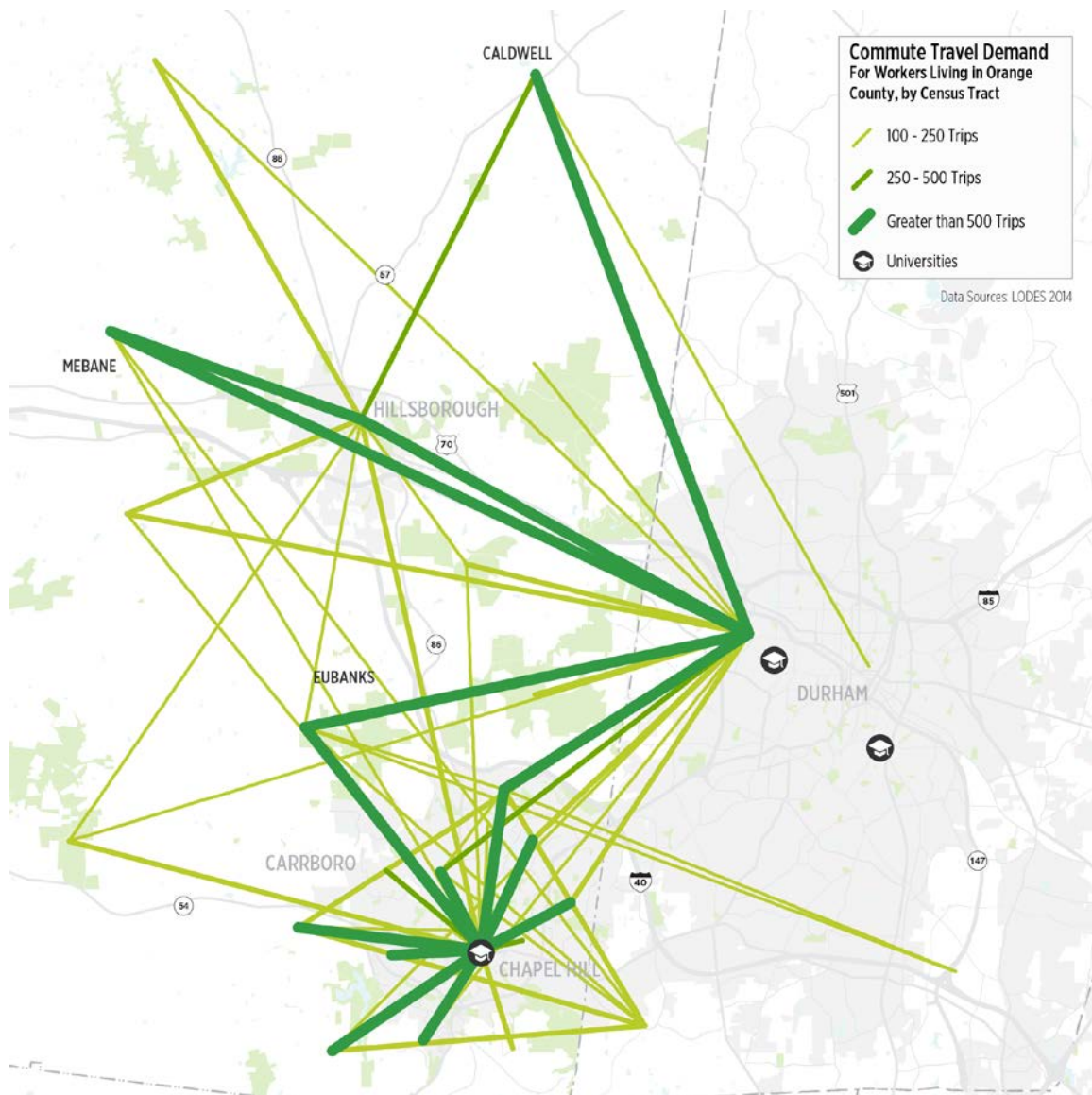


Figure 2-18 Commute Travel Demand for Workers Living in Durham or Orange County who work in RTP



Figure 2-19 Commute Travel Demand for Workers Living in Durham or Orange County who work in Wake County



3 Service Analysis

Similar to the transit market analysis in Chapter 2, this chapter focuses on analysis of GoTriangle routes in Durham and Orange Counties because the Wake County Transit Plan effort in 2015-2016 evaluated GoTriangle routes in Wake County (see Appendices A and B). The evaluation included:

- Productivity analysis – number of riders per unit of service provided, or in other words, how much “bang for buck” the region is receiving for its investment in transit service.
- Peer review – comparing the transit service and providers in Wake County to peer regions in the United States in three dimensions: transit service abundance (hours of service per capita), relevance (transit rides per capita), and productivity (ridership divided by units of service provided).
- Geographic patterns of ridership – where the hotspots of existing ridership activity occur.

This chapter describes GoTriangle’s Durham and Orange County fixed routes—those that operate on a designated path with published schedules—including the path that the bus travels (alignment), the hours that service is available (span), how often the bus comes (frequency), destinations served, and ridership.

The service analysis was conducted using FY 2017 as the base year and should be considered a “snapshot” of how services were operated at that time.

ROUTE PROFILES

Figure 3-1 shows the existing GoTriangle system map, Figure 3-2 and Figure 3-3 present average daily ridership and passengers per trip for each route, and Figure 3-4 shows a system map of boardings by stop.

Ridership maps accompany each route profile. These maps depict boardings and alightings at each stop for each direction based on Automatic Passenger Count (APC) data provided by GoTriangle for the month of April 2017.

Appendix C provides more detailed information associated with each route. Specifically, it includes the following charts and tables for reference:

- Weekday load by stop
- Weekday boarding/alighting profile
- Weekday ridership and maximum load by trip
- Tables summarizing boardings, alightings, and maximum load by direction, segment, and time of day

Appendix D provides maps of ridership by stop for each route.

Figure 3-1 GoTriangle 2017 System Map

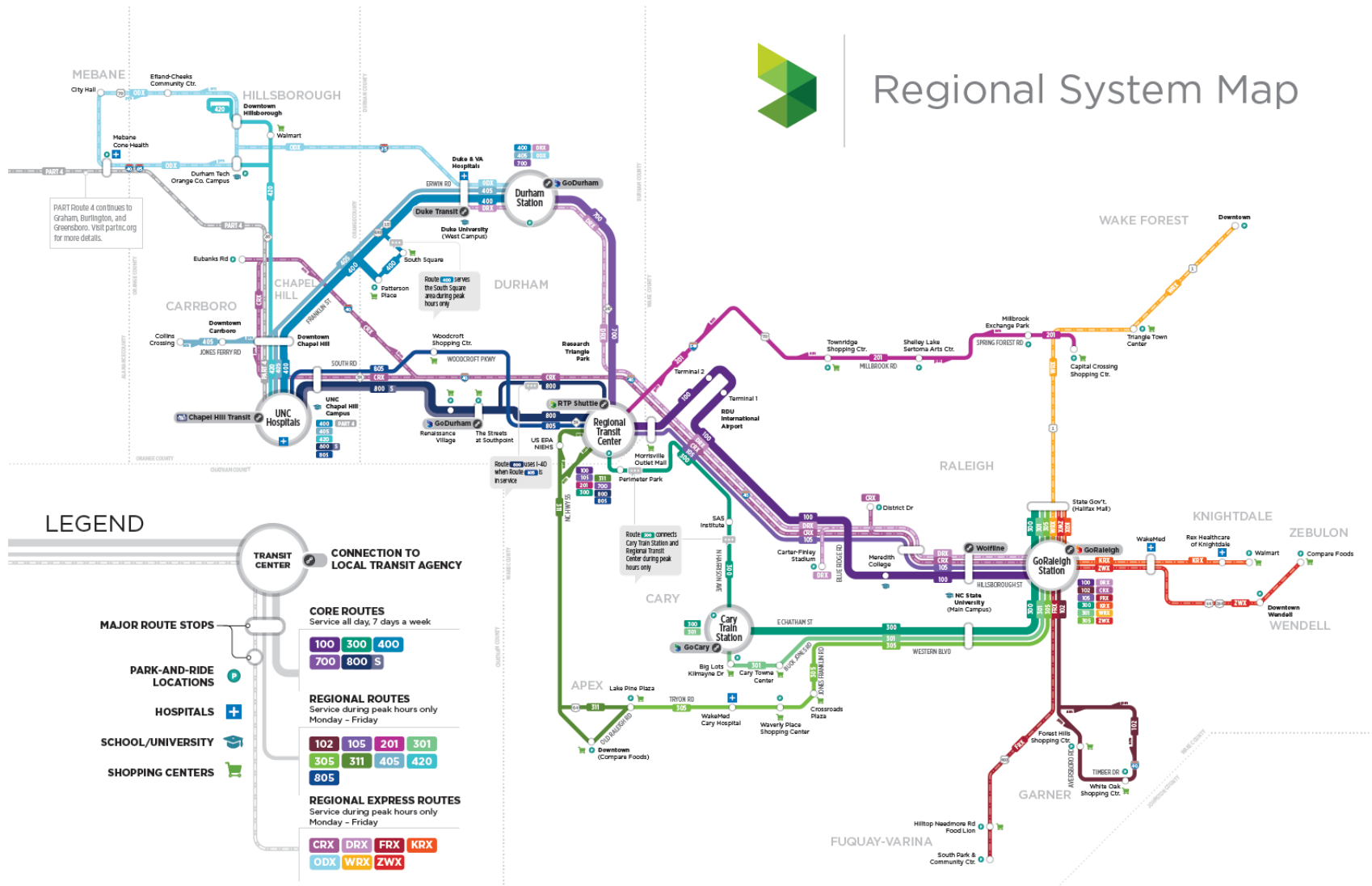
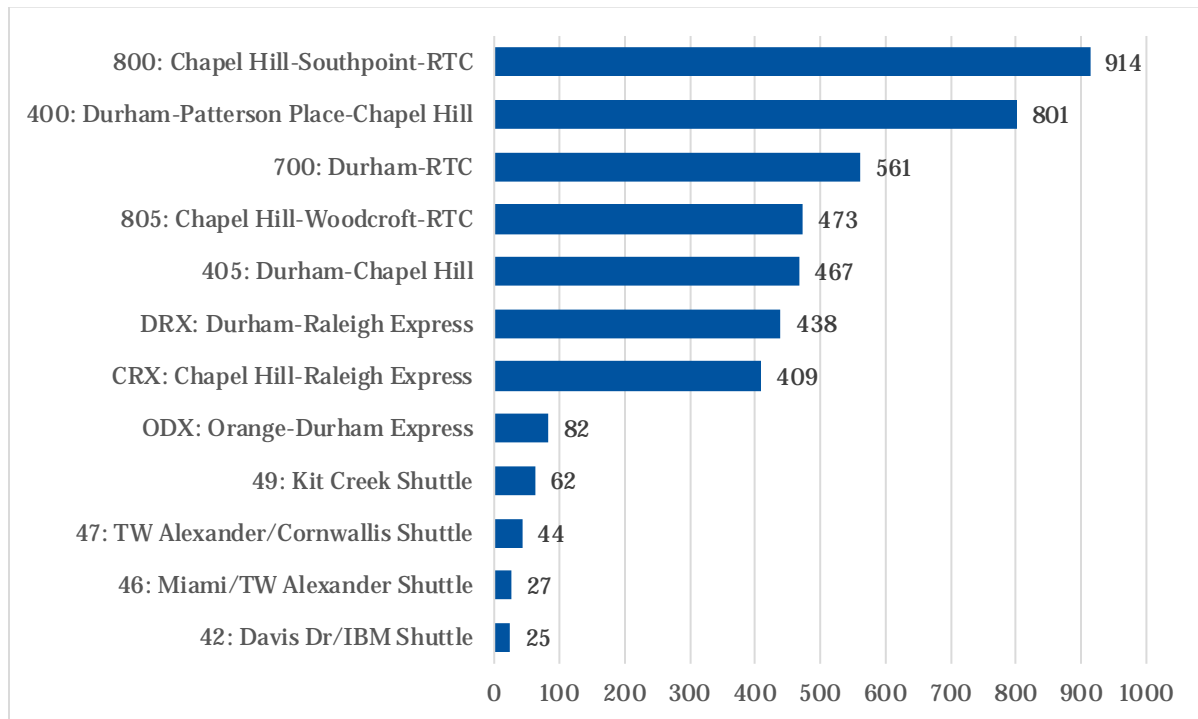
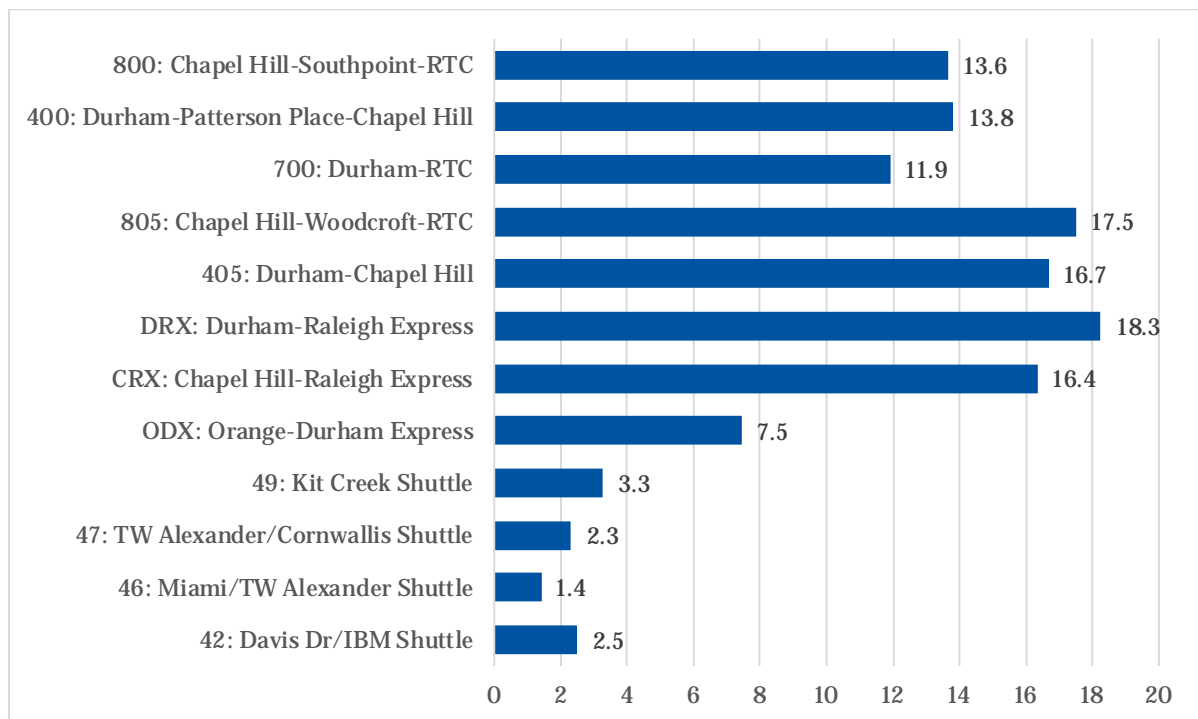


Figure 3-2 Weekday Ridership by Route



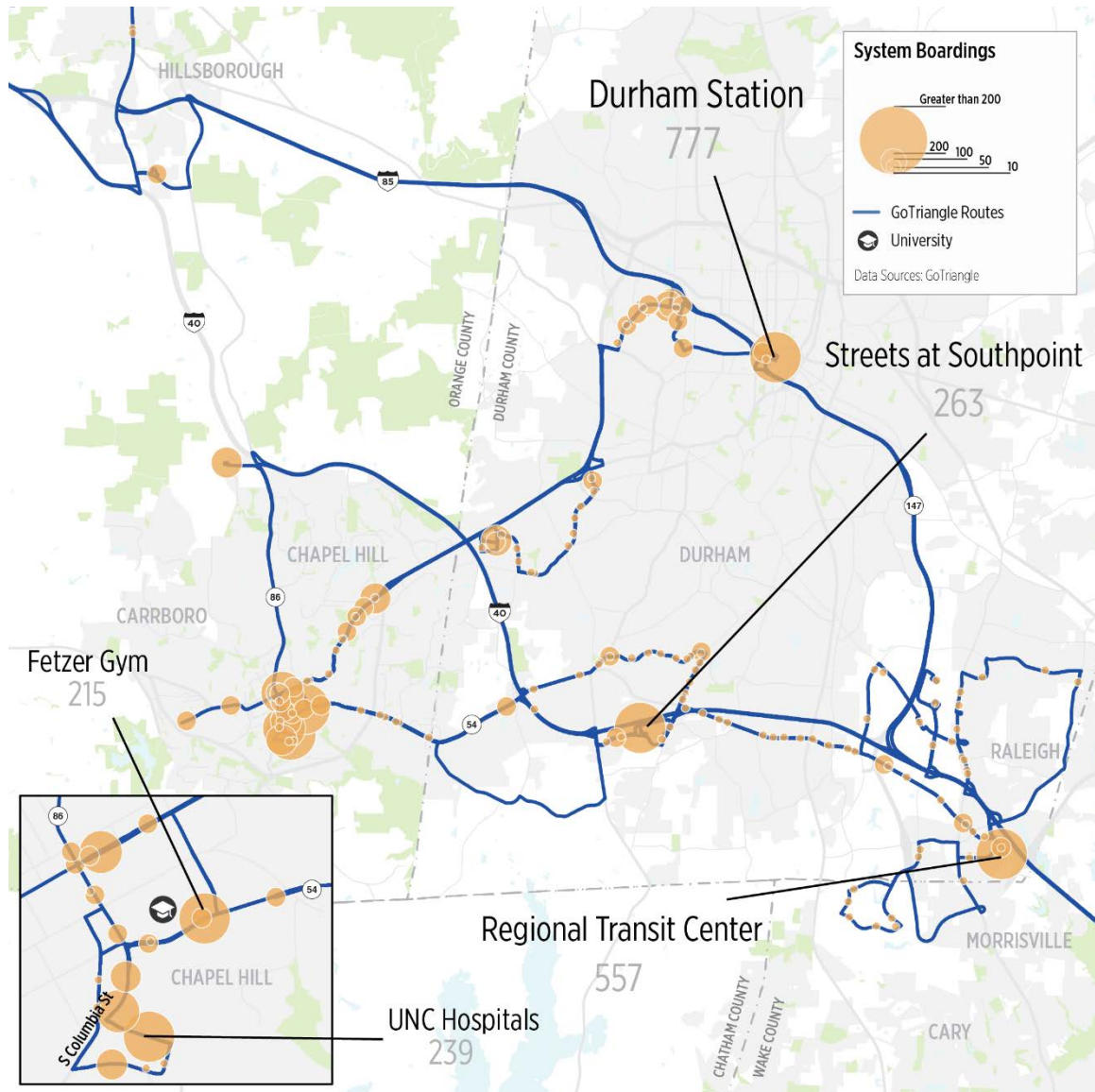
Source: GoTriangle FY2016 Route Summary, APC Data Analysis, April 2017

Figure 3-3 Average Passenger Boardings per Trip by Route



Source: GoTriangle FY2016 Route Summary, APC Data Analysis, April 2017

Figure 3-4 GoTriangle System Ridership, Average Weekday Boardings by Stop

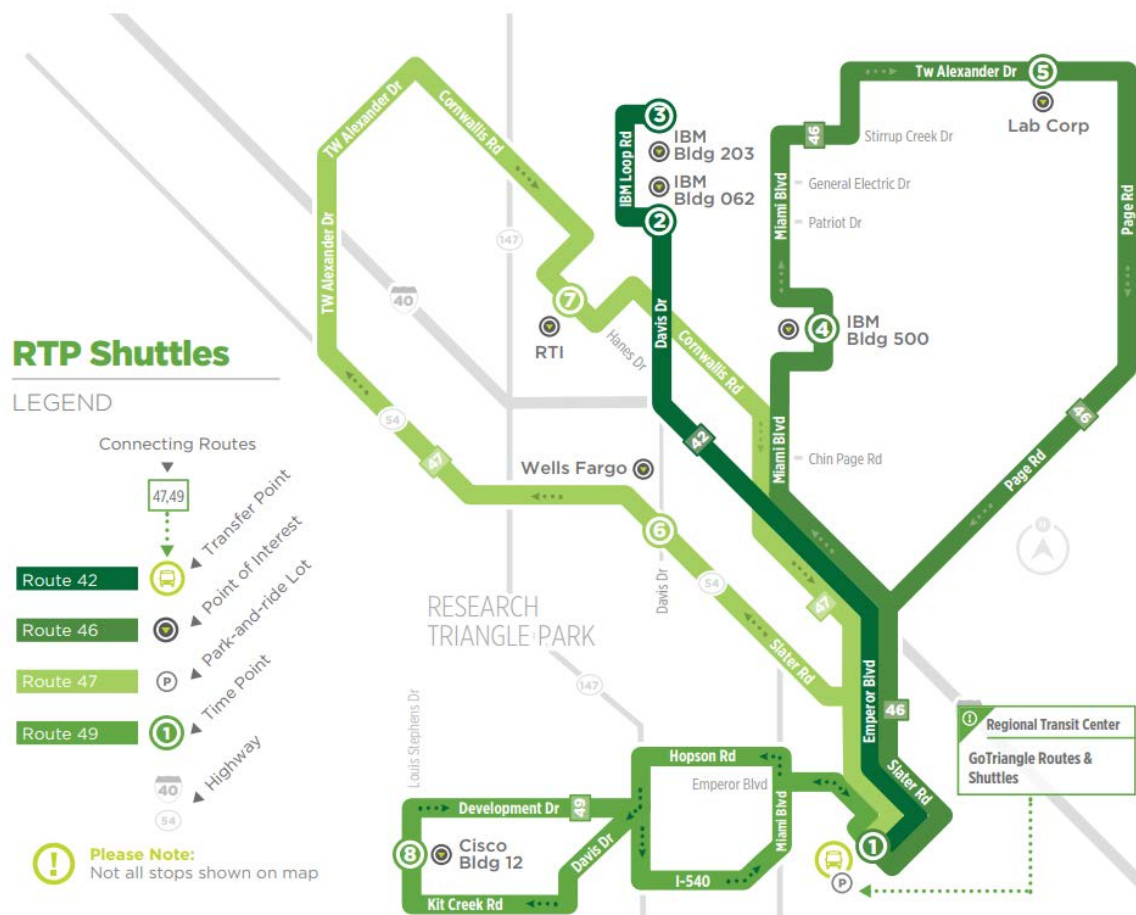


Source: GoTriangle APC Data Analysis, April 2017

ROUTE 42/46/47/49

Routes 42, 46, 47, and 49 were shuttle routes that provided connections between the GoTriangle Regional Transit Center (RTC) and Research Triangle Park (RTP) (Figure 3-5). These routes were discontinued in December 2017 and the resources were reallocated to provide on-demand service in RTP, beginning in January 2018. Route 42 connected to the IBM campus at Building 062 and Building 203 along Emperor Road, I-40, and Davis Drive. Route 46 was a loop connecting to IBM Building 500, the LabCorp medical laboratory, and other employers along Slater Road, Miami Boulevard, TW Alexander Drive, and Page Road. Route 47 was a loop providing connections to RTI International, Wells Fargo, and other employers along Slater Road, TW Alexander Drive, NC 54, and Cornwallis Road. Route 49 was a loop connecting to Cisco, NetApp, and other employers along Hopson Road, Kit Creek Road, Davis Drive, and I-40. These shuttle routes only operated during weekday peak hours.

Figure 3-5 Route Map, Routes 42/46/47/49



Source: GoTriangle

Major Destinations

- IBM (42, 46)
- Lab Corp (46)

- RTI International (47)
- Cisco (48)

Ridership

The RTP shuttle routes had the four lowest weekday ridership in the GoTriangle system with 25 weekday riders on Route 42, 27 weekday riders on Route 46, 44 weekday riders on Route 47, and 62 weekday riders on Route 49. These four shuttle services ran exclusively during peak periods on weekday mornings and evenings.

Route Characteristics – Route 46	
Weekdays	
Start Time	6:30 AM
End Time	6:25 PM
Average Daily Boardings	27
Peak Headway (mins)	30 – 60
Off-Peak Headway (mins)	N/A
Evening Headway (mins)	N/A

Route Characteristics – Route 42	
Weekdays	
Start Time	7:00 AM
End Time	6:25 PM
Average Daily Boardings	25 ¹
Peak Headway (mins) ²	30 – 60
Off-Peak Headway (mins)	N/A
Evening Headway (mins)	N/A

Route Characteristics – Route 47	
Weekdays	
Start Time	7:00 AM
End Time	6:25 PM
Average Daily Boardings	44
Peak Headway (mins)	30 – 60
Off-Peak Headway (mins)	N/A
Evening Headway (mins)	N/A

Route Characteristics – Route 49	
Weekdays	
Start Time	7:00 AM
End Time	6:25 PM
Average Daily Boardings	62
Peak Headway (mins)	30 – 60
Off-Peak Headway (mins)	N/A
Evening Headway (mins)	N/A

The purpose of these shuttle routes was to circulate commuters from the RTC to various office parks in RTP and had low productivity. Route 42 had 3.8 boardings per hour and an average of 2.5 passengers per trip, Route 46 had 8.3 boardings per hour and an average of 1.4 passengers per trip, Route 47 had 8.2 boardings per hour and an average of 2.3 passengers per trip, and Route 49 had 8.9 boardings per hour and an average of 3.3 passengers per trip.

Summary

Routes 42, 46, 47, and 49 were designed to connect the regional routes at the Regional Transit Center with employment destinations in the RTP. All serve low-density suburban office park locations, and most include long, out-of-direction trip patterns to maximize coverage. All four of

¹ Average daily boardings is drawn from the GoTriangle FY2016 Route Summary and represents 'Weekday Riders'.

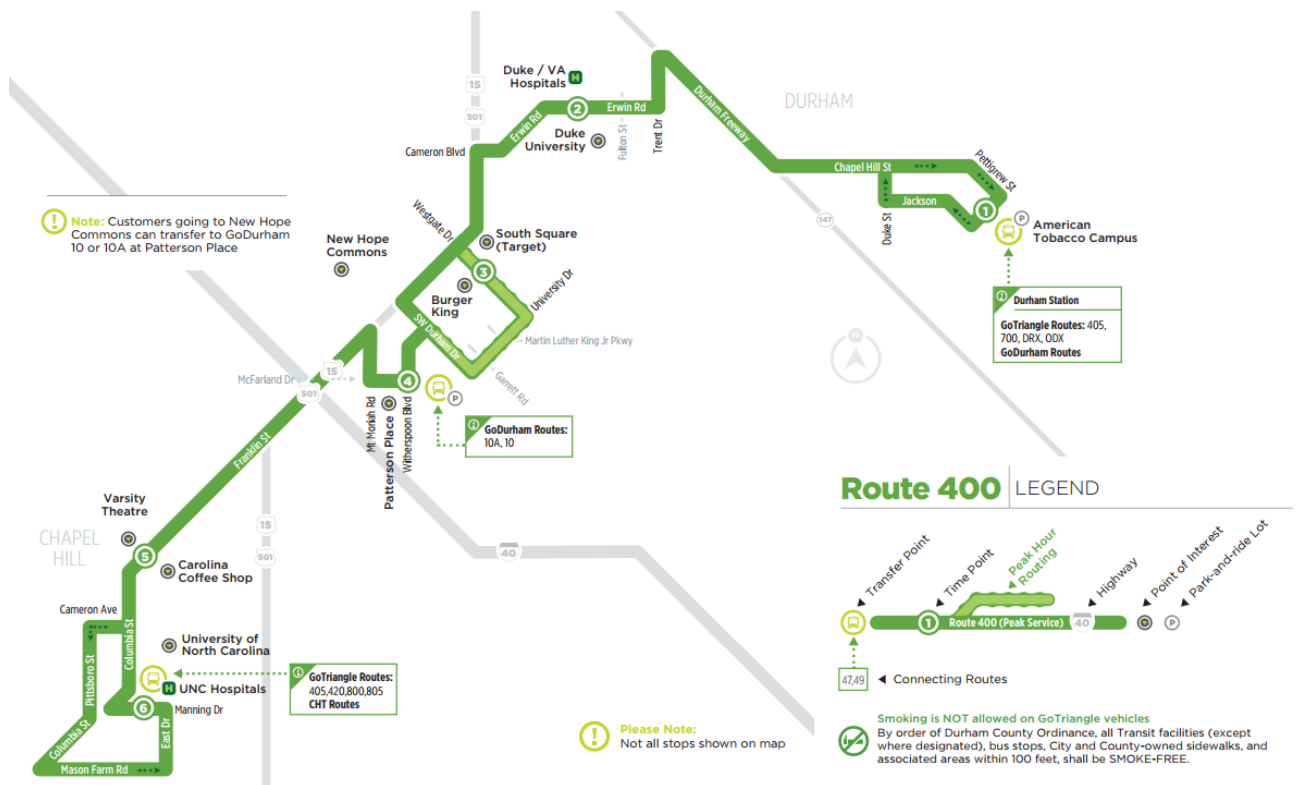
² Peak hours defined as 6:00AM-10:00AM and 3:00PM-7:00PM.

these routes had low ridership and low productivity in terms of both boardings per service hour and maximum passenger load. The ridership levels suggest that this area should not be served by fixed-route transit.

ROUTE 400

Route 400 runs between Durham, Patterson Place, and Chapel Hill traveling along Chapel Hill Street, NC 147, Erwin Road, US 15-501, Franklin Street, and Columbia Street. Route 400 runs a slight variation during peak period trips, diverting east away from US 15-501 and onto SW Durham Drive, University Drive, and Westgate Drive (Figure 3-6). It is a key regional commuter route connecting Durham and Chapel Hill with stops at both Duke University and the University of North Carolina-Chapel Hill.

Figure 3-6 Route Map, Route 400



Source: GoTriangle

Major Destinations

- Durham Station
- Duke/VA Hospitals
- Duke University
- Patterson Place
- University of North Carolina – Chapel Hill
- UNC Hospitals

Ridership

Route 400 has the second highest weekday ridership (801 weekday riders) of the GoTriangle routes, 16.9 boardings per service hour, and an average of 13.8 passengers per trip. This route features typical characteristics for a commuter oriented transit service. Productivity expressed as boardings per service hour is lower for commuter oriented service than for local transit service due to less frequent stops and a larger service area, instead, passengers per trip is a more accurate metric of productivity for commuter and express routes. Route 400's average of 13.8 passengers per trip is fifth highest of the GoTriangle routes. The most productive segment for this route is at the eastern terminus of the route between Durham Station and Duke Hospital (23.5 boardings per hour).

Summary

Route 400 is a typical commuter route with concentrated ridership at the route termini and during peak commute periods. Major commuter destinations include Duke University, UNC-Chapel Hill, and transfer hubs at Patterson Place and Durham Station. This route has the second highest weekday ridership and the fifth highest average passengers per trip, indicating that demand on the route alignment is high, despite low productivity expressed as boardings per service hour.

Route Characteristics	
Weekdays	
Start Time	6:15 AM
End Time	10:55 PM
Average Daily Boardings	801
Peak Headway (mins)	15 – 30
Off-Peak Headway (mins)	30 – 60
Evening Headway (mins)	60
Saturday	
Start Time	7:00 AM
End Time	10:55 PM
Headway (mins)	25 – 60
Sunday	
Start Time	7:00 AM
End Time	6:55 PM
Headway (mins)	55 – 60

ROUTE 405

Route 405 runs on a similar alignment as Route 400, connecting Durham Station, Duke University, and UNC-Chapel Hill, however, Route 405 does not make stops at Westgate or Patterson Place and instead runs an extension on Jones Ferry Road through downtown Carrboro on E Main Street and Jones Ferry Road (Figure 3-7). This extension through downtown Carrboro is served with inbound service during the AM peak period and with outbound service during the PM peak period. Route 400 features all day service while Route 405 provides additional express service during peak periods.

Figure 3-7 Route Map, Route 405



Source: GoTriangle

Major Destinations

- Durham Station
- Duke University
- UNC-Chapel Hill
- Varsity Theatre
- Downtown Carrboro

Ridership

Route 405 has the fifth highest weekday ridership (467 weekday riders) of the GoTriangle routes, 24.6 boardings per service hour, and an average of 16.7 passengers per trip. This service only operates in peak commute periods with 25-30 minute headways. As with Route 400, Route 405 is a commuter oriented service with higher productivity at the route's termini. In this case, the segment between Jones Ferry Road and the UNC Hospitals has 34.9 boardings per service hour and the segment between the Duke Hospital and

Route Characteristics	
Weekdays	
Start Time	5:45 AM
End Time	7:17 PM
Average Daily Boardings	467
Peak Headway (mins)	25-30
Off-Peak Headway (mins)	N/A
Evening Headway (mins)	N/A

Durham Station has 44.0 boardings per service hour. Route 405 has the third highest average passengers per trip at 16.7.

Route 405's ridership on the first trip from Durham Station at 6:00 am carries 28 passengers, which is one of the highest ridership trips. This suggests that an earlier trip may be warranted. Conversely, the first departure from Carrboro in Route 405 at 5:45 am only averages 4 passengers. The need for an express trip at this time may not be warranted.

Summary

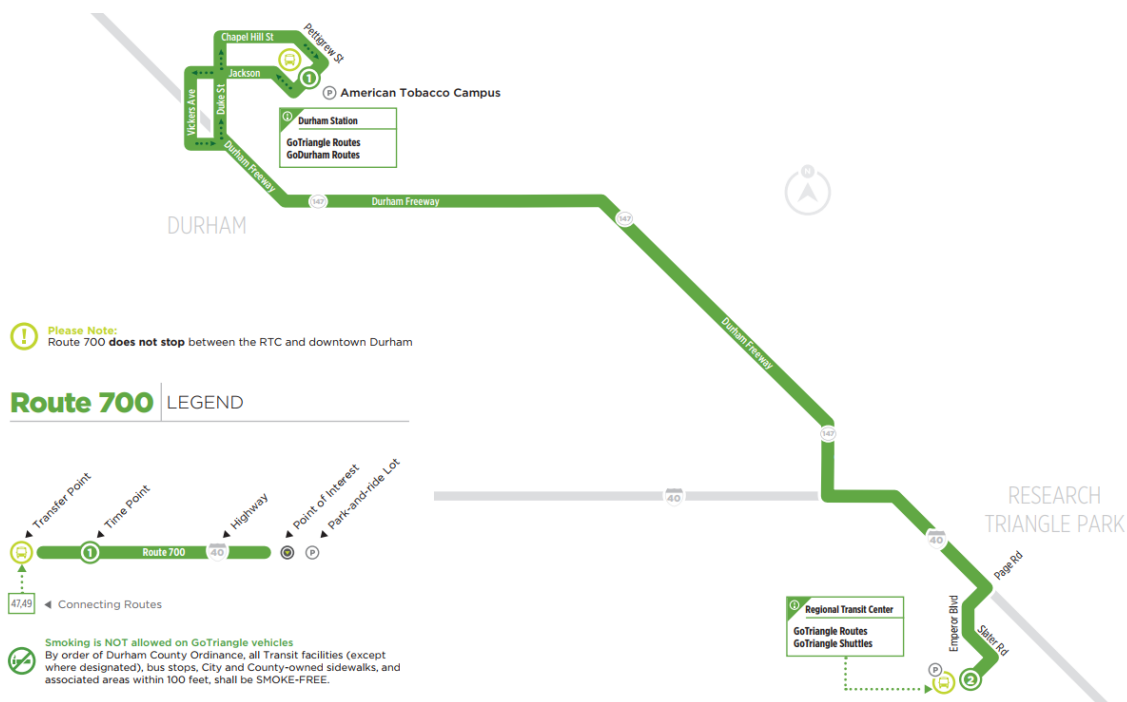
Route 405 is a commuter route that provides complementary service to Route 400, but which operates only during the morning and evening peak period. Route 405 averages more passengers per trip (16.7) than Route 400(13.8). This suggests that passengers are choosing to utilize the faster trip between Durham and Chapel Hill.

Both routes serve the same overall markets, but Route 400 makes stops at Patterson Place, University Boulevard, and South Square. While Route 400 has multiple trips that carry high ridership, many of the trips are marginal in terms of passenger loads. Route 400 also provides local service on a portion of the route, resulting in slower travel times and a less attractive service for commuters.

ROUTE 700

Route 700 is a regional route connecting Durham Station and RTP travelling along NC 147 and I-40. This route makes limited stops in both Durham and RTP, operating as a connection between the two regional transit centers at Durham Station and RTC (Figure 3-8). Route 700 has been on a long-term detour since fall 2016 due to congestion related to construction on and around NC 147. Prior to the long-term detour, the route served NC Central University and Durham Tech.

Figure 3-8 Route Map, Route 700



Source: GoTriangle

Major Destinations

- Durham Station
- Regional Transit Center

Ridership

Route 700 has the third highest weekday ridership (561 weekday riders) of the GoTriangle routes, 26.7 boardings per service hour, and a moderate average passengers per trip of 11.9. Peak headways are scheduled every 25 to 35 minutes while evening headways are scheduled every 60 minutes.

Route 700 is a regional route covering a large service area with only a few stops at either end, this generally results in a lower productivity rate than typical local transit service. The ridership pattern suggests that most passengers transfer to GoTriangle and GoDurham routes at Durham Station and Regional Transit Center.

Summary

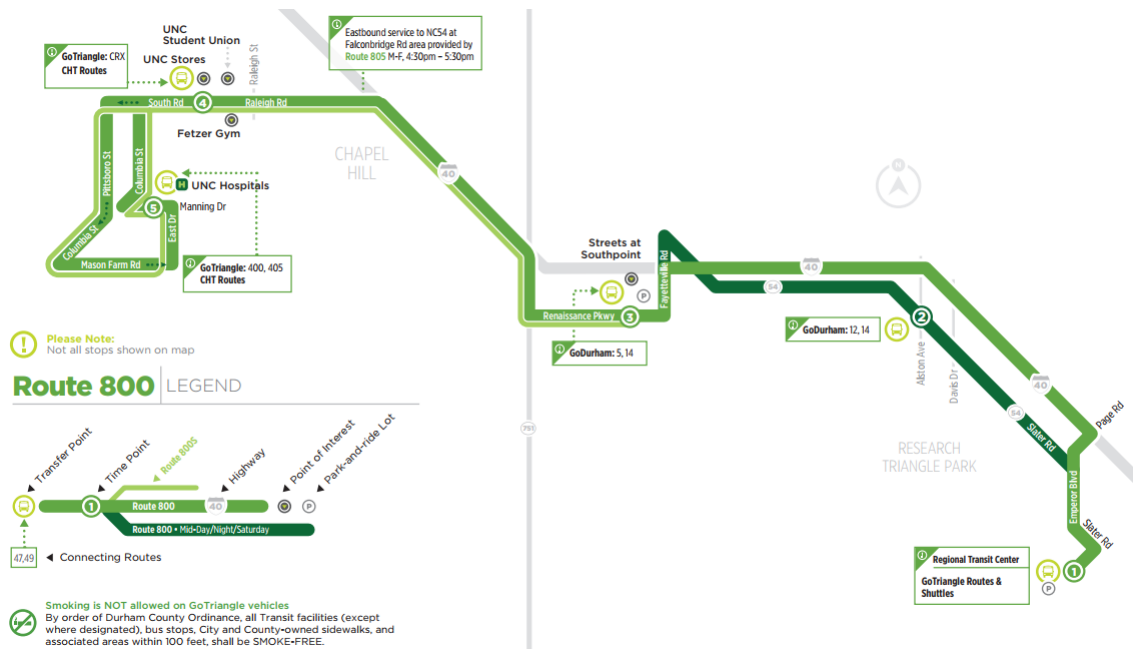
Route 700 is a regional service connecting Durham with RTP via Durham Station and RTC. This route has a moderately high ridership and a moderate level of average passengers per trip. This relatively high ridership and moderate average passengers per trip make Route 700 a generally well performing route in this portion of the GoTriangle service area.

Route Characteristics	
Weekdays	
Start Time	6:00 AM
End Time	10:55 PM
Average Daily Boardings	561
Peak Headway (mins)	25 – 35
Off-Peak Headway (mins)	30 – 60
Evening Headway (mins)	60
Saturday	
Start Time	7:05 AM
End Time	10:55 PM
Headway (mins)	30 – 60
Sunday	
Start Time	7:05 AM
End Time	6:55 PM
Headway (mins)	60

ROUTE 800/800S

Route 800 is a regional transit route connecting RTP and Chapel Hill along I-40, NC 54, and Raleigh Road. Route 800 utilizes I-40 during peak periods and NC 54 during mid-day, night, and Saturday service. Route 800S operates on the same alignment as the western portion of Route 800, between UNC-Chapel Hill, the UNC Hospitals, and the Streets at Southpoint near Renaissance Parkway and Fayetteville Road (Figure 3-9). This route operates with 30-minute headways in the peak period and 30-60 minute headways at nights and on weekends. Combined service in the peak direction between UNC-Chapel Hill and Southpoint is approximately every 15 minutes.

Figure 3-9 Route Map, Route 800/800S



Source: GoTriangle

Major Destinations

- Regional Transit Center
- Streets at Southpoint
- UNC Student Union
- UNC Hospitals

Ridership

Route 800 has the highest ridership (914 weekday riders) of Orange and Durham County GoTriangle routes, with 21.1 boardings per service hour and 13.6 passengers per trip. Productivity is highest in the segment between the UNC Hospitals and South Road at Fetzer Gym (31.8 boardings per service hour) and lowest in the segment between NC 54 at S Alston Avenue and the Regional Transit Center (23.7 boardings per service hour).

Transfers are available for numerous GoTriangle routes at the RTC, GoDurham Routes 12 and 14 at NC 54 at Alston Avenue, GoDurham Routes 5 and 14 at the Streets at Southpoint, GoTriangle Route CRX and numerous CHT routes at UNC Stores, and GoTriangle Routes 400, 405, and 420 at UNC Hospitals.

Route 800/800S primarily serve commuters travelling to Chapel Hill from RTP and Southpoint. Boardings and alightings indicate that nearly all inbound alightings and outbound boardings occur at the RTC in RTP and at the Streets at Southpoint park-and-ride stop. Boardings and alightings on NC 54 between Southpoint and RTP are very low, in an area where service is duplicated by GoDurham Route 14.

Route Characteristics	
Weekdays	
Start Time	6:00 AM
End Time	11:10 PM
Average Daily Boardings	914
Peak Headway (mins)	30
Off-Peak Headway (mins)	30 – 60
Evening Headway (mins)	60
Saturday	
Start Time	6:45 AM
End Time	11:20 PM
Headway (mins)	30 – 60
Sunday	
Start Time	6:45 AM
End Time	7:20 PM
Headway (mins)	60

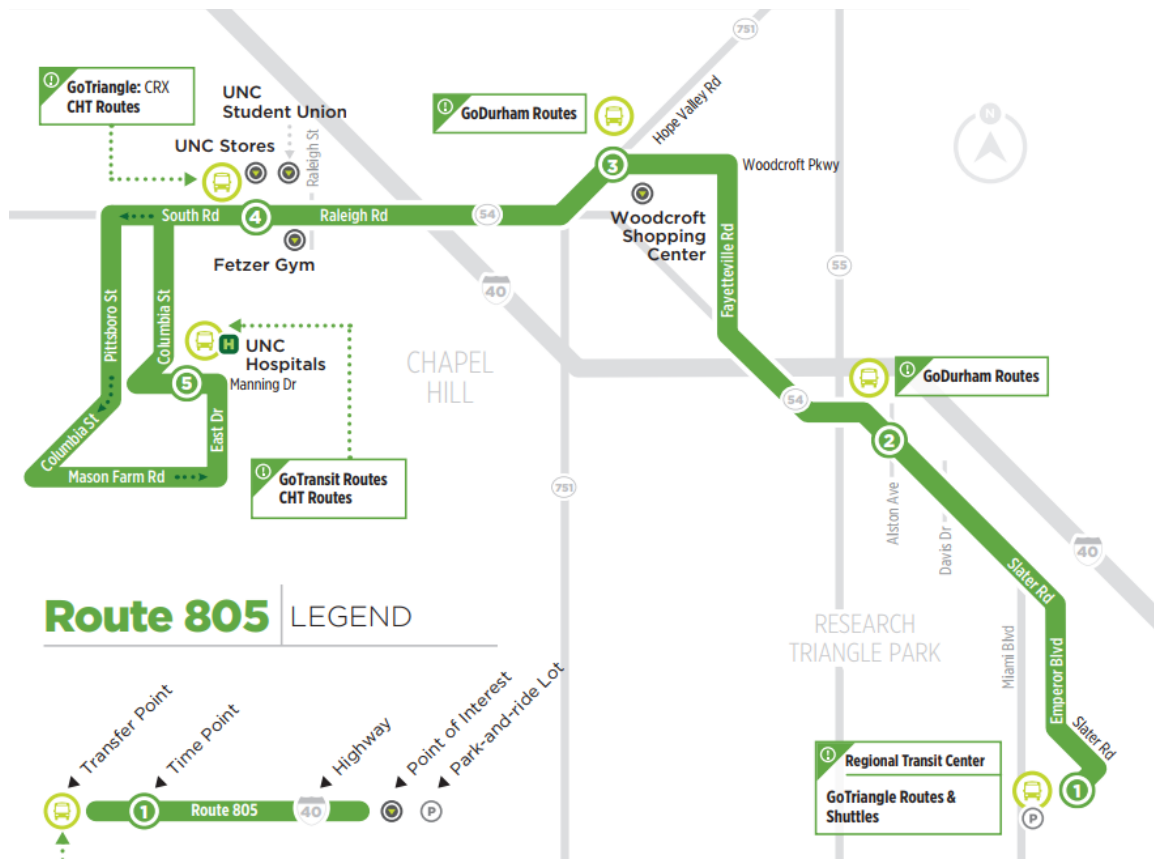
Summary

Route 800 is GoTriangle's most heavily utilized route in Durham and Orange County. This service has the highest ridership in Chapel Hill in the surrounding UNC-Chapel Hill campus area. Ridership throughout the rest of the corridor connecting to Research Triangle Park is lower.

ROUTE 805

Route 805 provides a connection between Research Triangle Park at the Regional Transit Center and Chapel Hill at the UNC Stores, UNC Student Union, and the UNC Hospitals. This route is similar to Route 800/800S except that it travels along NC 54 and Woodcroft Parkway through the Woodcroft Shopping Center instead of along I-40. It does not serve Southpoint.

Figure 3-10 Route Map, Route 805



Source: GoTriangle

Major Destinations

- Regional Transit Center
- Woodcroft Shopping Center
- UNC Student Union
- UNC Hospitals

Ridership

Route 805 has the fourth highest weekday ridership (473 weekday riders), 17.2 boardings per service hour, and the second highest average passengers per trip (17.5 passenger). This route operates with 20-30 minute headways during peak commute periods in the morning and afternoon. The segment between Manning Drive at UNC Hospitals and South Road at Fetzer Gym has 20.6 boardings per hour and the segment between NC 54 at S Alston Avenue and the Regional Transit Center is 22.0 boardings per hour.

Route Characteristics	
Weekdays	
Start Time	6:00 AM
End Time	7:24 PM
Average Daily Boardings	473
Peak Headway (mins)	30
Off-Peak Headway (mins)	N/A
Evening Headway (mins)	N/A

Summary

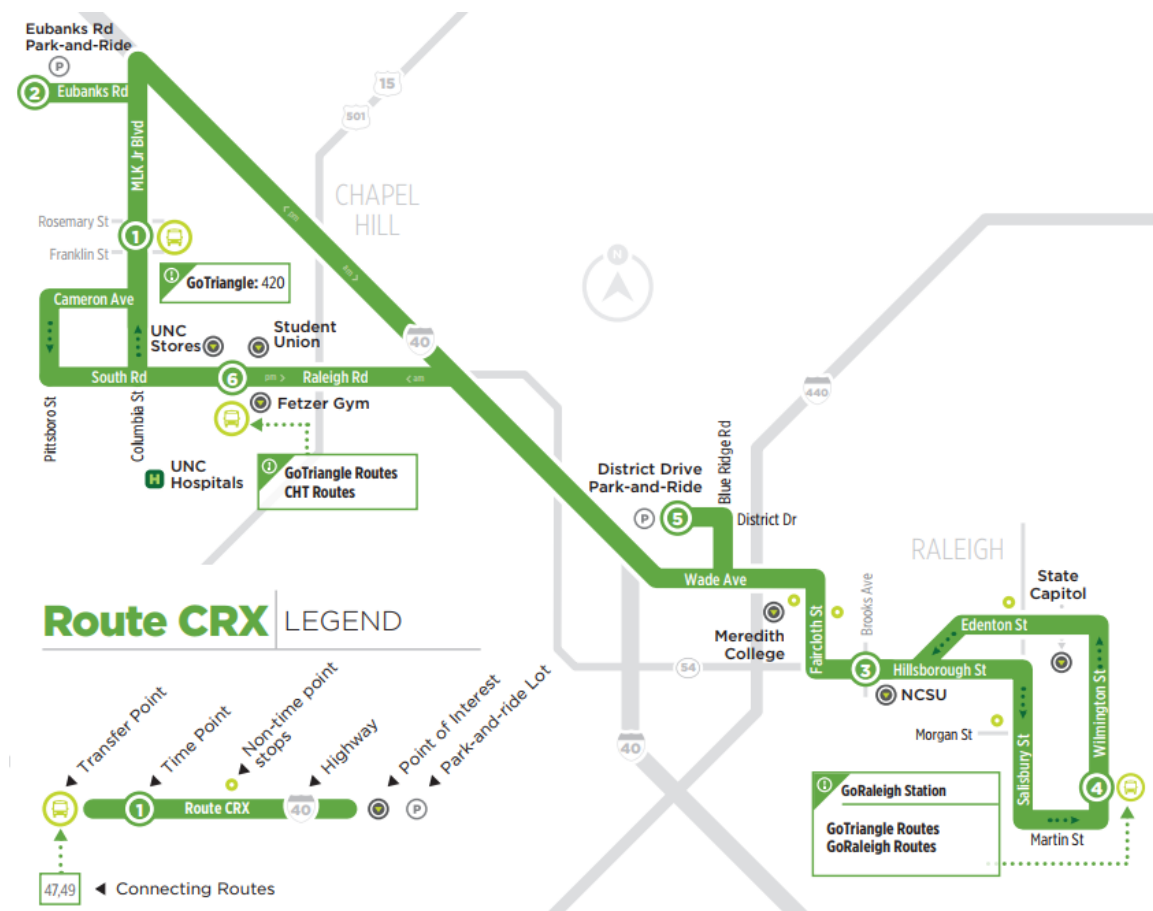
Route 805 is a generally well-performing route with relatively high ridership and average passengers per trip for a regional commuter route. Route 805 is not an express trip between the RTP and Chapel Hill, but instead provides service to the Woodcroft neighborhood. Ridership in the unique segments of Route 805 are low, but reasonable considering this is a peak-only route.

ROUTE CRX

Route CRX is a regional express route that connects Chapel Hill with downtown Raleigh during weekday peak hours, with stops at the Eubanks Road park-and-ride, the UNC Student Union, District Drive park-and-ride, Meredith College, North Carolina State University (NCU), and the North Carolina State Capitol (Figure 3-11).

Route CRX features a directional loop through downtown Chapel Hill to the Eubanks park-and-ride in the morning peak period before traveling east towards Raleigh and in the evening peak period after traveling west from Raleigh.

Figure 3-11 Route Map, Route CRX



Source: GoTriangle

Major Destinations

- UNC
- NCSU
- Downtown Raleigh

Ridership

Route CRX has relatively high weekday ridership (409 weekday riders) and passengers per trip (16.4 passengers) with 15.5 boardings per service hour. This is characteristic of a regional commuter route which only operates during peak commute periods. More people are boarding CRX in downtown Chapel Hill and on UNC-Chapel Hill's campus than at the Eubanks Road Park-and-Ride.

Summary

Route CRX is one of the three express commuter routes present in this portion of the GoTriangle system. It is a relatively well performing route with 409 weekday passengers and an average of 16.4 passengers per trip while only operating during morning and evening peak periods. Ridership for the route is directional making stops at the Eubanks park-and-ride during the morning peak period for outbound trips and the evening peak period for inbound trips.

Route Characteristics	
Weekdays	
Start Time	5:55 AM
End Time	7:40 PM
Average Daily Boardings	409
Peak Headway (mins)	20 – 30
Off-Peak Headway (mins)	N/A
Evening Headway (mins)	N/A

ROUTE DRX

Route DRX is an express commuter route providing connections between Durham, NCSU, and downtown Raleigh. With stops at the VA Medical Center, Duke University, and Durham Station in Durham as well as Carter-Finley Stadium, Meredith College, NCSU, and the North Carolina State Capitol in Raleigh. The route primarily travels along NC 147 and I-40, making loops on local streets in Durham and Raleigh (Figure 3-12).

Figure 3-12 Route Map, Route DRX



Source: GoTriangle

Major Destinations

- Duke/VA Hospitals
- Downtown Durham
- NCSU
- Downtown Raleigh

Ridership

Route DRX has relatively high weekday ridership at 438 weekday riders, 19.3 boardings per service hour, and an average of 18.3 passengers per trip. This route has only the sixth highest weekday ridership, but the highest average passengers per trip of the GoTriangle routes. The lower ridership numbers are likely a result of the service only operating during peak commute periods. The high average passengers per trip indicate that the route is performing well as a commuter route.

Route Characteristics	
Weekdays	
Start Time	5:55 AM
End Time	7:30 PM
Average Daily Boardings	438
Peak Headway (mins)	30 – 45
Off-Peak Headway (mins)	N/A
Evening Headway (mins)	N/A

Route DRX provides connections to park-and-ride lots at American Tobacco Campus and Carter-Finley Stadium, as well as transfer opportunities to GoRaleigh, GoDurham, and other GoTriangle Routes.

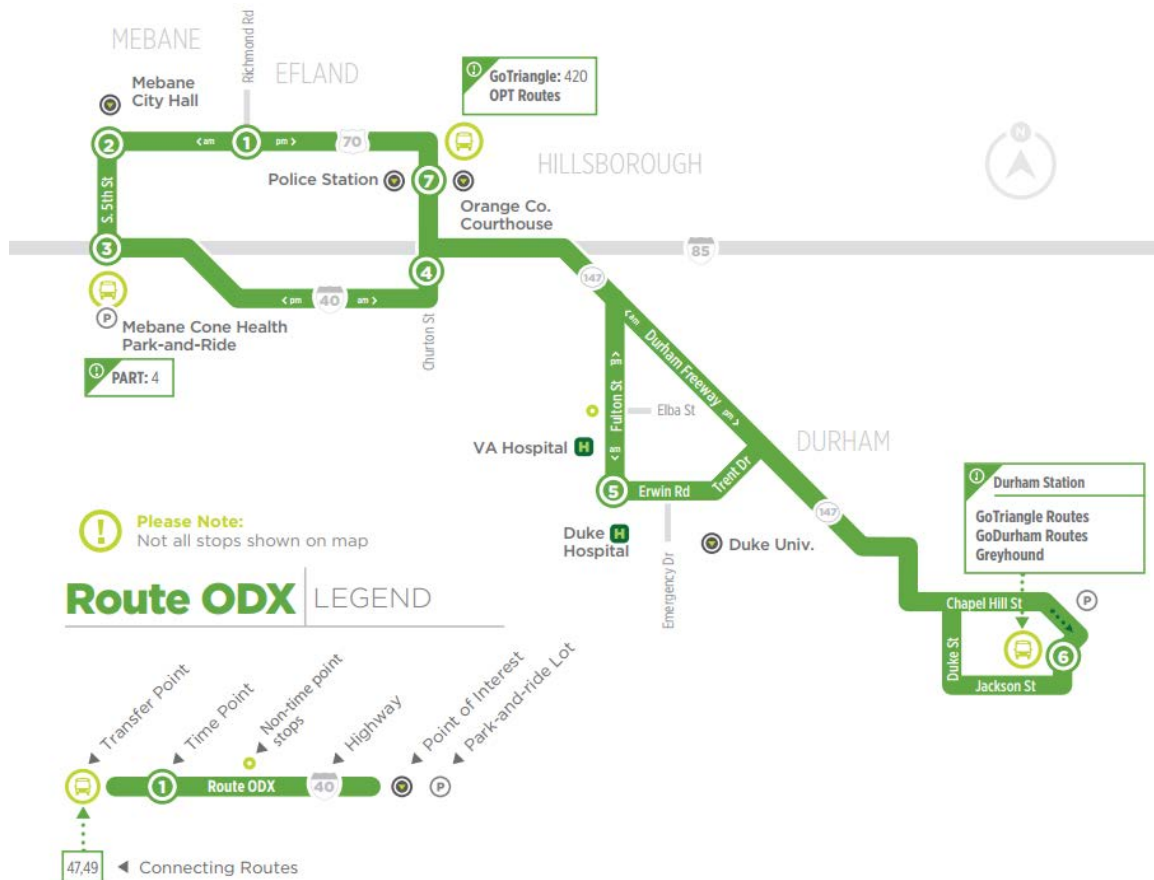
Summary

Route DRX provides an express route providing commuter service between Durham and Raleigh, with travel times that can compete with driving. Of the three express routes in this portion of GoTriangle's system, DRX has the highest weekday ridership and average passengers per trip.

ROUTE ODX

Route ODX is an express route connecting Mebane and Hillsborough to Durham traveling along US 70, I-40, and NC 147. This route provides access to Mebane City Hall, Durham Tech Orange County Campus in Hillsborough, Duke University, Duke/VA Hospitals, and Durham Station. ODX operates three trips from Mebane to Durham in the morning and three trips from Durham to Mebane in the afternoon. The route also provides two reverse commute trips from Durham to downtown Hillsborough, Efland, and Mebane in the morning and three reverse commute trips from Mebane to Efland, downtown Hillsborough, and Durham in the evening.

Figure 3-13 Route Map, Route ODX



Source: GoTriangle

Major Destinations

- Mebane City Hall
- Orange County Courthouse
- VA Hospital
- Duke Hospital
- Duke University
- Durham Station

Ridership

Route ODX serves a lower density area of Orange County than the other two express routes in this portion of GoTriangle's service area, and subsequently, has the lowest ridership (82 weekday riders) and average passengers per trip (7.5 passengers) of the three. Ridership is heavily peak oriented, with virtually all passengers riding to Durham in the morning and from Durham in the afternoon. One of the morning trips carries 25 passengers, which is good considering that only three trips are operated.

Route ODX's alignment is confusing and can cause out of direction travel. There is very little ridership on the Efland segment, with multiple trips not having any riders.

Summary

Route ODX has low ridership and average passengers per trip figures even for a commuter service. Service levels are low, the route is circuitous and hard to understand, and there is limited ability for anyone to return to their parked vehicles during off-peak times. Despite these characteristics, service is being utilized. The ridership pattern suggests that additional service and more frequency could lead to a corresponding increase in ridership.

4 Public Involvement

This chapter provides an overview of the key themes and takeaways from two phases of outreach related to the GoTriangle Short-Range Transit Plan Process. Phase I outreach was primarily targeted at gauging perceptions of the existing transit network and priorities for service improvements. This phase was used to develop potential service improvements which were further evaluated during Phase II outreach.

Phase II outreach was targeted at addressing how the public perceived proposed changes to the transit system. This type of outreach can be used to assess what trade-offs passengers are willing to make for certain improvements, including service frequency, service span, weekend service, and providing service to new areas.

PHASE I OUTREACH

During Phase I outreach, staff conducted 20 public meetings throughout the region (Figure 4-1). In Durham and Orange Counties, outreach was conducted in concert with planning efforts for GoDurham, Chapel Hill Transit, and Orange County Public Transportation (OPT). In Wake County, outreach was conducted as part of the Wake Transit Bus Plan process and included GoRaleigh and GoCary services.

Figure 4-1 Phase I Public Meetings

Date	Place	Address	County
9/25/2017	Carrboro Town Hall	301 W Main St, Carrboro	Orange
9/27/2017	Durham Station	515 W Pettigrew St, Durham	Durham
9/28/2017	UNC Hospitals	101 Manning Dr, Chapel Hill	Orange
9/28/2017	UNC Chapel Hill campus	209 South Rd, Chapel Hill	Orange
9/29/2017	Extraordinary Ventures	200 S Elliot Rd, Chapel Hill	Orange
10/25/2017	John Chavis Community Center	505 Martin Luther King Jr Blvd, Raleigh	Wake
10/26/2017	Carolina Pines Community Center	2305 Lake Wheeler Rd, Raleigh	Wake
10/30/2017	Tarboro Road Community Center	121 N Tarboro St, Raleigh	Wake
11/1/2017	Wake County Northern Regional Center	350 E Holding Ave, Wake Forest	Wake
11/2/2017	Laurel Hills Community Center	3808 Edwards Mill Rd, Raleigh	Wake
11/6/2017	Wake County Eastern Regional Center	1002 Dogwood Dr, Zebulon	Wake
11/8/2017	Wake County Southern Regional Center	130 N Judd Pkwy NE, Fuquay-Varina	Wake
11/9/2017	Green Road Community Center	4201 Green Rd, Raleigh	Wake

Date	Place	Address	County
11/13/2017	Efland-Cheeks Community Center	117 Richmond Rd, Efland	Orange
11/14/2017	Cary Senior Center	120 Maury O'Dell Pl, Cary	Wake
11/14/2017	Orange County West Campus	131 Margaret Ln, Hillsborough	Orange
11/16/2017	Raleigh Convention Center	500 S Salisbury St, Raleigh	Wake
11/16/2017	Cary Arts Center	101 Dry Ave, Cary	Wake
11/16/2017	McKimmon Center	1101 Gorman St, Raleigh	Wake
11/21/2017	Cedar Grove Community Center	5800 NC-86N, Hillsborough	Orange

Durham County and Orange County Phase I Outreach

The Durham and Orange County outreach efforts were accompanied by two online surveys:

- The GoDurham Short Range Transit Plan Survey, which was open for public comment from September 22, 2017 to October 20, 2017
- The GoTriangle-Orange County Public Transportation (OPT) Transit System Survey, which was open for public comment from late September through the end of November 2017

Nearly 500 respondents to the GoDurham survey and nearly 415 respondents to the GoTriangle-OPT survey identified as GoTriangle riders. Results are isolated to only those respondents who identified as GoTriangle riders. While there is some overlap between the two surveys, the GoDurham survey focused more heavily on GoTriangle services in Durham County and the GoTriangle-OPT survey focused more heavily on services in Orange County. Full survey analysis and results are provided in Appendix E.

Key Findings

- The primary reasons respondents do not regularly take transit is because the routes aren't convenient or they take too long.
- The college age and retired populations are more likely to take transit out of necessity, while the professional and young professional populations take transit for financial reasons or for personal preferences.
- The highest priorities for improvements are improved weekday frequency, later night service, and reduced travel times.

Wake County Phase I Outreach

Phase I outreach in Wake County was conducted in Fall 2017 and focused on prioritization of general types of service improvements funded by the Wake County Transit Plan, which includes services operated by GoRaleigh and GoCary in addition to GoTriangle. More than 2,000 people completed the Phase I Wake County survey, which was available online and in print form at the 12 public meetings in Wake County (Figure 4-1). Most survey respondents reported that they did not use transit at the time of the survey.

Key Findings

- A majority of respondents think transit should be added first to places with the most transit-supportive characteristics (density of people and activities) or to towns that currently have limited service rather than adding transit to places that do not currently have service.
- Respondents preferred more weekday commute service over midday and evening service, more early/late weekday service over more weekend service, and bus stops spaced farther apart to enhance speed and directness over adding more bus stops for increased access to transit service.
- Respondents' highest priorities for transit capital improvements include those that improve the safety and ease of walking and cycling to bus stops and those that increase the speed and efficiency of transit service.

PHASE II OUTREACH

Phase II outreach included events in spring and late summer/fall of 2018 and focused on collecting input on the phasing of service improvements and proposals for service revisions.

Spring 2018 Outreach

The spring outreach period focused on gathering feedback about the phasing of transit improvements in Wake County.¹ Participants were asked to weigh in on how the transit agencies and County proposed to add new services and service enhancements over time. This phase of outreach was conducted through four public meetings and multiple community and pop-up events, as well as an on-line and paper survey. Figure 4-2 lists public meetings held during the Spring 2018 Phase II outreach period.

Figure 4-2 Phase II Spring Public Meetings

Date	Place	Address	County
4/30/2018	Garner Town Hall	900 Seventh Ave, Garner	Wake
5/3/2018	GoRaleigh Operations Center	4104 Poole Rd, Raleigh	Wake
5/14/2018	WakeMed Andrews Conference Room	3000 New Bern Ave, Raleigh	Wake
5/15/2018	Cary Arts Center	101 Dry Ave, Cary	Wake

Key Findings

- More than 70% of survey respondents agree or strongly agree with how the Wake Bus Plan adds regional service over the 10-year plan horizon.
- Top comments for regional service included requests for additional service on express routes including Fuquay-Varina Raleigh (FRX), Durham-Raleigh (DRX), Chapel Hill-Raleigh (CRX); support for additional service to Apex, and requests for connections to RTP and RDU from north Raleigh.

¹ Durham and Orange County outreach for Phase II was held in the summer/fall

Summer/Fall 2018 Outreach

The summer/fall outreach period brought specific GoTriangle route proposals to the public for review and comment and included outreach efforts in all three counties. In Orange County, outreach was conducted together with OPT and Chapel Hill Transit Short-Range Transit Plan outreach efforts, and in Wake County, a coordinated outreach effort included review of service proposals for GoRaleigh, GoCary, and GoTriangle. Staff conducted fourteen public meetings during the summer/fall Phase II outreach period (Figure 4-3).

Figure 4-3 Phase II Summer/Fall Public Meetings

Date	Place	Address	County
8/21/2018	Laurel Hills Community Center	3808 Edwards Mill Rd, Raleigh	Wake
8/28/2018	Tarboro Road Community Center	121 N Tarboro St, Raleigh	Wake
8/29/2018	Cary Arts Center	101 Dry Ave, Cary	Wake
8/30/2018	Regional Transit Center	901 Slater Rd, Durham	Durham
9/4/2018	GoRaleigh Operations Center	4101 Poole Rd, Raleigh	Wake
9/10/2018	Carrboro Town Hall	301 West Main St, Carrboro	Orange
9/11/2018	Chapel Hill-Carrboro Chamber	104 South Estes Dr, Chapel Hill	Orange
9/17/2018	Durham South Regional Library	4505 S. Alston Ave, Durham	Durham
9/18/2018	Cedar Grove Community Center	5800 NC-86N, Hillsborough	Orange
9/19/2018	Efland-Cheeks Community Center	117 Richmond Rd, Efland	Orange
9/20/2018	Durham Station	515 W Pettigrew St, Durham	Durham
9/20/2018	Orange County West Campus	131 W Margaret Ln, Hillsborough	Orange
9/24/2018	Carrboro Town Hall	301 West Main St, Carrboro	Orange
9/25/2018	Chapel Hill Town Hall	405 Martin Luther King, Jr Blvd, Chapel Hill	Orange

An online and paper survey associated with fall 2018 outreach efforts conducted in Wake, Durham, and Orange Counties resulted in more than 300 comments on GoTriangle Short-Range Transit Plan recommendations. Comments ranged from general support for the plan and suggestions for how to improve service to route-specific comments and questions.

Key Findings

Most route-level proposals received comments both in support of and in opposition to the proposed change. Six route proposals were the subject of the majority of comments. The proposals, along with key reasons for supporting or opposing each, are shown in Figure 4-4. The number of comments received in support of or opposition to the proposal is also included, but it should be noted that survey comments were anonymous and not from a scientific sample. It is also important to note that the Route 400 and 405 changes are interdependent and would be implemented together, so their feedback should be considered together.

In response to public feedback, the original proposal to shift Route 105 service to midday was withdrawn.

Figure 4-4 Reasons for Support of/Opposition to Key Route Proposals

Route & Proposal	Comments in Support		Comments in Opposition	
	No.	Reasons	No.	Reasons
105 Shift peak hour service to midday	2	<ul style="list-style-type: none"> Faster trip between Raleigh and Durham/Chapel Hill in the middle of the day 	9	<ul style="list-style-type: none"> Slower/less attractive to use alternative (GoTriangle Route 100)
400 Use 15-501 at all times; discontinue SW Durham Dr and University Dr service	18	<ul style="list-style-type: none"> Faster trip and more frequent when combined with Route 405 changes, especially from Patterson Place Consistent service at all times of day, days of week. 	31	<ul style="list-style-type: none"> Slower/less attractive to use alternative options (GoDurham service) and transfer
405 Add stop at Patterson Place	15	<ul style="list-style-type: none"> More frequent service when combined with Route 400 changes 	11	<ul style="list-style-type: none"> Slower trip due to stop at Patterson Place
420 Use Churton St and I-40 instead of US-70 and Old NC-86	9	<ul style="list-style-type: none"> Faster, more reliable trip 	16	<ul style="list-style-type: none"> Customers use parking in Home Depot Shopping Center (an unrecognized park-and-ride); alternate parking (Durham Tech OCC) is full and/or too far away
800 Use I-40 at all times; discontinue NC-54 service	7	<ul style="list-style-type: none"> Faster, more reliable trip Consistent service at all times of day, days of week 	14	<ul style="list-style-type: none"> Slower/less attractive to use alternative options (GoTriangle Route 805, GoDurham service, RTP on-demand shuttles)
ODX Remove reverse-peak trips, increase frequency	5	<ul style="list-style-type: none"> Faster, more reliable trip More frequent service increases convenience 	1	<ul style="list-style-type: none"> Prefer later service after 7:00 p.m.

5 Recommendations

This section includes recommendations for changes to GoTriangle routes in the short-term (FY20-24) and additional changes through FY27. It includes an implementation plan and discusses unfunded improvements that are recommended to improve the overall connectivity and consistency of the GoTriangle regional bus network. Recommendations are based on the evaluation of existing route performance and characteristics, travel market analysis, and public feedback, and aim to achieve GoTriangle's goals of making service faster and more competitive, providing more frequent service, and providing more all-day service.

This section also includes a summary of the capital improvements associated with fiscally constrained service expansion in the 2027 time horizon.

SHORT-RANGE SERVICE RECOMMENDATIONS

Figure 5-1 lists each GoTriangle route and associated recommendations over the next five years (FY20-FY24). Each fixed-route recommendation is accompanied by a project sheet following this summary. Project sheets are organized by year of implementation and contain a full description of the recommendation, with additional details including associated service and capital investments and a route map. Routing changes are detailed with turn-by-turn instructions provided in Appendix F. Routes with no recommended changes do not have a project sheet.

Figure 5-1 Summary of Short-Range Recommendations

Route	Recommendation	Start Year
100 Raleigh-Airport-RTC	Add later night service and 30-minute service on Sundays.	FY22
102 Raleigh-Gamer	Transfer service to GoRaleigh and expand to provide all day service (see GoRaleigh Routes 20, 20L – Appendix G).	FY20
105 Raleigh-RTC	Realign route in west Raleigh to use Blue Ridge Rd instead of Faircloth Ave to travel between Wade Ave and Hillsborough St.	FY20
201 North Raleigh-RTC	Realign route to provide express service from Triangle Town Center to the RTC via I-540. Remove one AM and one PM trip (see Route NRX).	FY20
300 Cary-Raleigh	No change to pattern between Raleigh and Cary. New Route 310 will replace the section of this route between Cary and the RTC.	FY20
301 Cary-Raleigh	Eliminated once new services provided by GoRaleigh and GoCary are implemented (see GoRaleigh Route 9, GoCary Route 9B).	FY21
305 Apex-Raleigh	Add all day weekday service between Apex and Raleigh, with 30-minute service at peak and hourly service during the middle of the day, evenings and on weekends.	FY21

Route	Recommendation	Start Year
310 RTC-Cary	Replace Route 300 between Cary and the RTC with all-day service, 30 minutes at peak and hourly during the middle of the day. Service along NC-54 and McCrimmon Pkwy instead of I-40 with stops in Morrisville and at the Wake Tech RTP Campus.	FY20
311 Apex-RTC	Reduce frequency from 30 minutes at peak to hourly at peak, and realign service to use Kit Creek Drive and Davis Drive in RTP.	FY20
400 Durham-Chapel Hill	Eliminate peak period deviation to SW Durham Drive and University PI to create direct, consistent service all day.	FY20
405 Durham-Chapel Hill-Carrboro	Add stop at Patterson Place.	FY20
420 Hillsborough-Chapel Hill	Realign service from Old NC-86 and US-70 to Churton St and I-40.	FY20
700 Durham-RTC	Realign service permanently to use NC-147 between downtown Durham and the RTC.	FY20
800/800S Chapel Hill-Southpoint-RTC	Eliminate off-peak deviation to NC-54 to provide consistent service using I-40 between Southpoint and the RTC at all times.	FY20
805 Chapel Hill-Woodcroft-RTC	Remove underutilized reverse-peak trips (eastbound AM and westbound PM).	FY20
CRX Chapel Hill-Raleigh Express	No changes.	
DRX Durham-Raleigh Express	No changes.	
FRX Fuquay-Varina-Raleigh Express	No changes.	
KRX Knightdale-Raleigh Express	Service will be transferred to GoRaleigh and will be converted to all-day service between Knightdale and WakeMed that provides connections with GoRaleigh Route 15 on weekdays (see GoRaleigh Route 33 – Appendix G).	FY20
ODX Orange-Durham Express	Increase frequency from hourly to 30 minutes at peak. Realign service to use I-85 and I-40 instead of US-70, removing stops currently served as part of reverse-peak trips.	FY21
NRX North Raleigh Express	Replace Route 201 with new express route between Triangle Town Center and the RTC via I-540.	FY20
WRX Wake Forest-Raleigh Express	No changes.	
ZWX Zebulon-Wendell-Raleigh Express	No changes.	
North Durham/Rougemon t Vanpool Services	Vanpool services to serve northern Durham County.	FY20



105 Raleigh-RTC

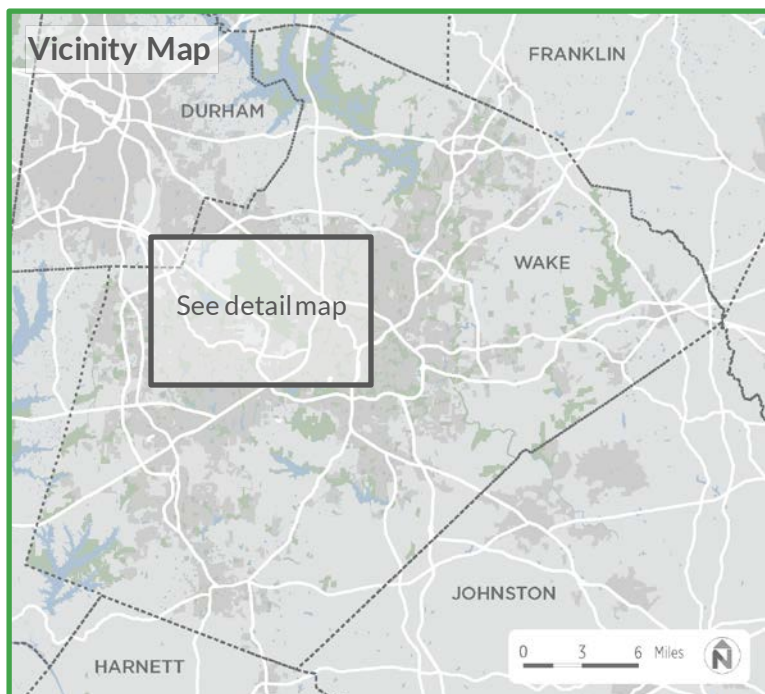
FY20

Route type:

EXPRESS

Operator:

GoTriangle



Project overview: Route 105 provides weekday peak express service between downtown Raleigh and the Regional Transit Center (RTC). A minor routing change in western Raleigh would align this service more closely with express services that travel between Raleigh and Durham/Chapel Hill.

FY17 performance: **AVERAGE**

Major destinations: Downtown Raleigh, NC State University, RTC

Connection points: GoRaleigh Station; Hillsborough/I-440 Park & Ride (proposed); enhanced transfer points at Hillsborough Street and Oberlin Road, Gorman Street, and State Fairgrounds (all proposed); RTC

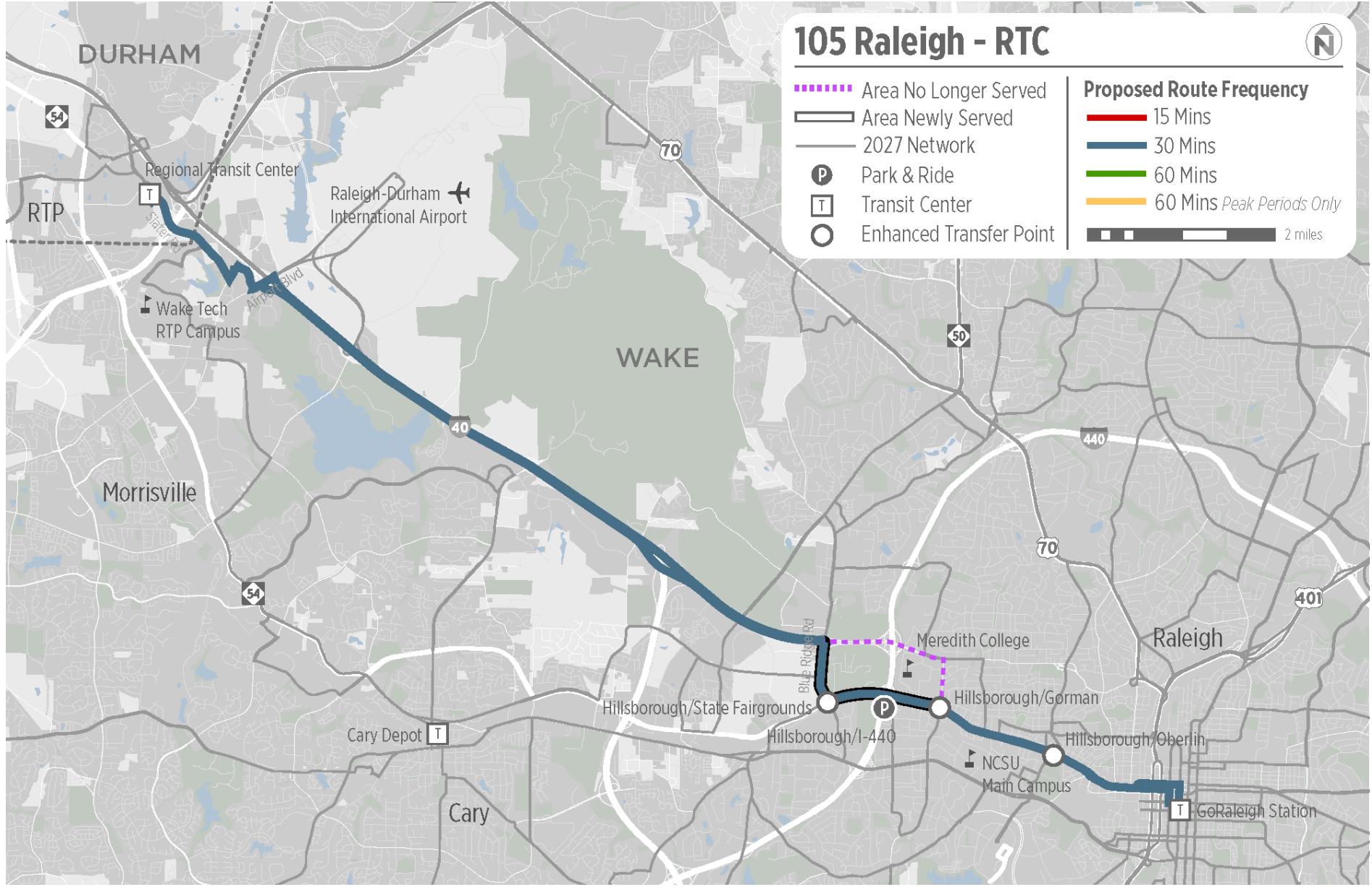
	Existing	Proposed
	105 Raleigh-RTC	105 Raleigh-RTC (no change)
Span of Service		
Weekday	5:55 – 9:35 AM, 3:15 – 7:05 PM	5:55 – 9:35 AM, 3:15 – 7:05 PM
Saturday	-	-
Sunday	-	-
Frequency	Buses depart every:	Buses depart every:
Weekday		
AM Peak	30 minutes	30 minutes
Midday	-	-
PM Peak	30	30
Evening	-	-
Saturday	-	-
Sunday	-	-

Related capital investments:

- Hillsborough/I-440 Park & Ride (proposed FY21): new parking capacity and passenger amenities
- Enhanced transfer points at Hillsborough/Oberlin, Hillsborough/Gorman, and Hillsborough/State Fairgrounds: improved shelters, lighting, and passenger information

Related service investments:

- N/A





105 Raleigh-RTC

FY20

Operator:
GoTriangle

Proposed start date	August 2019
Adult one-wayfare	\$ 2.25 or future adopted fare for this route type
Wake Transit Plan reference	N/A
Wake Transit Plan status	Route is eliminated by the end of Wake Transit Plan horizon.

Annual operating cost and peak vehicles required

	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Total cost	\$ 583,926	\$ 598,524	\$ 613,487	\$ 628,825	\$ 644,545	\$ 660,659	\$ 677,175	-
Net cost	-	-	-	-	-	-	-	-
Total vehicles	3	3	3	3	3	3	3	-
Net vehicles	-	-	-	-	-	-	-	-

Total costs and vehicles reflects costs associated with operating the new route. Net costs reflects cost of new route net of the costs of service replacements or reductions associated with implementation of the new route.

Schedule notes:

- N/A

Other notes:

- It is assumed that Route 105 would be eliminated when DRX begins midday service with a stop at a relocated RTC. Passengers wishing to travel between Chapel Hill and Raleigh in the midday would use Route 800 to travel between Chapel Hill and RTC and transfer to/from DRX to travel between RTC and Raleigh.
- Consider consolidating stops in the Hillsborough Street corridor to match those of Routes CRX and DRX to speed service and reduce travel time.
- See Route 100 project sheet for note on adding midday service to the I-40 corridor between GoRaleigh Station and the RTC.
- Routing through downtown Raleigh may change based on the recommendations of the Raleigh Downtown Transportation Plan.



310 RTC-Cary (interim)

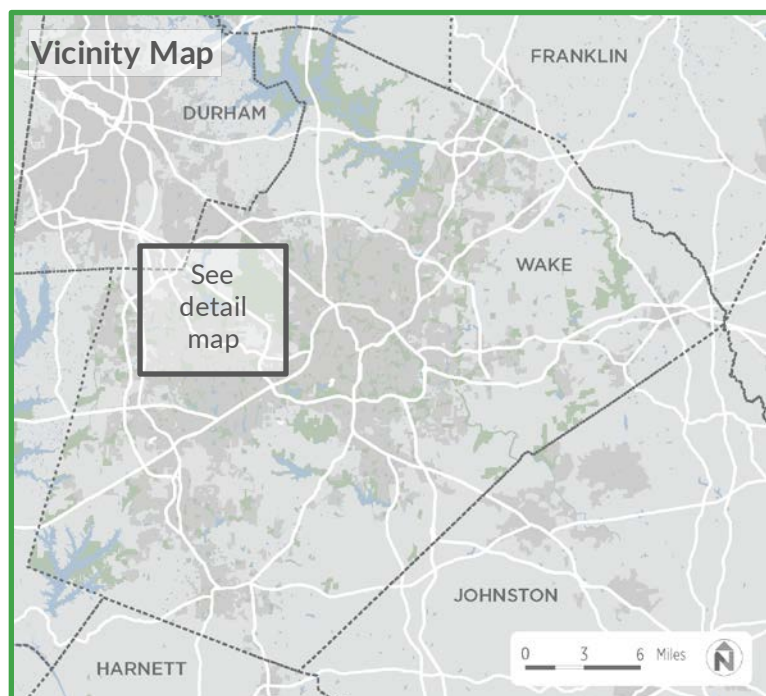
FY20

Route type:

CORE REGIONAL

Operator:

GoTriangle



Project overview: Route 310 is the new name for the portion of Route 300 between Cary and the Regional Transit Center (RTC), which is currently served on weekdays during rush hours only. This proposal adds hourly midday and evening service to the route and introduces new routing to serve stops in Morrisville and at the Wake Tech RTP Campus. GoCary Route 3 would continue to provide service on Harrison Avenue. The Wake Transit Plan includes further improvements to Route 310 in FY25, including all-day service, seven days per week at 30-minute frequencies.

FY17 performance: AVERAGE

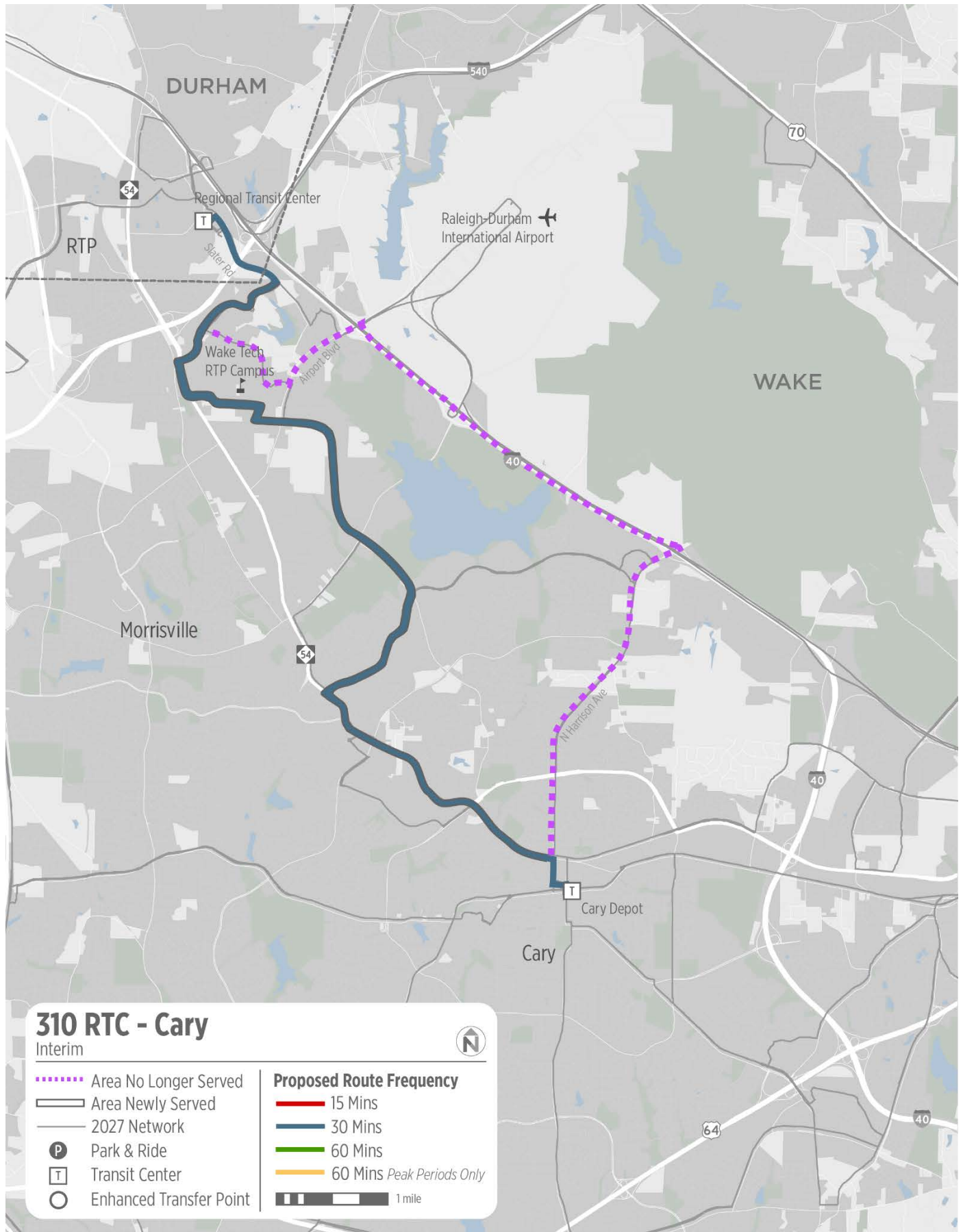
Major destinations: RTC, Wake Tech RTP Campus, Morrisville, downtown Cary

Connection points: RTC, Cary Depot

	Existing	Proposed
	300 RTC-Cary portion	310 RTC-Cary (interim)
Span of Service		
Weekday	6:30 – 9:25 AM, 3:30 – 7:25 PM	6:00 AM – 8:30 PM
Saturday	-	-
Sunday	-	-
Frequency	Buses depart every:	Buses depart every:
Weekday		
AM Peak	30 minutes	30 minutes
Midday	-	60
PM Peak	30	30
Evening	-	60
Saturday	-	-
Sunday	-	-

Related capital investments:

- New bus stops along newly served roadways in Morrisville and Cary to be determined in coordination with NCDOT and the Towns of Morrisville and Cary.





310 RTC-Cary-Raleigh (interim)

FY20

Operator:
GoTriangle

Proposed start date	August 2019
Adult one-wayfare	\$ 2.25 or future adopted fare for this route type
Wake Transit Plan reference	3L Western BRT Longline
Wake Transit Plan status	Interim step to full build out of Wake Transit Plan alignment and schedule.

Annual operating cost and vehicles required

	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Total cost	\$ 1,231,847	\$ 1,262,643	\$ 1,294,210	\$ 1,326,565	\$ 1,359,729	See note		
Net cost	\$ 798,313	\$ 818,271	\$ 838,728	\$ 859,696	\$ 881,188			
Total vehicles	3	3	3	3	3			
Net vehicles	1	1	1	1	1			

Total costs and vehicles reflects costs associated with operating the new route. Net costs reflects cost of new route net of the costs of service replacements or reductions associated with implementation of the new route.

Schedule notes:

- GoTriangle should evaluate interlining opportunities for Route 310 to minimize peak vehicle requirement.
- Schedule assumes four hours of AM peak service, four hours of midday service, four and a half hours of PM peak service, and two hours of evening service, and may need to be adjusted based on Wake Tech RTP Campus class schedule and/or other considerations.

Other notes:

- Completion of McCrimmon Parkway extension in Morrisville is required prior to realignment of route.
- Interim alignment may be necessary prior to opening of McCrimmon Parkway extension (anticipated completion January 2020).
- Route 310 is assumed to transition to full Wake Transit Plan build-out in FY2025.

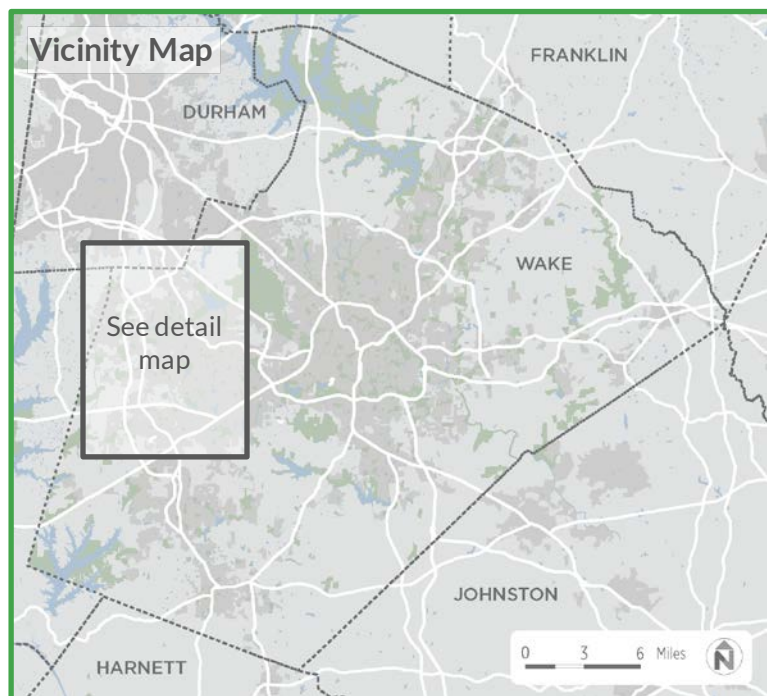


311 Apex-RTC

FY20

Route type:
EXPRESS

Operator:
GoTriangle



Project overview: Route 311 provides weekday peak commuter service between Apex and the Regional Transit Center (RTC) via NC-55 with trips about every 30 minutes in FY18. The Wake Transit Plan continues to invest in Route 311 but with at a lower frequency than is currently provided. This change brings service levels in line with very low demand in this corridor and provides a similar service profile to other peak commuter services in Wake County. The proposed routing also includes more direct service to Kit Creek Road and Davis Drive in RTP. This change will be implemented in combination with the addition of peak commuter service between Holly Springs, Apex, and Cary, providing additional connections to and from western Wake County.

FY17 performance: **LOW**

Major destinations: Apex, Research Triangle Park (RTP)

Connection points: Downtown Apex enhanced transfer point (proposed), Compare Foods P&R, Regional Transit Center (RTC)

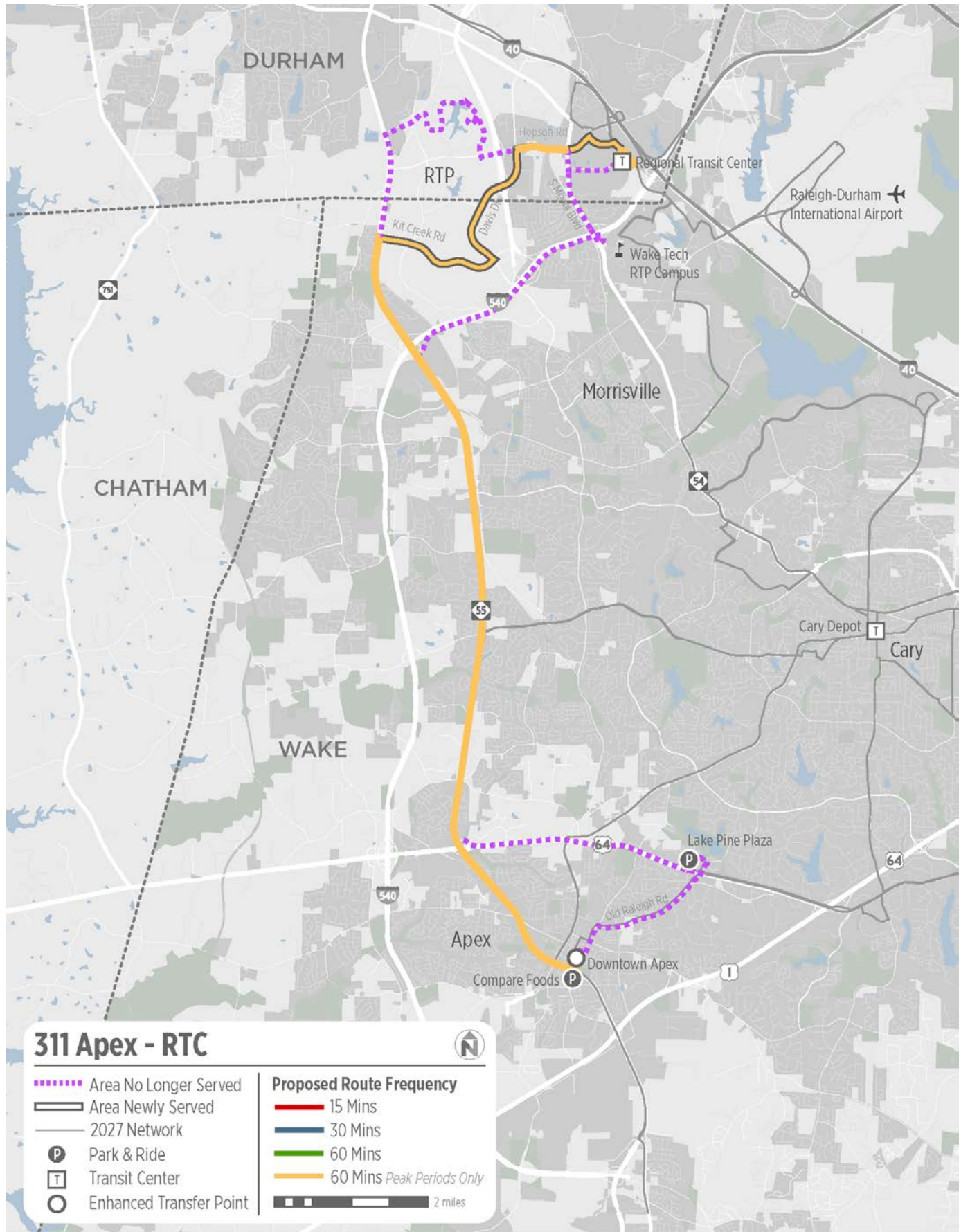
	Existing	Proposed
	311 Apex-RTC	311 Apex-RTC
Span of Service		
Weekday	5:47 – 9:10 AM, 3:41 – 7:10 PM	6:00 – 9:00 AM, 3:30 – 6:30 PM
Saturday	-	-
Sunday	-	-
Frequency		
Weekday		
AM Peak	6 trips in each direction	3 northbound trips, 1 southbound trip
Midday	-	-
PM Peak	6 trips in each direction	3 southbound trips, 1 northbound trip
Evening	-	-
Saturday	-	-
Sunday	-	-

Related capital investments:

- Downtown Apex enhanced transfer point (proposed FY20): improved passenger shelter, lighting, information

Related service investments:

- GoCary HSX Holly Springs-Apex-Cary Express
- GoTriangle Go OnDemand Shuttles provide service to areas of RTP where service will be eliminated.





311 Apex-Regional Transit Center (RTC)

FY20

Operator:
GoTriangle

Proposed start date	August 2019
Adult one-wayfare	\$ 2.25 or future adopted fare for this route type
Wake Transit Plan reference	311 Apex-RTC
Wake Transit Plan status	Included in Wake Transit Plan

Annual operating cost and vehicles required

	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Total cost	\$ 437,630	\$ 448,571	\$ 459,785	\$ 471,280	\$ 483,062	\$ 495,138	\$ 507,517	\$ 520,205
Net cost	\$ (34,616)	\$ (35,482)	\$ (36,369)	\$ (37,278)	\$ (38,210)	\$ (39,165)	\$ (40,144)	\$ (41,148)
Total vehicles	2	2	2	2	2	2	2	2
Net vehicles	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)

Total costs and vehicles reflects costs associated with operating the new route. Net costs reflects cost of new route net of the costs of service replacements or reductions associated with implementation of the new route.

Schedule notes:

- N/A

Other notes:

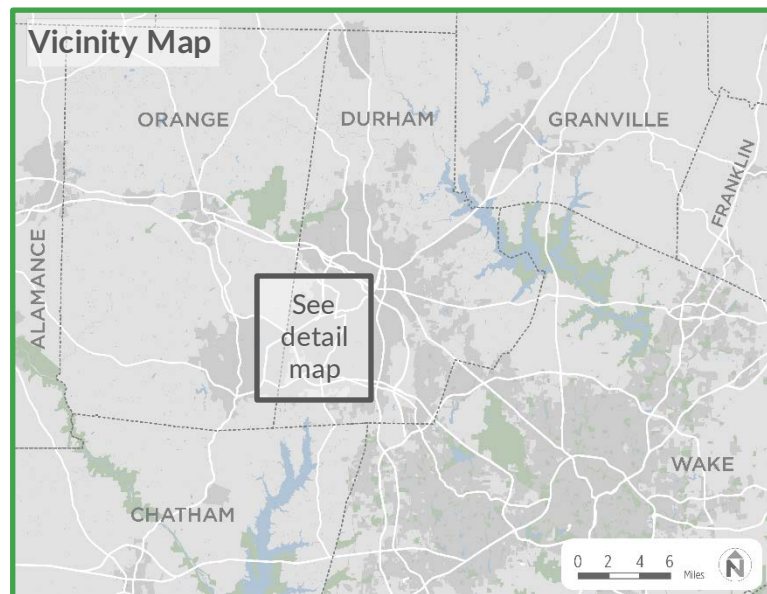
- Operating Route 311 along Davis Drive instead of NC-55 north of Apex through west Cary would serve areas of slightly higher population density. GoTriangle should consider this routing change after identifying whether the schedule and alignment changes in FY20 stimulate improved productivity. If performance remains low, the alignment change may be worth exploring further.

400 Durham-Chapel Hill

FY20

Route type:
CORE REGIONAL

Operator:
GoTriangle



Project overview: Route 400 provides core regional service between Durham and Chapel Hill. A peak-period deviation providing service to Old Chapel Hill Road and SW Durham Drive is proposed for elimination. The removal of this deviation would reduce route complexity, making this service faster and easier to understand. Combined with changes to Route 405 Durham-Chapel Hill-Carrboro, this improvement would allow for consistent, all-day service in the 15-501 corridor between Durham and Chapel Hill, with service every 15 minutes during weekday morning and afternoon rush hours.

FY17 performance: **AVERAGE**

Major destinations: Downtown Durham, Duke University and Duke/VA Hospitals, Chapel Hill, UNC Hospitals

Connection points: Durham Station, Patterson Place, Franklin St at Columbia St (Chapel Hill), Manning Dr at UNC Hospitals

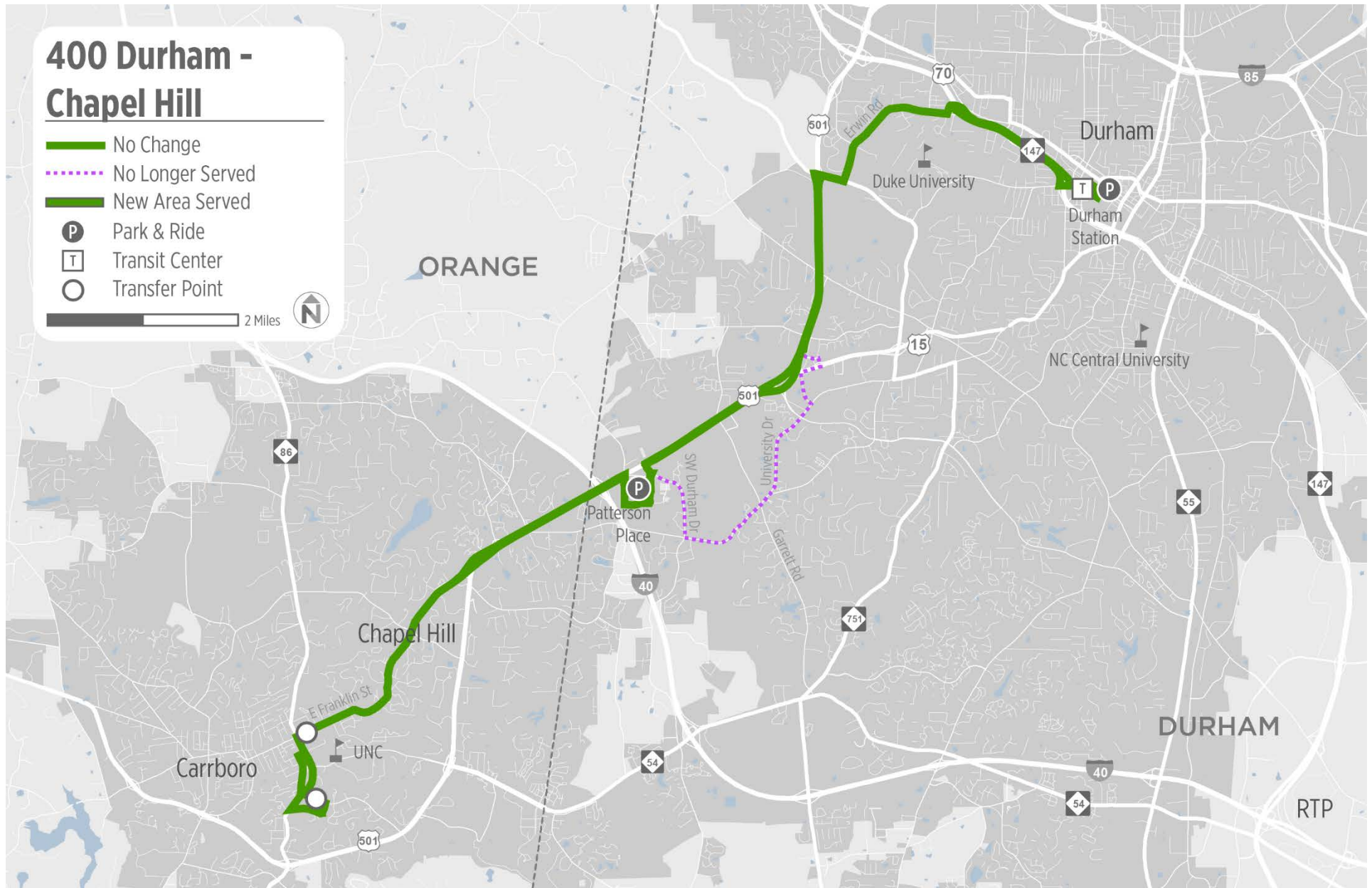
	Existing	Proposed (NO CHANGE)
	<i>400 Durham-Chapel Hill</i>	<i>400 Durham-Chapel Hill</i>
Span of Service		
Weekday	6:15 AM – 10:55 PM	6:15 AM – 10:55 PM
Saturday	7:00 AM – 10:55 PM	7:00 AM – 10:55 PM
Sunday	7:00 AM – 8:55 PM	7:00 AM – 8:55 PM
Frequency	Buses depart every:	Buses depart every:
Weekday		
AM Peak	30 minutes	30 minutes
Midday	30	30
PM Peak	30	30
Evening	60	60
Saturday	30-60	30-60
Sunday	60	60

Related capital investments:

- N/A

Related service investments:

- 405 Durham-Chapel Hill-Carrboro: add stop at Patterson Place
- Local service investments (route/funding TBD) to provide service to SW Durham Drive



400 Durham-Chapel Hill

FY20

Proposed start date	August, 2019
Adult one-way fare	\$ 2.25 or future adopted fare for this route type
County Plan status	Cost neutral proposal; not included in Durham or Orange County Transit Plans

Annual operating cost and vehicles required

	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Total cost	\$ 2,381,699	\$ 2,441,241	\$ 2,502,272	\$ 2,564,829	\$ 2,628,950	\$ 2,694,673	\$ 2,762,040	\$ 2,831,091
Net cost	-	-	-	-	-	-	-	-
Total vehicles	5	5	5	5	5	5	5	5
Net vehicles	-	-	-	-	-	-	-	-

Total costs and vehicles reflects costs associated with operating the new route. Net costs reflects cost of new route net of the costs of service replacements or reductions associated with implementation of the new route.

Schedule notes:

- Interline with Route 405 to maintain peak vehicle requirement and neutral costs.

Other notes:

- Decrease in costs caused by removing peak deviation to University Drive and SW Durham Drive from Route 400 is offset by increase in costs from adding Patterson Place to Route 405 Durham-Chapel Hill-Carrboro.
- Patterson Place Park & Ride may need additional spaces as part of the changes in this corridor.

405 Durham-Chapel Hill-Carrboro

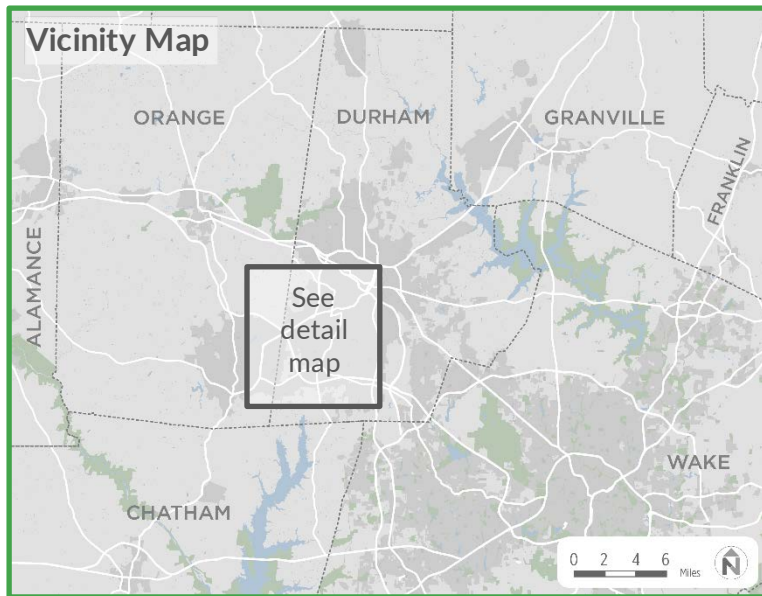
FY20

Route type:

EXPRESS

Operator:

GoTriangle



Project overview: Route 405 provides weekday peak regional service between Durham, Chapel Hill, and Carrboro. The proposal adds a mid-route stop at Patterson Place in southwest Durham, adding park-and-ride capacity to this route. Combined with changes to Route 400 Durham-Chapel Hill, this improvement would allow for consistent service every 15 minutes during weekday morning and afternoon rush hours in the 15-501 corridor between Durham and Chapel Hill.

FY17 performance: HIGH

Major destinations: Downtown Durham, Duke University and Duke/VA Hospitals, Chapel Hill, UNC Hospitals, Carrboro

Connection points: Durham Station, Patterson Place, Franklin St at Columbia St (Chapel Hill), Manning Dr at UNC Hospitals

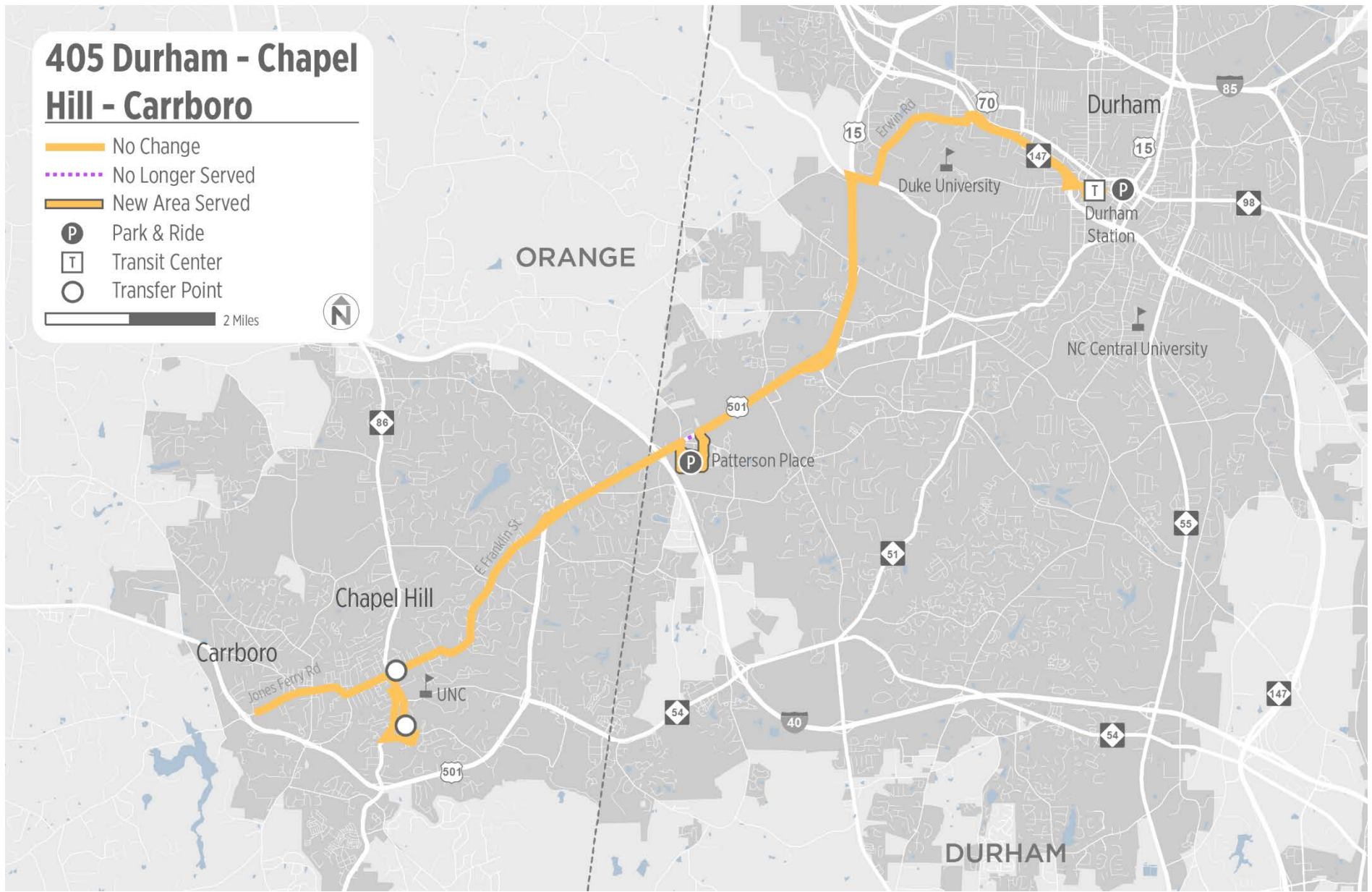
	Existing	Proposed (NO CHANGE)
	405 Durham-Chapel Hill-Carrboro	405 Durham-Chapel Hill-Carrboro
Span of Service		
Weekday	5:45 – 9:50 AM, 3:10 – 7:17 PM	5:45 – 9:50 AM, 3:10 – 7:17 PM
Saturday	-	-
Sunday	-	-
Frequency	Buses depart every:	Buses depart every:
Weekday		
AM Peak	30 minutes	30 minutes
Midday	-	-
PM Peak	30	30
Evening	-	-
Saturday	-	-
Sunday	-	-

Related capital investments:

- N/A

Related service investments:

- 400 Durham-Chapel Hill: remove peak deviation to Old Chapel Hill Rd and SW Durham Drive to provide consistent, 15-minute peak service between Durham, Patterson Place, and Chapel Hill.



405 Durham-Chapel Hill-Carrboro

FY20

Proposed start date	August 2019
Adult one-way fare	\$ 2.25 or future adopted fare for this route type
County Plan status	Cost neutral proposal; not included in Durham or Orange County Transit Plans

Annual operating cost and vehicles required

	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Total cost	\$ 875,260	\$ 897,141	\$ 919,570	\$ 942,559	\$ 966,123	\$ 990,276	\$ 1,015,033	\$ 1,040,409
Net cost	-	-	-	-	-	-	-	-
Total vehicles	4	4	4	4	4	4	4	4
Net vehicles	-	-	-	-	-	-	-	-

Total costs and vehicles reflects costs associated with operating the new route. Net costs reflects cost of new route net of the costs of service replacements or reductions associated with implementation of the new route.

Schedule notes:

- Interline with Route 400 to maintain peak vehicle requirement and neutral costs.

Other notes:

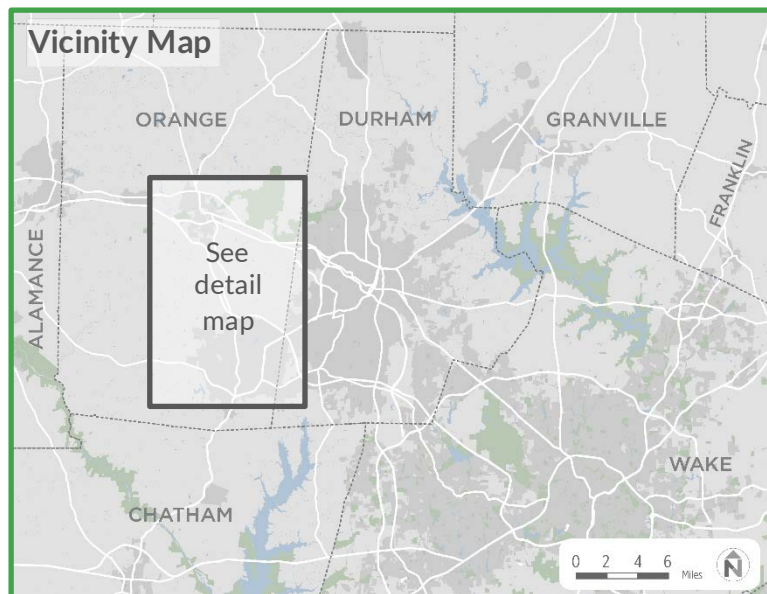
- Increase in costs caused by adding Patterson Place to Route 405 is offset by savings from removing peak deviation to University Drive and SW Durham Drive from Route 400 Durham-Chapel Hill.
- Patterson Place Park & Ride may need additional spaces as part of the changes in this corridor.

420 Hillsborough-Chapel Hill

FY20

Route type:
EXPRESS

Operator:
Chapel Hill Transit



Project overview: Route 420 provides weekday peak service between Hillsborough and Chapel Hill. The proposal would move the route to I-40 between Chapel Hill and Hillsborough instead of NC-86 and use Churton Street instead of NC-86 and US-70 Business in Hillsborough. This change will improve on-time performance and provide more direct service between Hillsborough and Chapel Hill.

FY17 performance: **AVERAGE**

Major destinations: Hillsborough, Durham Tech Orange County Campus, Chapel Hill, UNC Hospitals

Connection points: Churton St at Police Station (Hillsborough), Durham Tech OCC Park & Ride, Franklin St at Columbia St (Chapel Hill), Manning Dr at UNC Hospitals

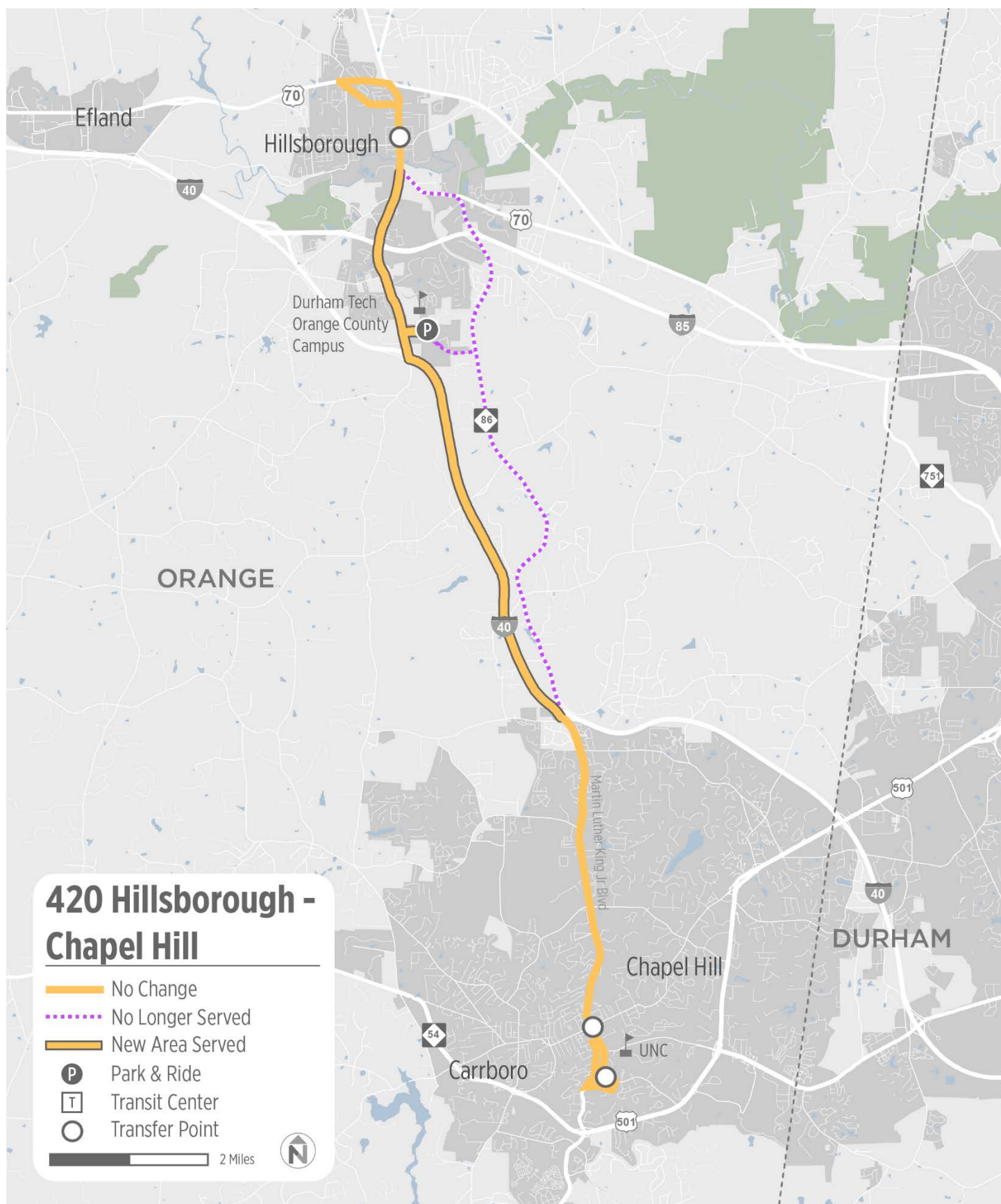
	Existing	Proposed (NO CHANGE)
	420 Hillsborough-Chapel Hill	420 Hillsborough-Chapel Hill
Span of Service		
Weekday	6:00 – 9:15 AM, 3:40 – 6:55 PM	6:00 – 9:15 AM, 3:40 – 6:55 PM
Saturday	-	-
Sunday	-	-
Frequency	Buses depart every:	Buses depart every:
Weekday		
AM Peak	30 minutes	30 minutes
Midday	-	-
PM Peak	30	30
Evening	-	-
Saturday	-	-
Sunday	-	-

Related capital investments:

- N/A

Related service investments:

- Orange Public Transportation (OPT) Orange-Chapel Hill Connector provides midday service between Hillsborough and Chapel Hill via NC-86.



420 Hillsborough-Chapel Hill

FY20

Proposed start date	August, 2019
Adult one-way fare	\$ 2.25 or future adopted fare for this route type
County Plan status	Cost neutral; not included in Orange County Transit Plan

Annual operating cost and vehicles required

	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Total cost	\$ 472,082	\$ 483,884	\$ 495,981	\$ 508,381	\$ 521,090	\$ 534,117	\$ 547,470	\$ 561,157
Net cost	-	-	-	-	-	-	-	-
Total vehicles	3	3	3	3	3	3	3	3
Net vehicles	-	-	-	-	-	-	-	-

Total costs and vehicles reflects costs associated with operating the new route. Net costs reflects cost of new route net of the costs of service replacements or reductions associated with implementation of the new route.

Schedule notes:

- Consider shifting schedule to accommodate hospital shift end time of 7:00 p.m.

Other notes:

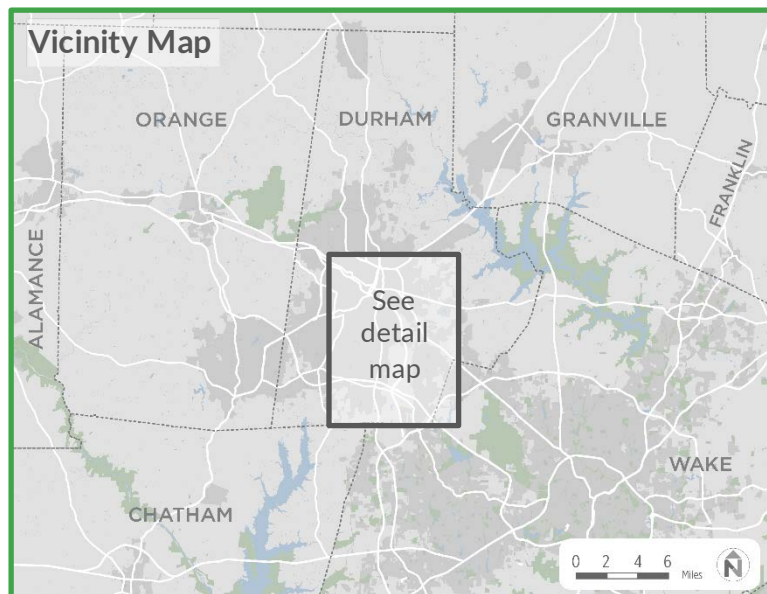
- Loss of parking at Home Depot (though not an official park-and-ride) may create need for additional park & ride spaces. Evaluate opportunities for additional park-and-ride spaces in Hillsborough, potentially at Orange County Social Services (Old NC-86 and Mayo).

700 Durham-Regional Transit Center (RTC)

FY20

Route type:
CORE REGIONAL

Operator:
GoTriangle



Project overview: Route 700 provides core regional service between downtown Durham and the Regional Transit Center near RTP. This proposal would permanently implement the construction reroute put into place in 2016 due to construction on the Durham Freeway and Alston Avenue. The previous routing used Alston Avenue and Lawson Street, serving Durham Technical Community College and McDougald Terrace. Route 700 performance has been high using the construction reroute, which provides fast, direct service between Durham and the RTC, where connections to Raleigh, Cary, Southpoint, and Chapel Hill can be made.

FY17 performance: **HIGH**

Major destinations: Downtown Durham

Connection points: Durham Station, American Tobacco Campus Park & Ride, RTC

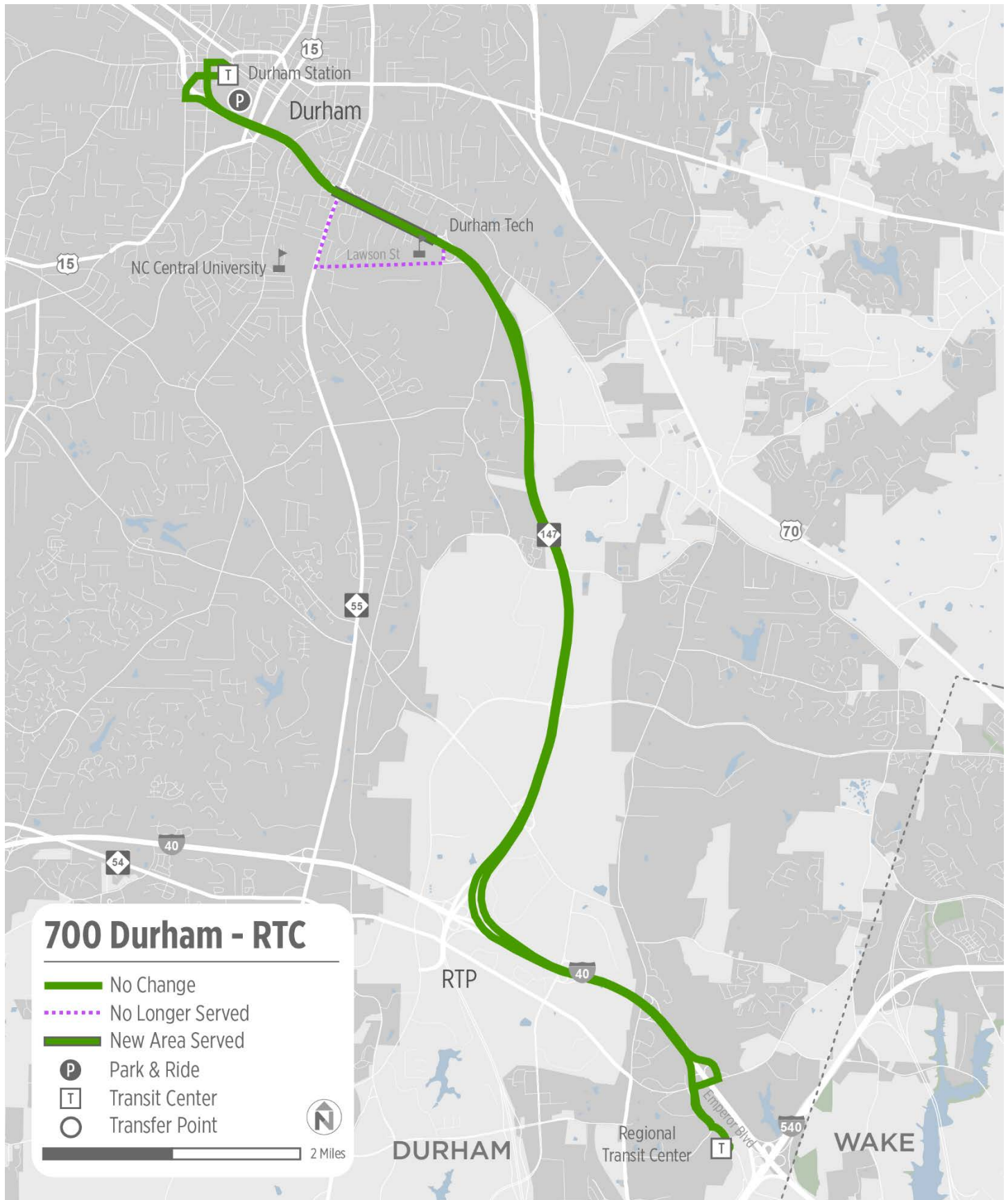
	Existing	Proposed (NO CHANGE)
	700 Durham-RTC	700 Durham-RTC
Span of Service		
Weekday	6:00 AM – 10:55 PM	6:00 AM – 10:55 PM
Saturday	7:05 AM – 10:55 PM	7:05 AM – 10:55 PM
Sunday	7:05 AM – 8:55 PM	7:05 AM – 8:55 PM
Frequency	Buses depart every:	Buses depart every:
Weekday		
AM Peak	30 minutes	30 minutes
Midday	30	30
PM Peak	30	30
Evening	60	60
Saturday	30-60	30-60
Sunday	60	60

Related capital investments:

- Regional Transit Center (proposed): potential relocation of RTC will be evaluated in FY19-20.

Related service investments:

- N/A



700 Durham-RTC

FY20

Proposed start date	August 2019
Adult one-way fare	\$ 2.25 or future adopted fare for this route type
County Plan status	Cost-neutral change not included in Durham County Transit Plan

Annual operating cost and vehicles required

	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Total cost	\$ 1,207,058	\$ 1,237,234	\$ 1,268,165	\$ 1,299,869	\$ 1,332,366	\$ 1,365,675	\$ 1,399,817	\$ 1,434,812
Net cost	-	-	-	-	-	-	-	-
Total vehicles	2	2	2	2	2	2	2	2
Net vehicles	-	-	-	-	-	-	-	-

Total costs and vehicles reflects costs associated with operating the new route. Net costs reflects cost of new route net of the costs of service replacements or reductions associated with implementation of the new route.

Schedule notes:

- N/A

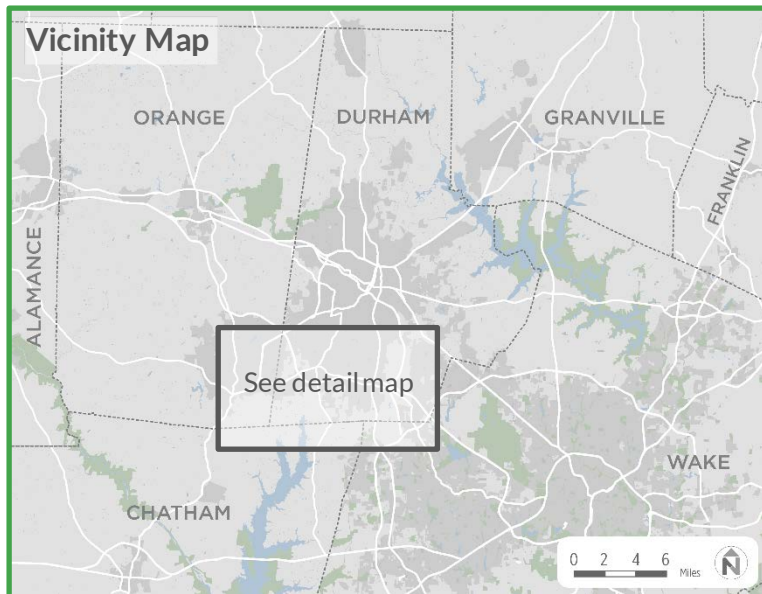
Other notes:

- N/A

800 Chapel Hill-Southpoint-Regional Transit Center (RTC) FY20

Route type:
CORE REGIONAL

Operator:
GoTriangle



Project overview: Route 800 provides core regional service between Chapel Hill and RTC via Southpoint. The path of the eastern portion of the route varies by time of day and day of week, traveling via I-40 between Southpoint and RTC on weekdays during rush hours, but via NC-54 at other times. This proposal would revise the routing to use I-40 at all times, providing a fast, consistent connection that is easier to understand. Service on NC-54 would still be available during weekday rush hours on Route 805 Chapel Hill-Woodcroft-RTC

FY17 performance: **AVERAGE**

Major destinations: Chapel Hill, UNC Hospitals, Southpoint retail area

Connection points: Franklin St at Columbia St (Chapel Hill), Manning Dr at UNC Hospitals, RTC

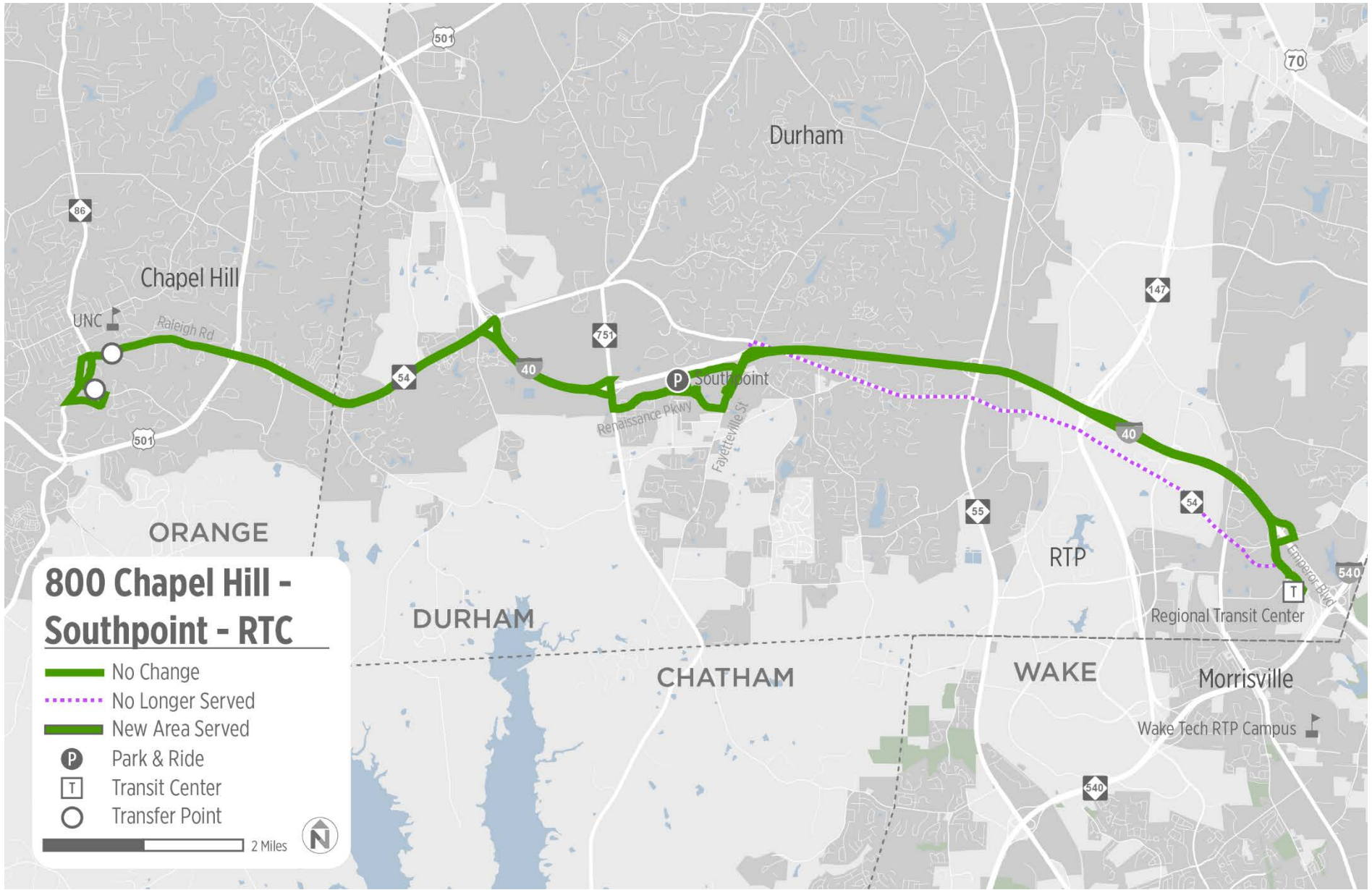
	Existing	Proposed
	800 Chapel Hill-Southpoint-RTC	800 Chapel Hill-Southpoint-RTC
Span of Service		
Weekday	6:00 AM – 11:10 PM	6:00 AM – 11:10 PM
Saturday	6:45 AM – 11:20 PM	6:45 AM – 11:20 PM
Sunday	6:45 AM – 9:20 PM	6:45 AM – 9:20 PM
Frequency	Buses depart every:	Buses depart every:
Weekday		
AM Peak	30 minutes	30 minutes
Midday	30	30
PM Peak	30	30
Evening	60	60
Saturday	30-60	30-60
Sunday	60	60

Related capital investments:

- Regional Transit Center (proposed): potential relocation of RTC will be evaluated in FY19-20.

Related service investments:

- GoDurham Route 14 provides local service on NC-54 between Fayetteville Street and NC-55.
- The GoDurham Short Range Transit Plan preferred alternative (February 2018) recommends revised Route 12 service along NC-54 between NC-55 and the RTC.



800 Chapel Hill-Southpoint-RTC

FY20

Proposed start date	August 2019
Adult one-way fare	\$ 2.25 or future adopted fare for this route type
County Plan status	Not included in Orange or Durham County Transit Plans

Annual operating cost and peak vehicles required

	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Total cost	\$ 2,399,623	\$ 2,459,614	\$ 2,521,104	\$ 2,584,132	\$ 2,648,735	\$ 2,714,954	\$ 2,782,827	\$ 2,852,398
Net cost	\$ (241,293)	\$ (247,309)	\$ (253,497)	\$ (259,836)	\$ (266,327)	\$ (272,989)	\$ (279,822)	\$ (286,807)
Total vehicles	5	5	5	5	5	5	5	5
Net vehicles	-	-	-	-	-	-	-	-

Total costs and vehicles reflects costs associated with operating the new route. Net costs reflects cost of new route net of the costs of service replacements or reductions associated with implementation of the new route.

Schedule notes:

- Interline with Route 800S assumed.

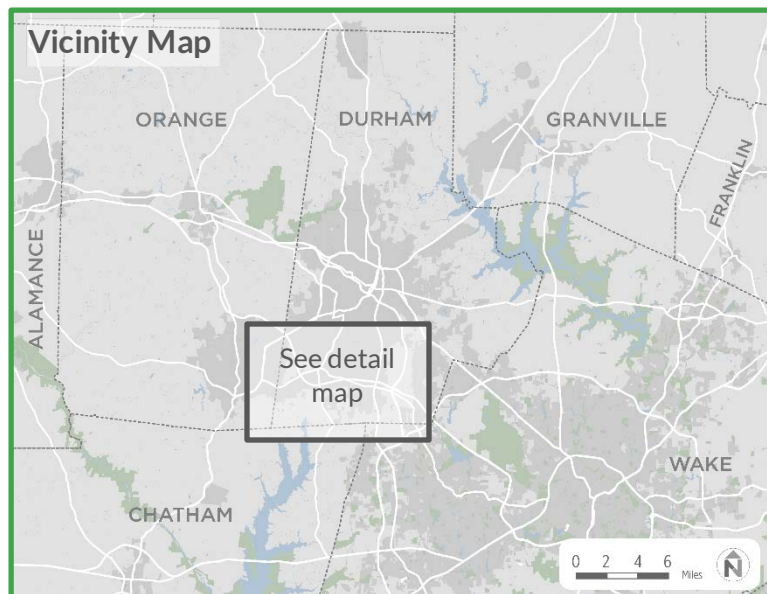
Other notes:

- Savings shown above are from reduction by one vehicle for midday and Saturday service.
- Route 800S Chapel Hill-Southpoint costs and vehicles are included in the annual operating costs and vehicles required above. No changes are proposed for Route 800S.
- If the GoDurham Route 12 recommendation from the GoDurham Short Range Transit Plan preferred alternative (February 2018) is implemented, there will be all-day replacement service on NC-54 between Fayetteville Street and the RTC on GoDurham Routes 12 and 14. However, the GoDurham plan has not yet been finalized. GoTriangle staff should consider whether replacement service exists and review up-to-date ridership impacts of the Route 800 proposal prior to implementation.

805 Chapel Hill-Woodcroft-Regional Transit Center (RTC) FY20

Route type:
EXPRESS

Operator:
GoTriangle



Project overview: Route 805 provides weekday rush hour service between the RTC, the Woodcroft neighborhood in south Durham, and Chapel Hill/UNC Hospitals. This proposal eliminates underutilized trips in the reverse-peak direction (eastbound 6:27 & 8:40 AM, westbound 6:30 PM)

FY17 performance: **AVERAGE**

Major destinations: Chapel Hill, UNC Hospitals, Woodcroft, RTC

Connection points: Franklin St at Columbia St (Chapel Hill), Manning Dr at UNC Hospitals, RTC

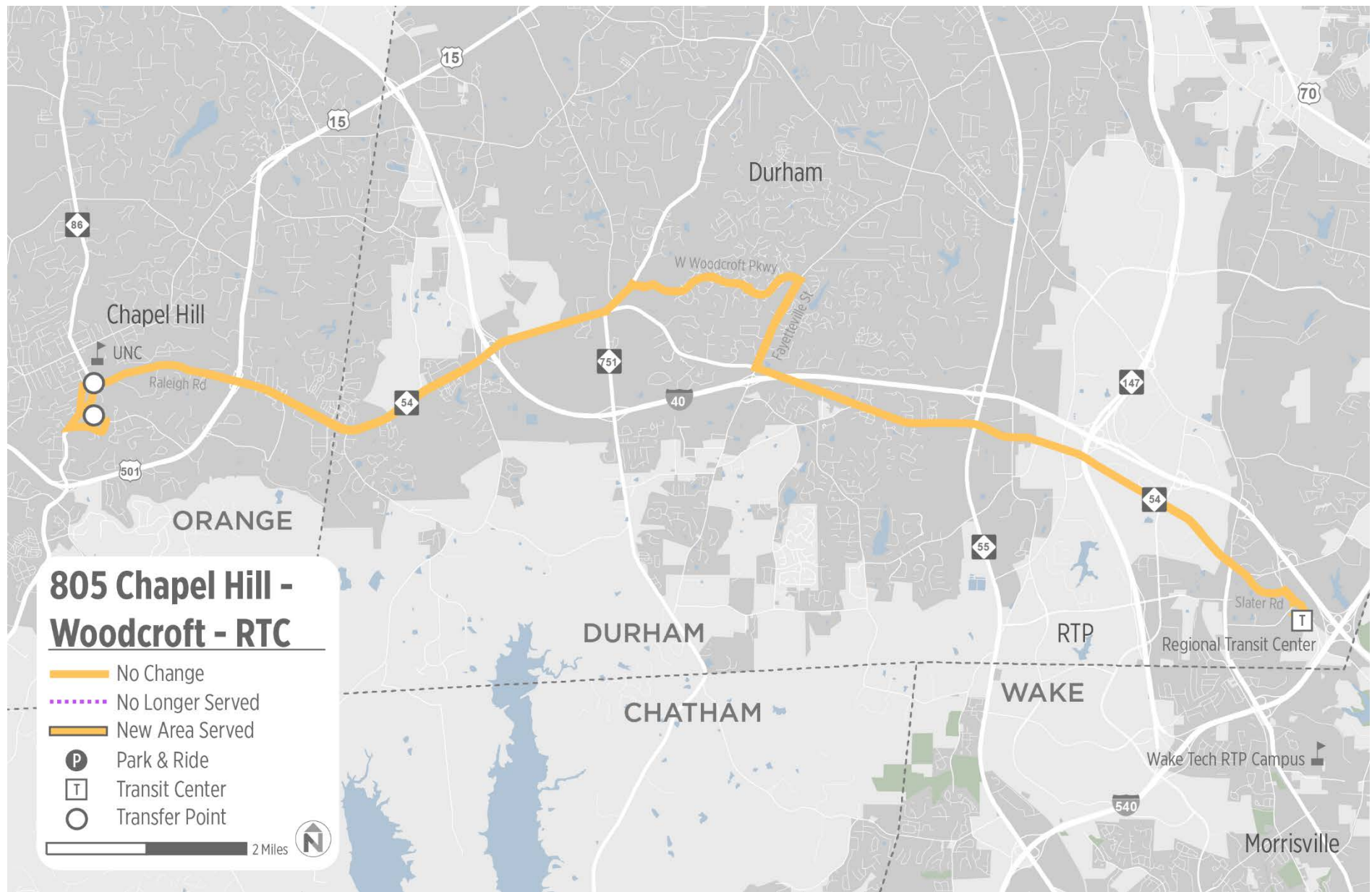
	Existing	Proposed
	805 Chapel Hill-Woodcroft-RTC	805 Chapel Hill-Woodcroft-RTC
Span of Service		
Weekday	6:00 – 9:55 AM, 3:10 – 7:25 PM	6:00 – 9:55 AM, 3:10 – 7:25 PM
Saturday	-	-
Sunday	-	-
Frequency		
Weekday		
AM Peak	6 eastbound trips / 7 westbound trips	4 eastbound trips / 7 westbound trips
Midday	-	-
PM Peak	9 eastbound trips / 7 westbound trips	9 eastbound trips / 6 westbound trips
Evening	-	-
Saturday	-	-
Sunday	-	-

Related capital investments:

- N/A

Related service investments:

- Route 800 Chapel Hill-Southpoint-RTC is proposed to have service removed from NC-54 between Southpoint and RTC, so the only service in that corridor would be provided via Route 805.



805 Chapel Hill-Woodcroft-RTC

FY20

Proposed start date	August 2019
Adult one-way fare	\$ 2.25 or future adopted fare for this route type
County Plan status	Not included in Durham or Orange County Transit Plans

Annual operating cost and vehicles required

	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Total cost	\$ 855,810	\$ 877,205	\$ 899,135	\$ 921,613	\$ 944,654	\$ 968,270	\$ 992,477	\$ 1,017,289
Net cost	\$ (51,869)	\$ (53,162)	\$ (54,492)	\$ (55,855)	\$ (57,251)	\$ (58,683)	\$ (60,151)	\$ (61,653)
Total vehicles	4	4	4	4	4	4	4	4
Net vehicles	-	-	-	-	-	-	-	-

Total costs and vehicles reflects costs associated with operating the new route. Net costs reflects cost of new route net of the costs of service replacements or reductions associated with implementation of the new route.

Schedule notes:

- N/A

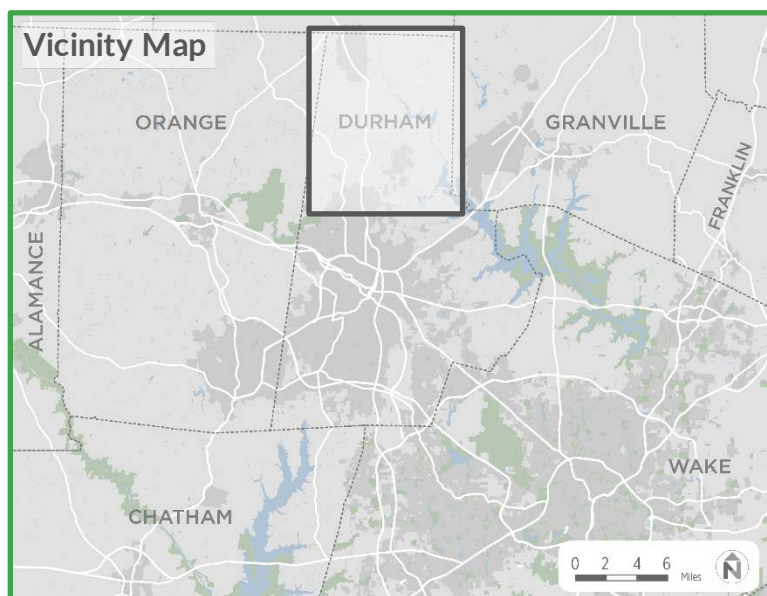
Other notes:

- N/A

Northern Durham/Rougemont Vanpool Services

FY20

Operator:
GoTriangle



Project overview: This plan recommends a vanpool program in northern Durham County/Rougemont to address the need for affordable, efficient travel between north Durham County communities and other parts of the Triangle region.

Vanpools are subsidized ridesharing programs for groups with similar commute patterns. They are generally self-organized but may receive assistance from an employer or other entity to oversee vanpool formation. GoTriangle provides the vans, insurance, and maintenance – all for a low, monthly cost. Individual vanpool members drive the vans each day. Fares vary based on mileage and the number of riders participating in the vanpool.

The vanpool program in north Durham County would offer additional subsidies to offset the cost of fares. For more information on vanpools, visit Gotriangle.org/rideshare.

Connection points: Beginning in Rougemont/North Durham County and serving respective work destinations within the larger region, including Duke, UNC, NCSU, RTP, and area hospitals.



GoTriangle Vanpool Vehicle

Source: GoTriangle



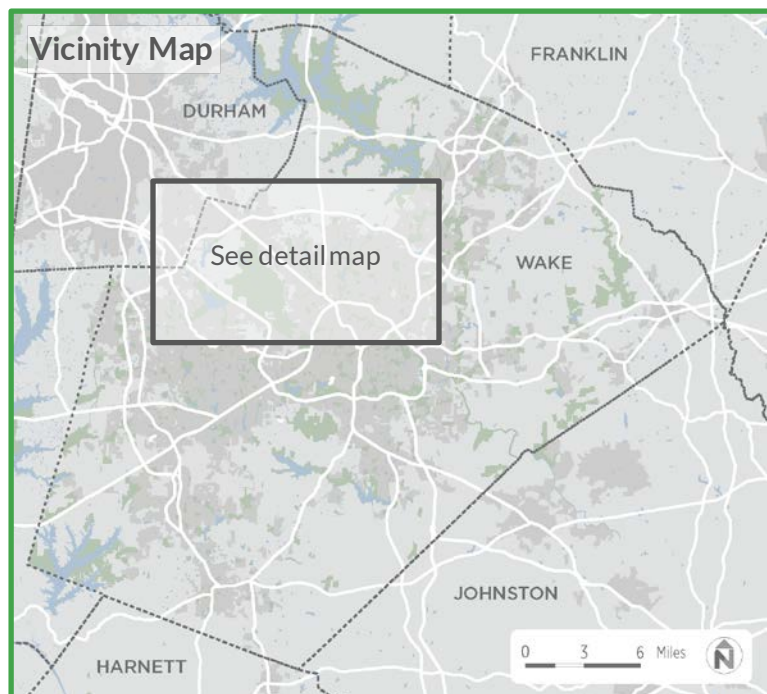
NRX North Raleigh Express (interim)

FY20

Route type:

EXPRESS

Operator:

GoTriangle

Project overview: Route NRX would replace existing Route 201 North Raleigh-Regional Transit Center (RTC). The eastern portion of the route, which travels on Spring Forest Road and Millbrook Road in north Raleigh, would be eliminated and instead would use I-540, beginning and ending at Triangle Town Center, which has park & ride access. The Wake Transit Plan recommends investment in this corridor along with capital investment in additional park-and-ride locations. This project implements the I-540 alignment of Route NRX in advance of future park-and-ride development. The route would be adjusted to serve new park-and-ride location(s) upon their completion.

FY17 performance (Route 201): **LOW**

Major destinations: Triangle Town Center, RTC

Connection points: RTC, Triangle Town Center Park & Ride

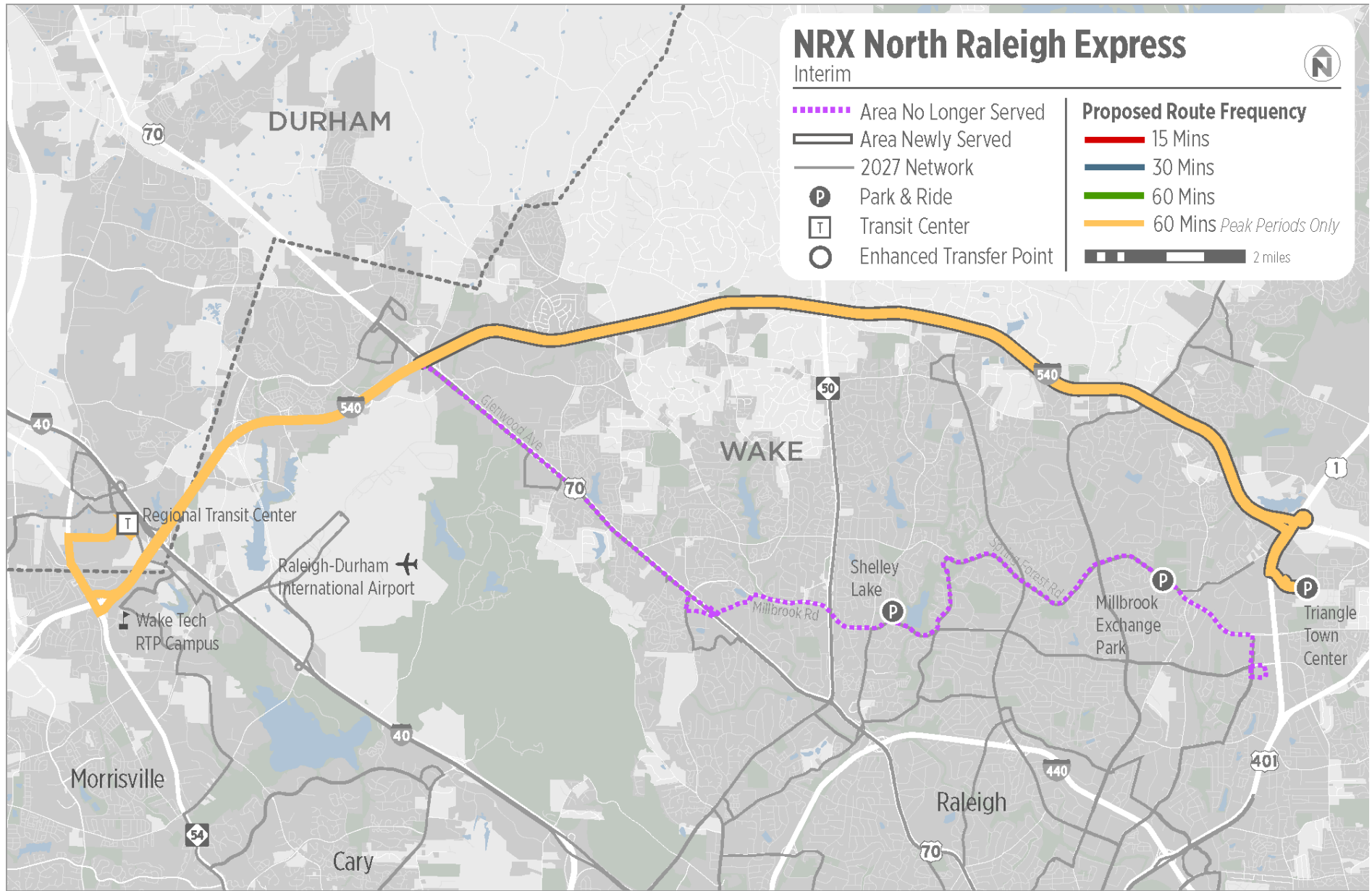
	Existing	Proposed
	201 North Raleigh-RTC	NRX North Raleigh Express
Span of Service		
Weekday	6:05 – 8:25 AM, 4:30 – 7:25 PM	6:00 – 9:00 AM, 4:00 – 7:00 PM
Saturday	-	-
Sunday	-	-
Frequency		
Weekday		
AM Peak	4 westbound trips	3 westbound trips
Midday	-	-
PM Peak	4 eastbound trips	3 eastbound trips
Evening	-	-
Saturday	-	-
Sunday	-	-

Related capital investments:

- Potential future park & ride(s) to be added at I-540 and Falls of Neuse or Creedmoor (FY21)
- Potential future park & ride improvements at Triangle Town Center (TTC) as part of TTC Transit Center project (FY22)

Related service investments:

- N/A





NRX North Raleigh Express (Interim)

FY20

Operator:
GoTriangle

Proposed start date	August, 2019
Adult one-wayfare	\$ 3.00 or future adopted fare for this route type
Wake Transit Plan reference	540I-540Express
Wake Transit Plan status	Interim improvement prior to Wake Transit Plan full build-out

Annual operating cost and vehicles required

	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Total cost	\$ 255,268	\$ 261,650	\$ 268,191	\$ 274,896	\$ 281,768	\$ 288,813	See note	
Net cost	-	-	-	-	-	-		
Total vehicles	2	2	2	2	2	2		
Net vehicles	-	-	-	-	-	-		

Total costs and vehicles reflects costs associated with operating the new route. Net costs reflects cost of new route net of the costs of service replacements or reductions associated with implementation of the new route.

Schedule notes:

- N/A

Other notes:

- Route NRX is assumed to transition to full Wake Transit Plan build-out in FY26 with trips every 30 minutes during peak.



301 Cary-Raleigh (ELIMINATED)

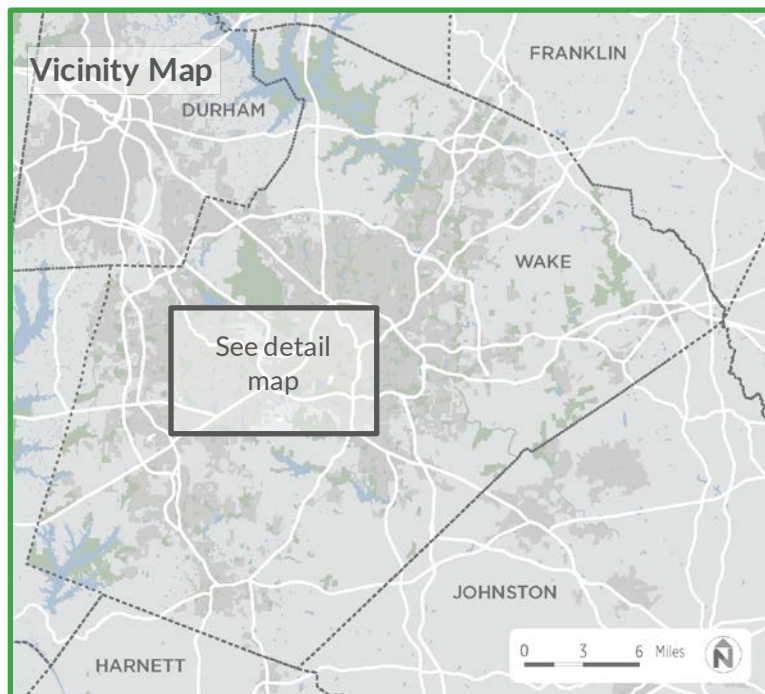
FY21

Route type:

EXPRESS

Operator:

GoTriangle



Project overview: Route 301 provides weekday rush hour service between Cary and Raleigh via Kildaire Farm Road, Buck Jones Road, and Western Boulevard. The Wake Transit Plan replaces Route 301 with GoCary Route 9B that extends between Cary Depot via Walnut Street and Buck Jones Road to/from the State Fairgrounds, where it will connect with frequent GoRaleigh service to/from downtown Raleigh. Riders can also connect to Route 300 and 305 service on Western Avenue.

FY17 performance:

LOW

Major destinations: Downtown Cary, Cary Towne Center, Crossroads Plaza, NC State University, downtown Raleigh

Connection points: Cary Depot, Hillsborough/Jones Franklin enhanced transfer point, State Fairgrounds enhanced transfer point, GoRaleigh Station

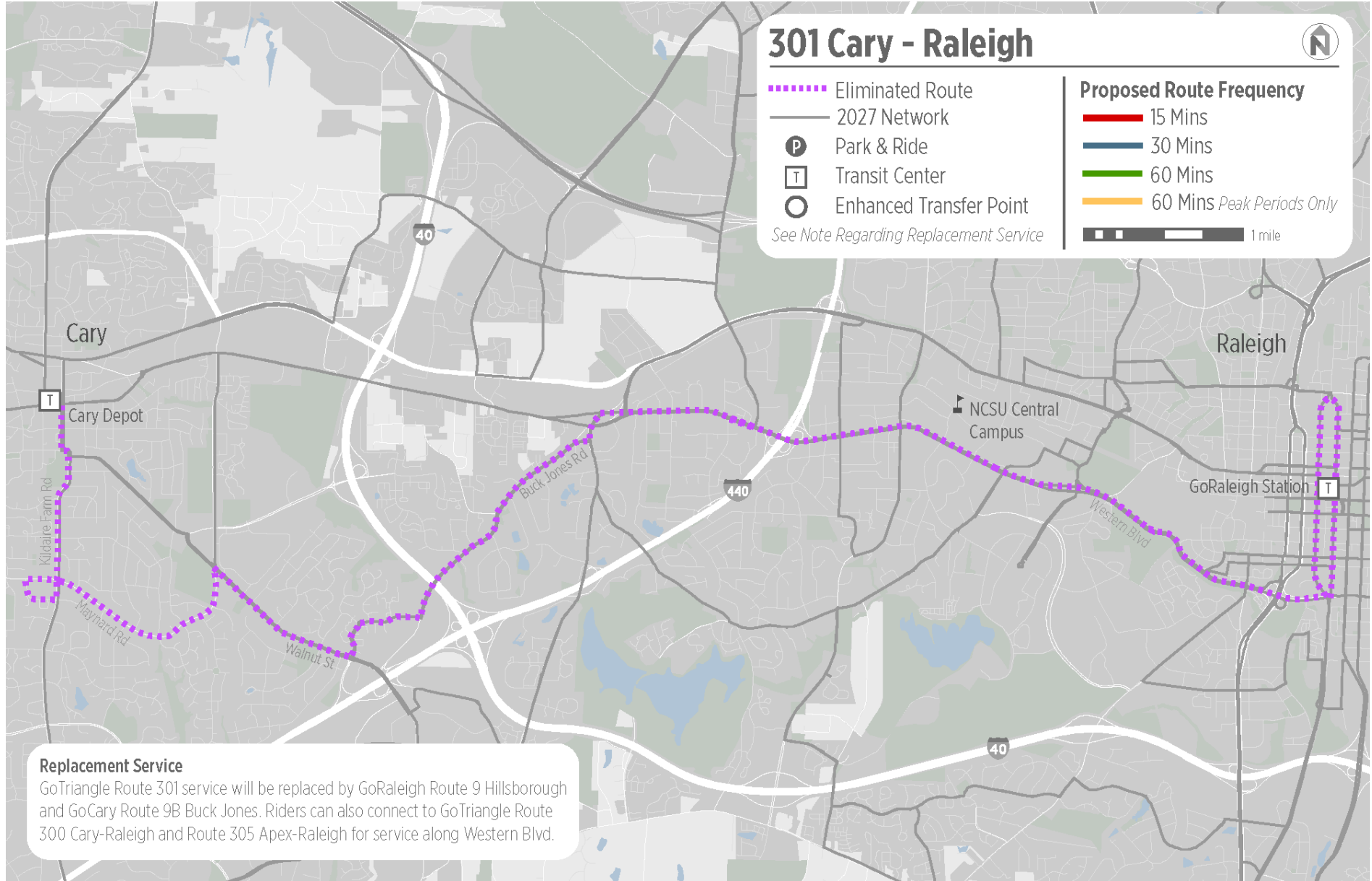
	Existing	Proposed
	301 Cary Raleigh	N/A (route eliminated)
Span of Service		
Weekday	5:50 – 9:10 AM, 3:25 – 6:55 PM	-
Saturday	-	-
Sunday	-	-
Frequency	Buses depart every:	Buses depart every:
Weekday		
AM Peak	30 minutes	-
Midday	-	-
PM Peak	30	-
Evening	-	-
Saturday	-	-
Sunday	-	-

Related capital investments:

- Hillsborough/Jones Franklin enhanced transfer point: improved passenger shelter, lighting, information
- State Fairgrounds enhanced transfer point: improved passenger shelter, lighting, information

Related service investments:

- GoCary Route 6 Buck Jones will be revised and extended to State Fairgrounds, providing all-day service between Cary Depot and the State Fairgrounds via Walnut Street and Buck Jones Road. The new route number will be 9B.
- GoRaleigh Route 9 Hillsborough will provide frequent all-day service between State Fairgrounds and downtown Raleigh via Hillsborough Street.
- GoTriangle Routes 300 and 305 will combine to provide 15-minute service along Western Boulevard between Hillsborough/Jones Franklin enhanced transfer point and GoRaleigh Station.





301 Cary-Raleigh

FY21

Operator:
GoTriangle

Proposed start date	August 2020
Adult one-wayfare	N/A
Wake Transit Plan reference	N/A
Wake Transit Plan status	Route elimination consistent with Wake Transit Plan

Annual operating cost and vehicles required

	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Total cost		-	-	-	-	-	-	-
Net cost		\$ (556,006)	\$ (569,906)	\$ (584,154)	\$ (598,758)	\$ (613,727)	\$ (629,070)	\$ (644,797)
Total vehicles		-	-	-	-	-	-	-
Net vehicles		(4)	(4)	(4)	(4)	(4)	(4)	(4)

Total costs and vehicles reflects costs associated with operating the new route. Net costs reflects cost of new route net of the costs of service replacements or reductions associated with implementation of the new route.

Schedule notes:

- N/A

Other notes:

- N/A

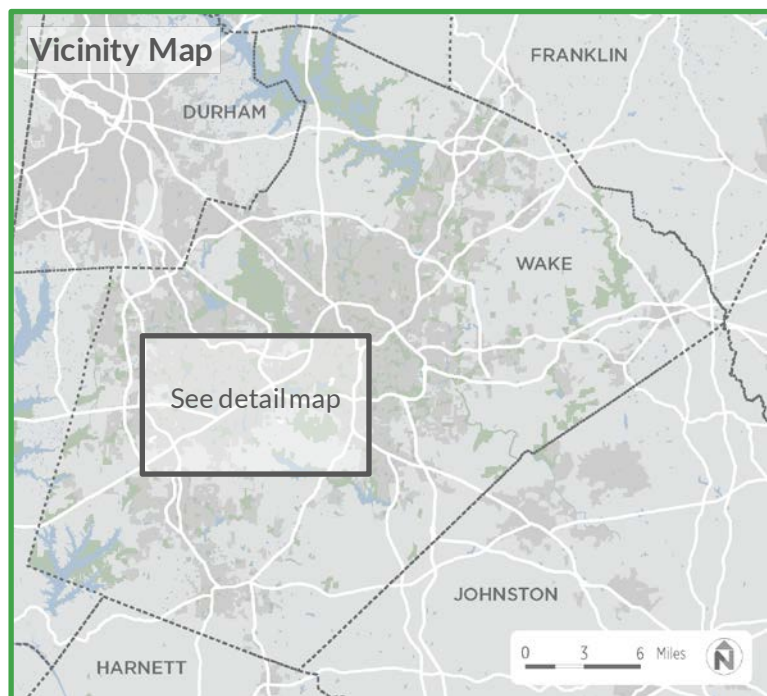


305 Apex-Raleigh

FY21

Route type:
CORE REGIONAL

Operator:
GoTriangle



Project overview: Route 305 is a regional route providing weekday peak commuter service between the Lake Pine area and Raleigh with three to four trips in each direction in the morning and afternoon on weekdays.

The Wake Transit Plan will extend Route 305 southwest into Apex. In addition, the Wake Transit Plan will expand Route 305 by adding: 1) 30-minute service during the peak; 2) hourly service during the midday; 3) extended service in the evening and 4) all day hourly service on Saturdays and Sundays.

FY17 performance: **LOW**

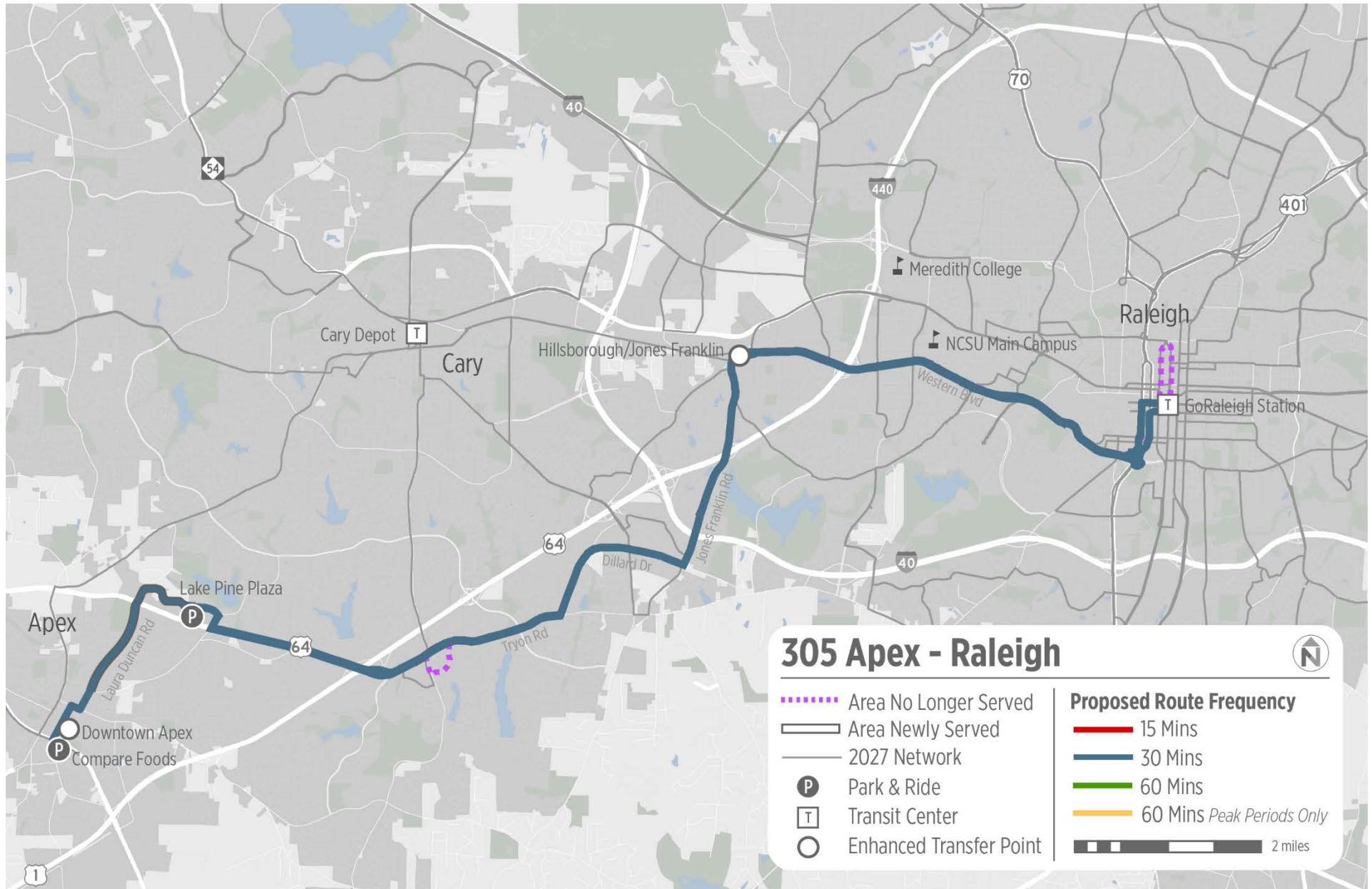
Major destinations: Apex, Cary Crossroads, NC State University, downtown Raleigh

Connection points: Downtown Apex enhanced transfer point (proposed), Compare Foods P&R, Lake Pine Plaza P&R, Hillsborough/Jones Franklin enhanced transfer point (proposed), GoRaleigh Station

	Existing	Proposed
	305 Lake Pine-Cary-Raleigh	305 Apex-Raleigh
Span of Service		
Weekday	6:10 – 9:54 AM, 4:00 – 7:00 PM	5:30 AM – 8:30 PM
Saturday	-	5:30 AM – 8:30 PM
Sunday	-	7:00 AM – 7:00 PM
Frequency		Buses depart every:
Weekday		30 minutes
AM Peak	4 trips in each direction	60
Midday	-	30
PM Peak	4 westbound trips, 3 eastbound trips	60
Evening	-	60
Saturday	-	60
Sunday	-	60

Related capital investments:

- Hillsborough/Jones Franklin enhanced transfer point (proposed FY20): improved passenger shelter, lighting, information
- Downtown Apex enhanced transfer point (proposed FY20): improved passenger shelter, lighting, information
- Lake Pine Plaza/Apex Park & Ride: additional parking capacity and improved passenger amenities
- New bus stops along Laura Duncan Road and Pine Plaza Drive in Apex to be determined in coordination with the Town of Apex.





305 Apex-Raleigh

FY21

Operator:
GoTriangle

Proposed start date	August 2020
Adult one-wayfare	\$ 2.25 or future adopted fare for this route type
Wake Transit Plan reference	35 Apex-Raleigh
Wake Transit Plan status	Included in Wake Transit Plan but modified from original alignment

Annual operating cost and vehicles required

	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Total cost		\$ 2,171,903	\$ 2,226,201	\$ 2,281,856	\$ 2,338,902	\$ 2,397,375	\$ 2,457,309	\$ 2,518,742
Net cost		\$ 1,785,969	\$ 1,830,619	\$ 1,876,384	\$ 1,923,294	\$ 1,971,376	\$ 2,020,661	\$ 2,071,177
Total vehicles		5	5	5	5	5	5	5
Net vehicles		3	3	3	3	3	3	3

Total costs and vehicles reflects costs associated with operating the new route. Net costs reflects cost of new route net of the costs of service replacements or reductions associated with implementation of the new route.

Schedule notes:

- N/A

Other notes:

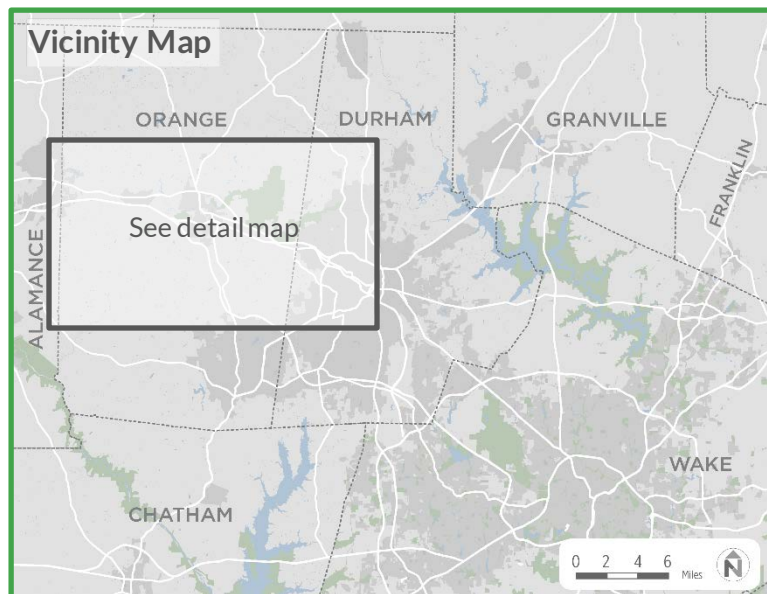
- Routing through downtown Raleigh may change based on the recommendations of the Raleigh Downtown Transportation Plan.

ODX Orange-Durham Express

FY21

Route type:
EXPRESS

Operator:
GoTriangle



Project overview: Route ODX provides weekday rush hour express service between Efland, Mebane, Hillsborough, Duke/VA Hospitals, and downtown Durham. This proposal will increase the frequency of the route from every 60 minutes to every 30 minutes. The proposal also removes out-of-direction travel between downtown Hillsborough, Efland and downtown Mebane, providing streamlined service between Mebane Cone Park & Ride, Durham Tech Orange County Campus, and Durham.

FY17 performance: **AVERAGE**

Major destinations: Mebane, Durham Tech OCC, Duke University, Duke/VA Hospitals, downtown Durham

Connection points: Mebane Cone Park & Ride, North Hillsborough Park & Ride (proposed), Durham Station

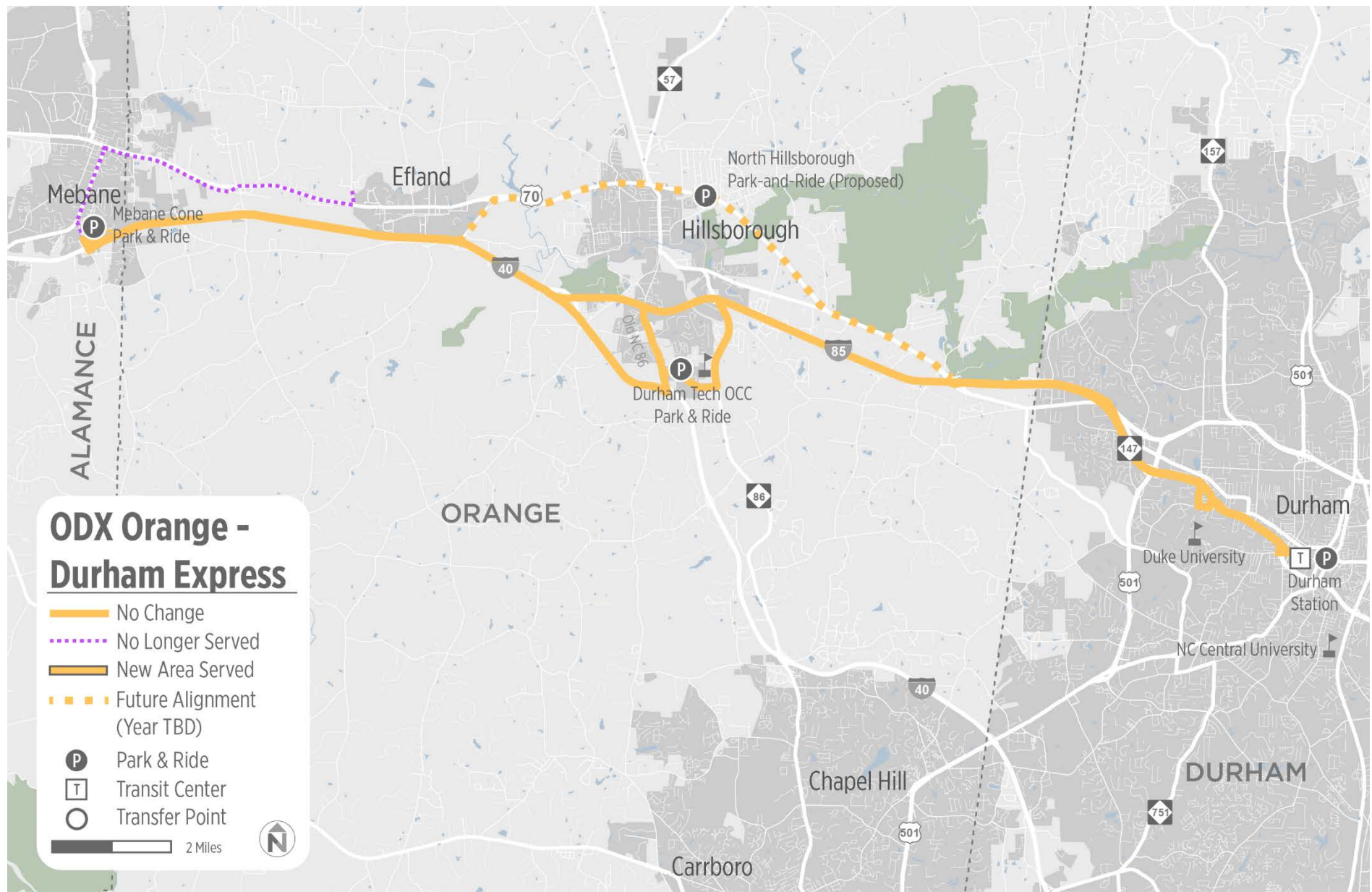
	Existing	Proposed
	<i>ODX Orange-Durham Express</i>	<i>ODX Orange-Durham Express</i>
Span of Service		
Weekday	5:45 – 8:45 AM, 4:00 – 7:10 PM	5:30 – 8:55 AM, 3:30 – 6:45 PM
Saturday	-	-
Sunday	-	-
Frequency	Buses depart every:	Buses depart every:
Weekday		
AM Peak	60 minutes	30 minutes
Midday	-	-
PM Peak	60	30
Evening	-	-
Saturday	-	-
Sunday	-	-

Related capital investments:

- North Hillsborough Park & Ride (proposed FY22): new parking capacity and passenger amenities

Related service investments:

- Orange Public Transportation (OPT) Orange-Alamance Connector (proposed) would provide connecting service between Hillsborough, Efland, and Mebane. The proposal for Route ODX should be implemented together with the Orange-Alamance Connector to maintain connections for riders in Hillsborough, Efland, and Mebane.



ODX Orange-Durham Express

FY21

Proposed start date	August 2020
Adult one-way fare	\$ 3.00 or future adopted fare for this route type
County Plan status	Identified as need in Orange County Transit Plan

Annual operating cost and vehicles required

	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Total cost		\$ 523,332	\$ 536,416	\$ 549,826	\$ 563,572	\$ 577,661	\$ 592,103	\$ 606,905
Net cost		\$ 169,129	\$ 173,361	\$ 177,696	\$ 182,135	\$ 186,691	\$ 191,364	\$ 196,141
Total vehicles		3	3	3	3	3	3	3
Net vehicles		1	1	1	1	1	1	1

Total costs and vehicles reflects costs associated with operating the new route. Net costs reflects cost of new route net of the costs of service replacements or reductions associated with implementation of the new route.

Schedule notes:

- Assumes service in peak direction only (eastbound AM/westbound PM) but RVH estimate includes vehicle repositioning (reverse commute) trips.
- Consider shifting schedule to accommodate hospital shift end time of 7:00 p.m.

Other notes:

- Implementation timeline should be coordinated with OPT service in the Mebane-Efland-Hillsborough corridor.
- Park & Ride at Cone Health in Mebane is well-utilized. Additional/replacement spaces should be identified to accommodate growth from improved service levels.

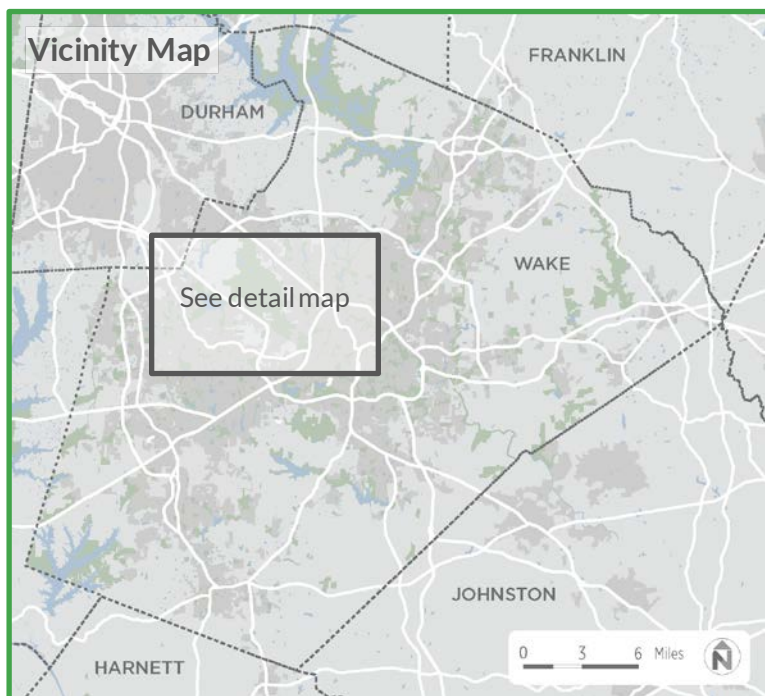


100 Raleigh-Airport-RTC

FY22

Route type:
CORE REGIONAL

Operator:
GoTriangle



Project overview: Route 100 provides daily service between Raleigh, the RDU Airport, and the Regional Transit Center (RTC) at RTP.

The Wake Transit Plan increases service on Route 100 by starting the service earlier in the morning and ending it later in the evening. The frequency of service is also improved to every 30 minutes on Sundays.

FY17 performance: **AVERAGE**

Major destinations: Downtown Raleigh, NC State University, RDU Airport, RTC

Connection points: GoRaleigh Station; Hillsborough/I-440 Park & Ride (proposed); enhanced transfer points at Hillsborough Street and Oberlin Road, Gorman Street, and State Fairgrounds (all proposed); RTC

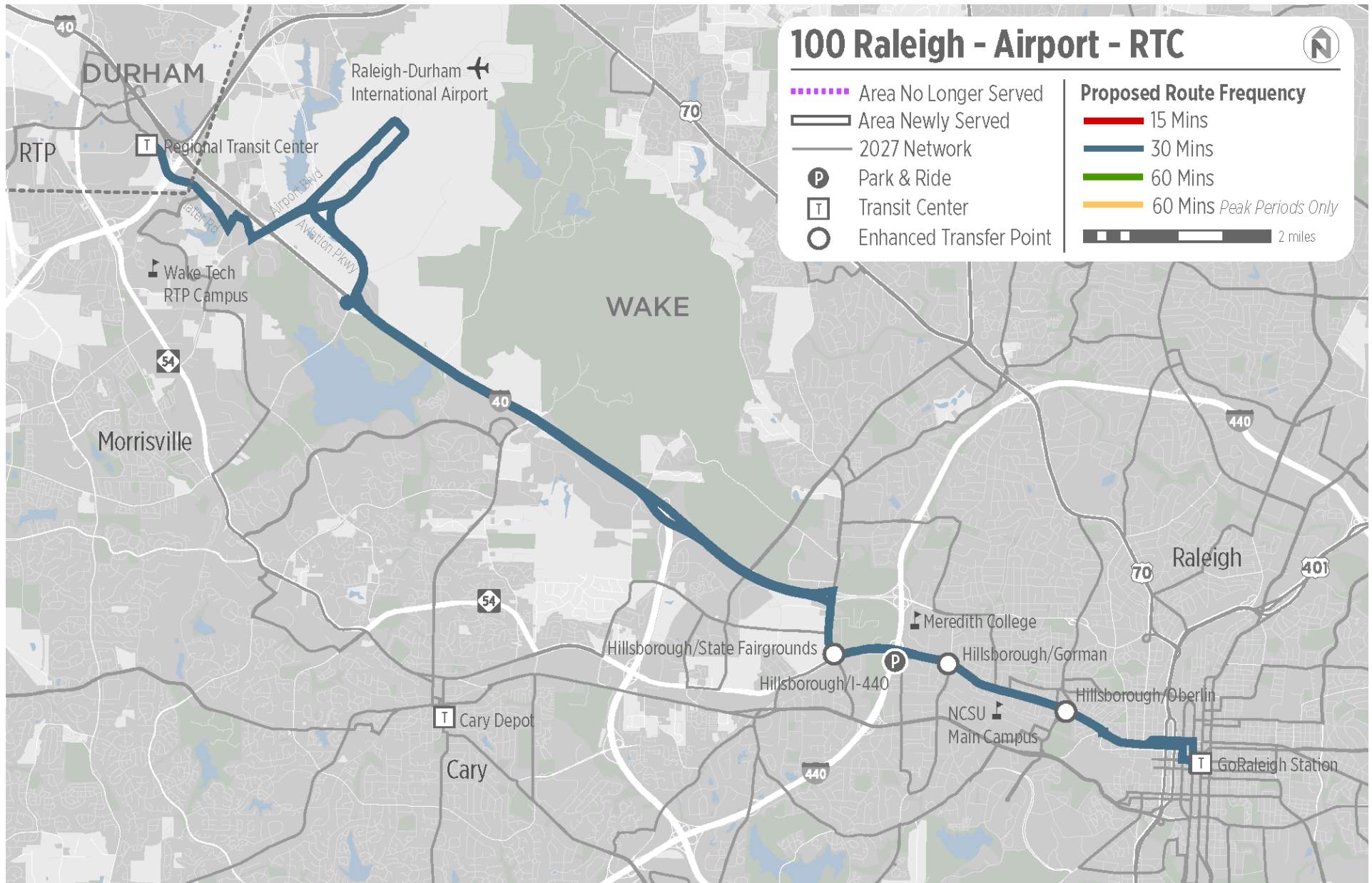
	Existing	Proposed
	100 Raleigh-Airport-RTC	100 Raleigh-Airport-RTC
Span of Service		
Weekday	6:10 AM – 11:15 PM	5:00 AM – 12:00 AM
Saturday	6:40 AM – 11:15 PM	5:00 AM – 12:00 AM
Sunday	6:40 AM – 7:15 PM	7:00 AM – 12:00 AM
Frequency	Buses depart every:	Buses depart every:
Weekday		
AM Peak	30 minutes	30 minutes
Midday	30	30
PM Peak	30	30
Evening	60	60
Saturday	30 base / 60 evening	30 base / 60 evening
Sunday	60	30 base / 60 evening

Related capital investments:

- Hillsborough/I-440 Park & Ride (proposed FY21): new parking capacity and passenger amenities
- Enhanced transfer points at Hillsborough/Oberlin, Hillsborough/Gorman, and Hillsborough/State Fairgrounds: improved shelters, lighting, and passenger information

Related service investments:

- N/A





100 Raleigh-Airport-RTC

FY22

Operator:
GoTriangle

Proposed start date	August 2021
Adult one-wayfare	\$ 2.25 or future adopted fare for this route type
Wake Transit Plan reference	140 I-40 Express (Airport)
Wake Transit Plan status	Included in Wake Transit Plan

Annual operating cost and vehicles required

	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Total cost			\$ 3,662,252	\$ 3,753,809	\$ 3,847,654	\$ 3,943,845	\$ 4,042,442	\$ 4,143,503
Net cost			\$ 1,881,105	\$ 1,928,133	\$ 1,976,336	\$ 2,025,744	\$ 2,076,388	\$ 2,128,298
Total vehicles			5	5	5	5	5	5
Net vehicles			1	1	1	1	1	1

Total costs and vehicles reflects costs associated with operating the new route. Net costs reflects cost of new route net of the costs of service replacements or reductions associated with implementation of the new route.

Schedule notes:

- Schedule should consider connections with GoRaleigh Blue Ridge service (Route 4) on Blue Ridge Road between Wade Avenue and Hillsborough Street.

Other notes:

- GoTriangle may wish to phase span and frequency improvements over time, or consider implementing additional midday service in the corridor prior to rollout of full span improvements. Potential alternative implementation plans could include:
 - Additional direct midday service in the I-40 corridor between GoRaleigh Station and the RTC (similar to Route 105).
 - Increase span and frequency as resources become available for other core regional routes serving the RTC (310, 700, 800) to match the span and frequency of Route 100. This will enhance regional connectivity by allowing passengers to transfer at the RTC to reach additional regional destinations (Chapel Hill, Durham, Morrisville). If improvements to other core regional routes are not implemented at the same time, the utility of expanding the span and frequency of Route 100 is limited.
- Routing through downtown Raleigh may change based on the recommendations of the Raleigh Downtown Transportation Plan.

2027 SERVICE PLAN

In addition to describing recommended changes in the short-term (next five years), this plan also includes recommendations for service enhancements through 2027. This horizon, specified in the Wake Transit Plan, is associated with the completion of commuter rail and Bus Rapid Transit (BRT) in Wake County, and thus the 2027 plan ends with these major investments in place and complementary changes in the bus network to support integration with the new high capacity transit services. The 2027 plan also includes improvements on routes implemented in the first five years of the plan and builds the market for commuter rail by enhancing express service between Raleigh and Durham. Figure 5-2 provides a summary of recommendations for GoTriangle services from FY25 through FY27.

Figure 5-2 Summary of 2027 Plan Recommendations

Route	Recommendation	Start Year
105 Raleigh-RTC	Discontinue service and use resources to add peak and midday service to DRX, which provides a connection at new RTC	FY25
300 Cary-Raleigh	Replace route with Bus Rapid Transit between Raleigh and Cary in the Western Blvd corridor (alignment to be determined)	FY27
310 RTC-Cary	Add service earlier in the morning, later at night, and on weekends every 30-60 minutes. Increase midday service frequency to 30 minutes.	FY25
700 Durham-RTC	Discontinue weekday daytime service and use resources to add peak and midday service to DRX, which provides a connection at new RTC. Evening and weekend service would continue.	FY25
CRX Chapel Hill-Raleigh Express	No changes through FY27; then discontinue Wake portion of service when commuter rail starts service (assumed FY27).	FY27
DRX Durham-Raleigh Express	Add peak trips and midday service with 30 minute frequency using resources from discontinued 105 and 700 service in FY25. Route would serve a new RTC. Discontinue service when commuter rails starts service (assumed FY27).	FY25, FY27
NRX North Raleigh Express	Increase frequency from service every 60 minutes to every 30 minutes during weekday peak periods.	FY26

DRX Enhancements

Route DRX (Durham-Raleigh Express) provides weekday, peak period service between Duke/VA Hospitals, downtown Durham, NC State University, and downtown Raleigh. The commuter rail line envisioned in the Wake County Transit Plan will connect these key regional destinations when it opens (expected 2027). It is anticipated that demand for service in this corridor will continue to grow, and in order to accommodate this growth and build the market for commuter rail, this plan recommends additional improvements to Route DRX between 2024 and when commuter rail opens.

The proposal for Route DRX includes increased peak frequency and new service in the middle of the day, which is a common request from current passengers. These improvements would be funded by the discontinuation of duplicative services during peak periods (Route 700 Durham-RTC and Route 105 Raleigh-RTC). This would require Route DRX to stop at the Regional Transit

Center (RTC) so that those passengers who had used Routes 700 and 105 would still have the option to connect to other routes serving the RTC.

Relationship to RTC Relocation

The coincident GoTriangle project to site and build a new RTC is a critical input to the Route DRX recommendation, because it requires Route DRX to stop at the RTC for customers wishing to make connections. The location of the new RTC will determine how much additional travel time will be required for the DRX to stop there.

To avoid the loss of riders by increasing the travel time to stop at the RTC, it is recommended that the RTC be situated such that it requires no more than 10 minutes for a bus to exit I-40, offload and load passengers at the RTC, and re-enter I-40. The end-to-end travel time on Route DRX varies from one hour to one hour and twenty-five minutes. Experience from other transit systems indicates that the benefit of additional service (in this case, midday service every 30 minutes and increased frequency at peak times) outweighs the penalty of up to 10 minutes of increased travel time for most customers. The improved service would also attract more new customers because it would provide additional options for when they can travel.

Route 310 and NRX Enhancements

The 2027 plan includes recommendations for enhancements on two routes implemented in the short-range plan: Route 310 Cary-Morrisville-RTC and Route NRX North Raleigh Express. Route 310 service will be increased to match the service hours of most other all-day routes in Wake County, adding service later at night on weekdays. Weekend service will also be added. These service improvements will open up new connections for riders from all over the region, including connections to BRT service between Cary and Raleigh when it opens the following year.

Route NRX will be improved from service every 60 minutes in the peak to service every 30 minutes. This improvement is slated to coincide with the opening of additional park-and-ride facilities in the I-540 corridor, which will drive demand for increased service. The I-540 park-and-ride lot is programed to start work in FY 2021 with site analysis. An opening date has not yet been determined, but should be taken into consideration when implementing NRX enhancements, along with evaluation of ridership demand and route performance.

Route Discontinuations

The final phase of the 2027 plan is to discontinue service that duplicates or competes with high capacity transit projects in the same corridors. This is the case for the following GoTriangle routes:

- Route 300 Cary-Raleigh will be replaced by the Western Blvd BRT line.
- Route DRX Durham-Raleigh express will be replaced by commuter rail.
- Route Wake County portion of Route CRX Chapel Hill-Raleigh express will be replaced by commuter rail with connections to bus service in the RTC-Chapel Hill corridor.

Figure 5-3 shows a map of GoTriangle services after all SRTP service recommendations are implemented but before service discontinuations associated with the implementation of light rail, commuter rail, and BRT.

FUTURE SERVICE IMPROVEMENTS

The short-term and 2027 plans include recommendations for service improvements that are fiscally constrained and affordable within the anticipated funding available from GoTriangle's existing revenue sources. Should the assumptions about funding availability change or new resources become available, GoTriangle may have the opportunity to improve service beyond what is included in the short-range and 2027 plans. This section discusses recommended service improvements for which funding has not been identified, but that would continue to build on the strong foundation of this plan and work toward the goals of making transit faster and more competitive, providing more frequent service and providing service during more hours of the day.

There are three categories of unfunded recommendations:

- **Increase the span and frequency of all core regional routes** to match those of Route 100 and Route 310 to provide consistent service with connections available at all regional terminals (GoRaleigh Station, Cary Depot, Durham Station, RTC) among the core routes that serve those stations: Routes 300, 400, 700, and 800.
- **Add peak frequency or weekday midday service to routes with peak-only service** to fill the midday gap for travelers who wish to leave or return at off-peak times: Routes 105, 311, 405, 420, 805, CRX, FRX, NRX, ODX, WRX, and ZWX. Prioritize these service additions by peak ridership demand.
- **Add peak frequency to high-ridership express routes** to ease crowding and provide room for growth: Routes CRX and DRX.
- **Maintain CRX Wake County hours beyond the implementation of commuter rail** to continue express service between Chapel Hill and Raleigh without the need to transfer.

Figure 5-4 provides a summary of unfunded service enhancement recommendations by route, along with the estimated annual net revenue vehicle hours (RVH) required and county funding share for each improvement.

Figure 5-3 GoTriangle Future Bus Network before Light Rail, Commuter Rail, and BRT

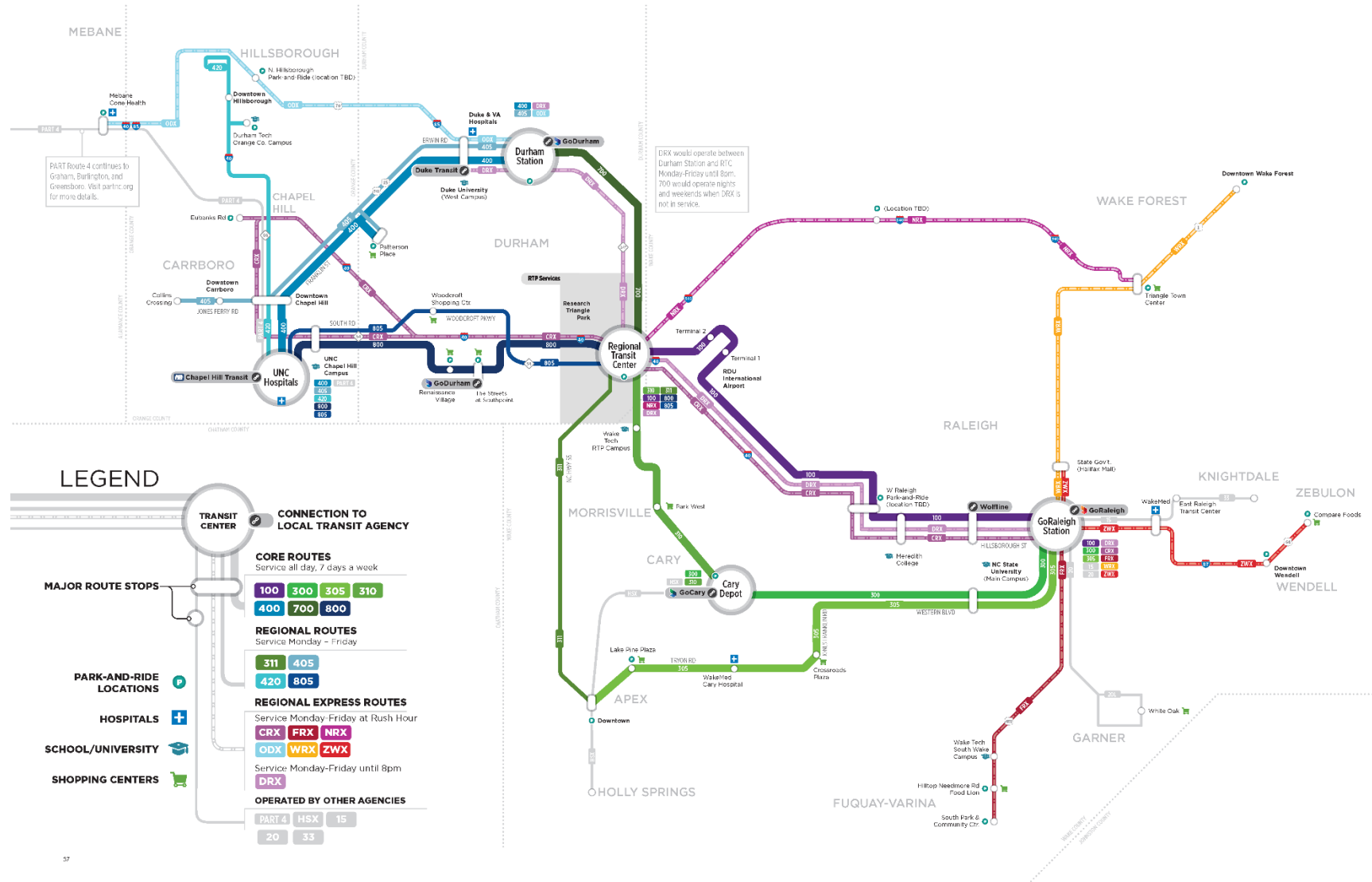


Figure 5-4 Summary of Unfunded Recommendations

Route	Unfunded Recommendation	Estimated Net Annual RVH	County Funding Share
105 Raleigh-RTC	Add hourly weekday midday service.	4,590	100% Wake
300 Cary-Raleigh	Increase span and frequency to match Route 100 service profile and build ridership for future BRT line.	7,395	100% Wake
311 Apex-RTC	Add hourly weekday midday service.	3,060	100% Wake
400 Durham-Chapel Hill	Increase span and frequency to match Route 100 service profile.	3,894	50% Durham 50% Orange
405 Durham-Chapel Hill-Carrboro	Add 30-minute weekday midday service and begin/end all trips in Carrboro.	7,650	50% Durham 50% Orange
420 Hillsborough-Chapel Hill	Add hourly weekday midday service.	3,060	100% Orange
700 Durham-RTC	Increase span and frequency to match Route 100 service profile (weekday nights and weekends when DRX is not running).	1,182	100% Durham
800 Chapel Hill-Southpoint-RTC	Increase span and frequency to match Route 100 service profile.	4,097	50% Durham 50% Orange
805 Chapel Hill-Woodcroft-RTC	Add hourly weekday midday service.	3,060	50% Durham 50% Orange
CRX Chapel Hill-Raleigh Express	Improve peak frequency to every 15-20 minutes. Add hourly weekday midday service.	4,271 3,060	50% Wake 50% Orange
CRX Chapel Hill-Raleigh Express	Maintain beyond commuter rail implementation (baseline service level)	3,984	100% Wake
DRX Durham-Raleigh Express	Improve peak frequency to every 15 minutes.	3,197	50% Wake 50% Durham
FRX Fuquay Varina-Raleigh Express	Add hourly weekday midday service.	3,060	100% Wake
ODX Orange-Durham Express	Add hourly weekday midday service.	3,060	50% Durham 50% Orange
NRX North Raleigh Express	Add hourly weekday midday service.	3,060	100% Wake
WRX Wake Forest-Raleigh Express	Add hourly weekday midday service.	3,060	100% Wake
ZWX Zebulon-Wendell-Raleigh Express	Add hourly weekday midday service.	3,060	100% Wake

CAPITAL INVESTMENT PLAN

GoTriangle's investments in bus service over the Short-Range Transit Plan time horizon (FY 2027) are accompanied by related investments in capital facilities, primarily funded through the Wake County Transit Plan, and to a smaller extent by the Durham and Orange County Transit Plans. Capital funding in Durham and Orange Counties is largely tied to development of light rail, which is not covered in this plan.

Wake County Capital Investments

The Wake Transit Plan recommends funding GoTriangle's capital program with roughly \$81 million by FY27. More than half of these funds are associated with two major projects: development of the Raleigh Union Station Bus Facility (RUSBUS) (\$30.7 million) and development of a new vehicle maintenance facility (\$24.7 million). Overall the investment schedule includes resources for development of the following:

- A new maintenance facility
- Transit centers
- Park-and-ride facilities
- Enhanced transfer points ("Super stops" where high passenger activity levels are anticipated)
- Bus stops

The Wake Transit Plan provides funding to invest in the development of new facilities and to upgrade existing facilities. Funding provided will support development to the same standard of facility at each location. Additional details about Wake Transit Plan capital investments and a description of the investment standards for each facility type can be found in the *Wake County Transit Plan: 10-Year Bus Operating and Capital Plan* (2018). Figure 5-5 provides a summary of expected capital investments associated with implementation of SRTP service recommendations and GoTriangle routes that will serve each facility (if applicable).

Figure 5-5 Wake County Capital Investments

Investment Type	Location	Routes Served (SRTP Recommendations)
GoTriangle Bus Maintenance Facility	Western Wake County/southwest Durham County (TBD)	All GoTriangle-operated routes
Raleigh Union Station Bus Facility (RUSBUS)	S West St, Raleigh	To Be Determined
Regional Transit Center	To Be Determined	100, 105, 310, 311, 700, 800, 805, DRX, NRX
Enhanced Transfer Point at Downtown Apex	Downtown Apex	305, 311
Hillsborough/I-440 Park-and-Ride	Hillsborough/I-440 vicinity	100
I-540 corridor (NRX) Park-and-Ride	I-540 corridor between Triangle Town Center and RTC	NRX

Investment Type	Location	Routes Served (SRTP Recommendations)
Bus stop improvements	Wake Countywide	TBD
Updates / Improvements to Existing Park-and-Ride Lots	Wake Countywide	FRX, WRX, ZWX, others
Vehicle Purchases	Wake Countywide	All GoTriangle-operated routes

Durham and Orange County Capital Investments

GoTriangle capital investments related to bus service in Durham and Orange Counties over the SRTP horizon (FY 2027), along with GoTriangle services that use or will use each facility are listed in Figure 5-6. Investments include:

- Transit center improvements
- Park-and-ride facilities
- Bus stop improvements

Figure 5-6 Durham and Orange County Capital Investments

County	Investment Type	Location	Routes Served (SRTP Recommendations)
Durham	Patterson Place Shopping Center bus stop amenities, park-and-ride improvements	US 15-501, Durham	400, 405
Durham	North Durham Park-and-Ride	Northern Durham County	Vanpool riders
Durham	Southpoint Transit Center improvements	Streets at Southpoint, Durham	800
Orange	North Hillsborough Park-and-Ride	US-70, Hillsborough	ODX
Durham/Orange	Bus stop improvements	Durham/Orange Countywide	All GoTriangle-operated routes