ATTACHMENT C1

Community Funding Areas

Market Analysis

Wake Transit Bus Plan

GO FORWARD
A COMMUNITY INVESTMENT IN TRANSIT

CONTENTS

1 Introduction

Public transportation can provide an important and valuable public service in all communities. Traditional public transportation, such as fixed-route bus service, is most effective in areas with high population and/or employment density. In less dense communities, other forms of public transportation, such as demand responsive services, can be used to ensure all residents are mobile and can travel to work, school and other services.

As towns in Wake County consider developing new public transportation services in their communities, they need to identify the types of services that will meet the needs of their residents and operate cost effectively. This involves understanding where potential riders live, work and travel and matching these needs with service and capital investments to promote mobility. The purpose of this market analysis is to help the communities eligible for the Community Funding Areas Program (CFAP)—the 10 non-urban core Wake County municipalities and Research Triangle Park—understand both the need and potential for transit service in and between their communities by examining characteristics that shape the demand and need for public transportation.

- **Population and employment density:** These are the strongest indicators of transit demand. Larger numbers of people living and working clustered in neighborhoods or along corridors create stronger markets for transit and indicate transit ridership potential.
- **Socioeconomic characteristics:** These indicators—as income, access to automobiles, age, and disability status—are characteristics that are often correlated with transit ridership and can indicate a need or demand for public transportation.
- **Planned transit capital and service investments:** These locations represent planned transit centers to be served by fixed-route service. Community Funding Area Program funding can be used to support transit services or infrastructure that facilitates access to planned transit services.

Each of these factors indicates demand for transit, but the potential for fixed-route bus service is also affected by urban form, land use, the pedestrian environment, and the convenience of other alternatives. For example, nearly all bus riders are also pedestrians on at least one end of their trip. As such, the safety and comfort of the walking environment strongly affects ridership. Likewise, areas with minimal traffic congestion and ample (or inexpensive) parking will have a more difficult time attracting transit riders than areas with conditions that deter driving.

This report presents market analyses for each of the CFAP-eligible communities in Wake County. It includes a chapter on each of Wake County's 10 communities, as well as for Research Triangle Park; describes the transit market; and offers strategies and ideas for developing local public

transportation services. It is meant to serve as a starting point for transit service and infrastructure improvements that are best suited for each community.

Transit service can take the form of a traditional fixed-route or more flexible service types like flex route, demand response, or ridehailing subsidies (e.g. Uber and Lyft). This report begins with a description of the methodology used to study transit potential. It also includes a list of options or a "menu" of transit service types, a description of each, and the benefits and challenges associated with each. For the market analysis, the primary data source is the U.S. Census and the 2011-2016 American Community Survey. This data set is the most recent, consistent and reliable information available for population and employment. Accrodingly, the market analyses are based on existing conditions rather than anticipated development. The market analyses will also not capture development that has occurred since the year of data collection from the American Community Survey.

TRANSIT POTENTIAL

Transit service is generally most efficient in areas with high concentrations of people and businesses. Combining both residential and employment densities yields a "transit demand index." This index shows where the conditions are most suitable for transit service based on the number of jobs, residents, and people with a higher propensity for transit use per acre.

Population Density

As discussed, fixed-route bus service works best when it connects population and employment to bus stops that are safely and easily accessible. The reach of fixed-route transit is generally considered to be 1/4 to 1/2 mile of a bus route (depending on the quality of pedestrian infrastructure and the built environment), or a 10-minute walk. The size of the travel market is directly related to the population density in that area, and as a general rule, a density of at least six people per acre is needed to support fixed route transit service (with service operating every 60 minutes). Lower-density communities can support different types of transit services, including demand response service and flex routes. Population data is based on the 2016 American Community Survey.

Employment Density

The location and number of jobs is a second strong indicator of transit demand, as traveling to and from work accounts for the largest single segment of transit trips in most markets. Additionally, transit that serves areas of high employment density provides key connections to job opportunities. The minimum level of employment density that is typically needed to support hourly fixed-route transit service is six jobs per acre. Higher densities can support greater frequency, and lower densities can support alternative transit services liked flex-route service and demand response. Employment data is based on the 2016 American Community Survey.

Socioeconomic Characteristics

Certain population subgroups are more likely to use transit than other modes as their primary means of local and regional transportation. These groups include:

- **Older Adults**: As they age, older adults often become less comfortable or less able to operate a vehicle at all times. Some older adults will prefer to travel on public transportation for trips, while others will use transit when travel is more difficult, such as after dark, during the winter months or when traveling into urban environments.
- **Individuals in Poverty:** Low-income individuals are more likely to use transit because they may not have access to a personal vehicle, or may only sometimes have access to a personal vehicle.
- **People with disabilities:** Many people with disabilities are unable to drive and/or have difficulty driving, thus public transportation can provide an important travel option.
- **People without access to a vehicle:** Whether it be by choice or due to financial or legal reasons, populations exist with no other transportation options besides using transit.

Identifying areas with relatively high concentrations of these groups can help determine where the need for transit service is greatest. Note, however, that high transit need does not necessarily mean that traditional fixed-route bus service is ideal for an area. In some locations, the density of transit-dependent population is high, but the total population is still quite low, meaning that the transit potential of the area is also low. In these environments, other public transportation solutions are likely to work best.

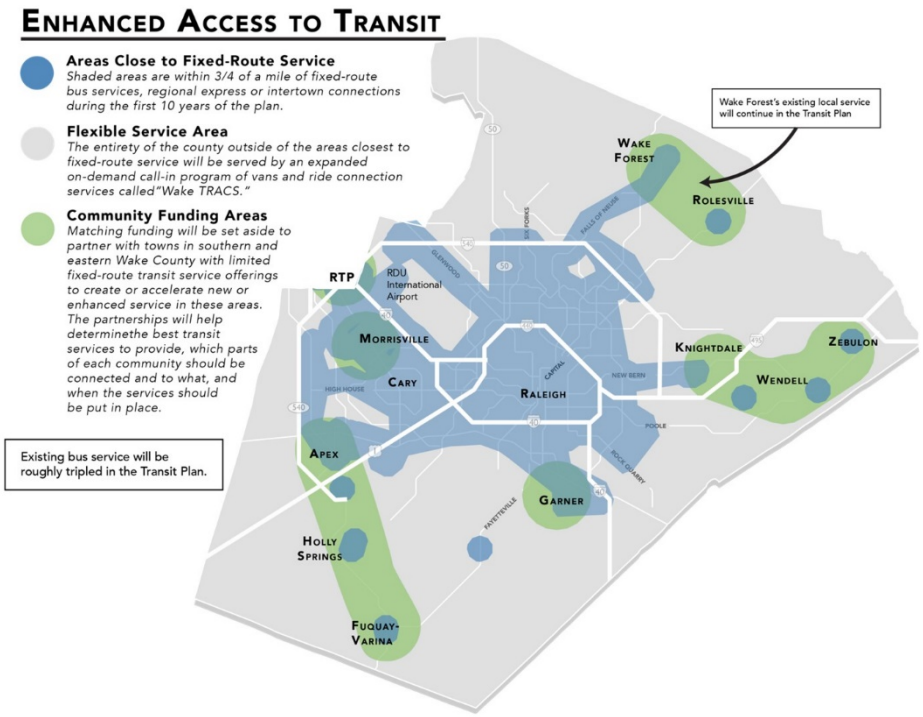
Transit Demand Index

To understand the combined impact of socioeconomic characteristics and population and employment density, Nelson\Nygaard created a transit demand index. This index takes into consideration both population and employment densities and socioeconomic characteristics. Transit index factors were developed for each demographic characteristic, measuring the likelihood of each group to use transit relative to Wake County's general population. These factors were then applied to the population at the Block Group level, calculating a transit propensity factor for each Census Block Group. This data is translated into transit service types and levels that would most likely be efficient and effective.

Planned Transit Capital and Service Investments

Many CFAP-eligible communities will receive new transit service as part of the Wake Transit Plan. The transit investment opportunities presented for the following market analyses for each of the 10 non-urban core municipalities and RTP in Wake County take into consideration all planned transit and capital investments from the Wake Transit Plan. These services include park-and-ride lots and bus services. They are included in the maps and are shown as the final Wake Transit Plan when it is fully implemented in 2027.

Wake Transit Plan Community Funding Areas and Planned Fixed-Route Service



TRANSIT SERVICE OPTIONS

The Wake Transit Plan included a Community Funding Area Program (CFAP) to help local communities meet local public transportation needs. Funding will be available through 2027 and beyond and can be used to provide or subsidize transportation services or build transit supportive infrastructure, such as sidewalks or bike paths.

Traditional fixed-route bus services, including circulator service, should operate in areas that have sufficient density and socioeconomic conditions to support it. However, there are many types of public transportation services, including flexible services like flexible "flex" routes, demand response, and/or ridesharing services (see Figure 1-1).

Another strategy to enhancing access to transit is to improve the built environment to facilitate access to planned transit stops and stations. These improvements can include building sidewalks or bike paths to facilitate access to planned transit capital improvements or expanding the available passenger amenities with items like bus stop signage, bike racks, benches, and shelters.

Figure 1-1 Flexible Transit Options for CFAP-Eligible Municipalities

WAKE TRANSIT

TRANSIT SERVICE TYPES	DESCRIPTION	BENEFITS AND CHALLENGES	VEHICLE TYPE
LOCAL CIRCULATOR	Local circulator services typically operate on an hourly headway and are designed to directly serve important destinations and corridors.	**BENEFITS** • Stops are close together, requiring less walking. • Provides good coverage, serving a wide variety of destinations. **CHALLENGES** • Routes can be circuitous and make frequent stops, causing longer travel times. • Riders have less flexibility about when they travel. • Longer travel times which attracts fewer riders than other fixed-route services.	
FEEDER	Feeder services are designed to provide an easy connection to transit stations or high capacity transit services, such as the region's planned bus rapid transit services.	**BENEFITS** • The schedule of these services is tied to the arrivals and departures of GoTriangle, GoRaleigh, and GoCary services. • Alignments are direct in order to make the trip as fast as possible to riders. • Cost effective way to allow riders to make long distance trips on transit. **CHALLENGES** • Feeder services are for passengers planning to connect to another transit service and must be very reliable to ensure that passengers make their connection	
FLEX ROUTE	Flex services are a hybrid between fixed route and demand response service. Flex routes travel along a fixed alignment with scheduled start times, but can deviate from the route up to 1/4 mile to directly serve a destination if requested by a rider. Passengers may also "flag" a bus at any safe point along the fixed route rather than having to walk to a specific stop.	**BENEFITS** • Flex service can meet requirements for complementary ADA paratransit service without traditional demand response service. • Riders can get door-to-door service if their trip starts and ends within the 1/4 mile boundary. **CHALLENGES** • Riders may not know when the bus is coming. • Travel is indirect and trips can take a long time due to deviations requested by riders.	
DEMAND RESPONSE	Demand response services (sometimes called Dial-A-Ride) provide door-to-door trips within a specified service area using smaller transit vehicles. These services typically operate in lower density suburban and rural communities.	**BENEFITS** • Provides service in areas that lack the population density to support fixed-route bus service. • Improves the mobility of residents without other travel options. **CHALLENGES** • Typically requires advance reservations, reducing flexibility for passengers. • High cost per passenger than other transit services.	
TNC	Transportation Network Companies (TNCs) offer on-demand, point-to-point transportation. Similar to taxis, TNCs provide transportation services for compensation using an online-enabled application or platform.	**BENEFITS** • Provides service in areas that lack the population density to support fixed-route bus service. • Improves the mobility of residents without other travel options. **CHALLENGES** • Providing only a subsidy of TNC trips could result in passengers paying high fares. • Difficult to set restrictions on trips.	

WAKE COUNTY RURAL TRANSIT SERVICES

GoWake Access

All communities in Wake County already have access to some public transportation services. While some communities (Fuquay-Varina, Zebulon, Wake Forest, etc.) are served by regional express routes, all communities have access to demand response services operated by GoWake Access. GoWake Access is available from 6:00 AM to 6:00 PM Monday – Saturday for Wake County residents who are age 60 or older, have a disability, or are traveling for work related purposes. Residents living in designated rural areas can also use the service for any trip purpose. Riders must book their trip on GoWake Access in advance, and the fare is $2.00 or $4.00 depending on trip distance and location.

GoWake Access will continue to operate under the Wake Transit Plan, so these services will continue to be available to Wake County residents. GoWake Access is a viable option for many individuals; however, the service is largely oriented around regional connections and less focused on local circulation. As a result, there may be opportunities to develop new demand response services that are more oriented and focused on local travel needs and/or providing access to new fixed route services, such as commuter express routes.

2 Apex

Apex is a town in southwestern Wake County with a population of 50,451 (2017), having grown by 34% since 2010. About 14,320 jobs are located in Apex. The town has a relatively high concentration of jobs and retail located in its walkable town center along W. Williams Street and between US 64 and Pine Plaza Drive. Apex has a very small population of residents with a high propensity for transit, but Community Funding Areas Program-funded local transit could play an important role in improving local access to the activity hubs in the town center along W. Williams Street and U.S. 64, as well as providing a midday connection to Cary and/or Holly Springs.

Apex is currently served by the Apex-RTC Route (311) and the Lake Pine-Cary-Raleigh Route (305). The Apex-RTC Route provides peak-only service between Apex and RTP. The Lake Pine-Cary-Raleigh Route provides peak-only service from Apex's park-and-ride lot at Lake Pine Plaza inbound to downtown Raleigh via WakeMed Cary Hospital.

PLANNED TRANSIT CAPITAL AND SERVICE INVESTMENTS

There are a handful of transit investments planned for Apex in the next few years. Changes planned for 2020 include a new peak period commuter express service, the Holly Springs Express (HSX), which will connect Holly Spring and Cary via Apex. This route will be operated by GoCary. Another service change scheduled for 2021 is Apex to Raleigh service (Route 305), which will be operated by GoTriangle. The planned changes include extending the route into downtown Apex, providing all day service into downtown Raleigh and operating on weekdays as well as Saturdays and Sundays. These service increases will be implemented in conjuction with a reduction in service on the Apex to Regional Transit Center route (311). This change will reduce the number of trips between Apex and RTC from 12 to six per day. Overall, however, Apex residents will have direct access to Holly Springs, Cary, RTC and Raleigh.

The investment in transit service will be matched by investments in passenger facilities and amenities. Apex is currently scheduled to host an enhanced bus stop or transfer center, which may also include park and ride lot facilities. The Wake Transit Plan is also exploring the need or potential for improvements to and or relocation of the Lake Pine park and ride lot.

POPULATION AND EMPLOYMENT DENSITY

Population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. Density is important for two reasons: 1) places with large numbers of people and jobs produce the greatest demand for transit service and 2) nearly every transit trip also includes a walk trip; dense areas have more destinations (or origins) within a close, safe and comfortable walking distance.

Apex's population and employment density is relatively high in and near its town center, along Williams Street, and along the eastern alignment of Highway 64. This higher concentration of population and employment density will support the planned half-hourly service from Apex to downtown Raleigh and the planned peak service to Cary and Holly Springs set to begin in 2021.

However, outside of the town center and the major thoroughfares, the low density development in Apex and significant gaps in biking and pedestrian infrastructure limit the feasibility of fixed-route transit.

Population Density

Population density in Apex is relatively high in the town center, south of Olive Chapel Road and North of Salem Street, and east of Laura Duncan Road and north of Old Raleigh Road. These areas have a population density of at least 5 residents per acre. Density in the town center is increasing, as several new developments undergo construction. Elsewhere in Apex, residential densities range from 2-4 people per acre (Figure 2-1). The population density in the areas with at least 5 people per acre, especially near the walkable Apex town center, will support the 30 minute bus service to downtown Raleigh. However, the outlying areas of Apex lack pedestrian connectivity to origins and destinations along Highway 64and Williams Street, which are all planned transit corridors. A pedestrian facility is programmed along Williams Street from Olive Chapel Road to US 1 in the Capital Area Metropolitan Planning Organization (CAMPO) Transportation Improvement Program (TIP) within the next five years.

Employment Density

Employment density is relatively high along Williams Street, in Apex town center, and at US 1 and Ten Ten Road. An additional concentration of employment density exists just outside the Apex boundary in Cary between US 1 and US 64. These areas have an employment density of 6-30 jobs per acre (Figure 2-2). The downtown employment density is high enough to support the planned 30 minute service to Raleigh, and the Williams Street employment density is high enough to support the planned peak service to Holly Springs, Cary, and RTP. Most of the large strip malls along Williams Street lack pedestrian connectivity, and most uses are separated by large surface parking lots, limiting the effectiveness of fixed-route transit. A pedestrian facility is programmed along Williams Street in the CAMPO TIP within the next five years.

Figure 2-1 Apex Population Density

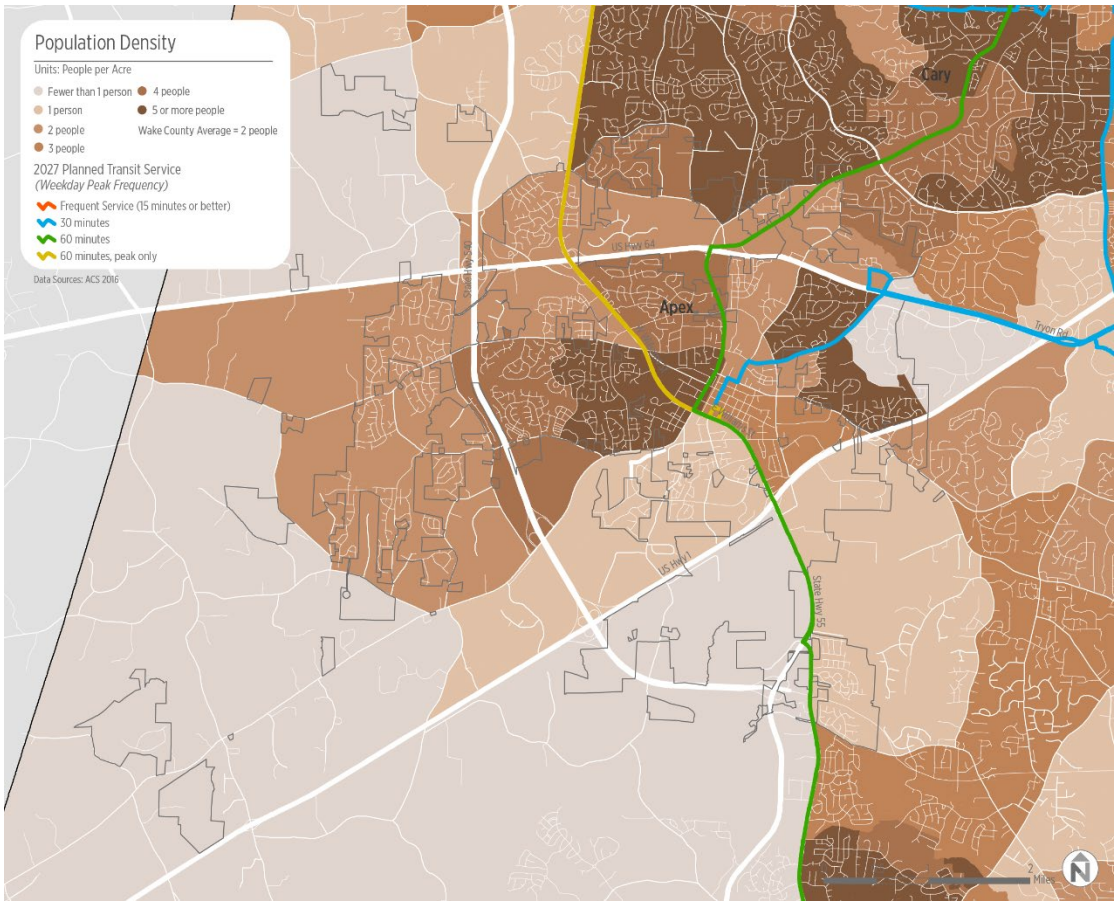
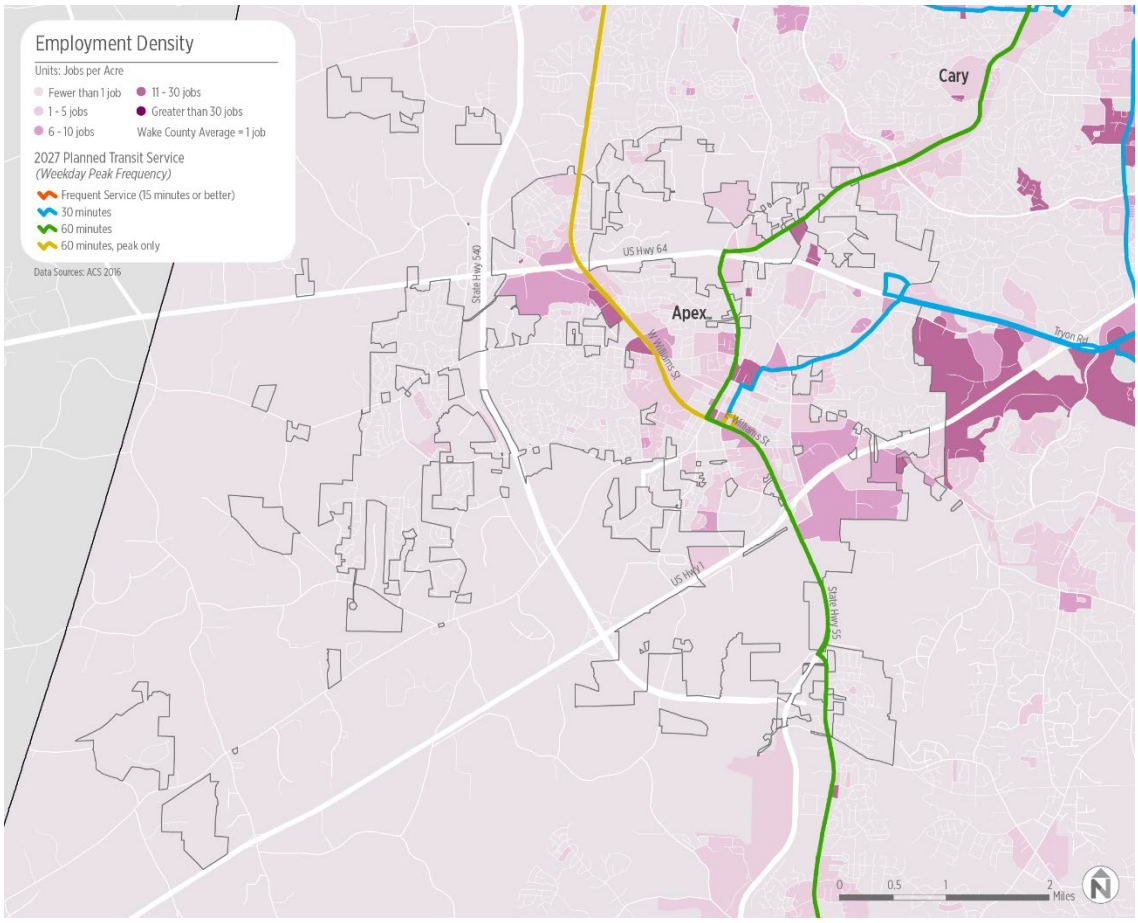


Figure 2-2 Apex Employment Density

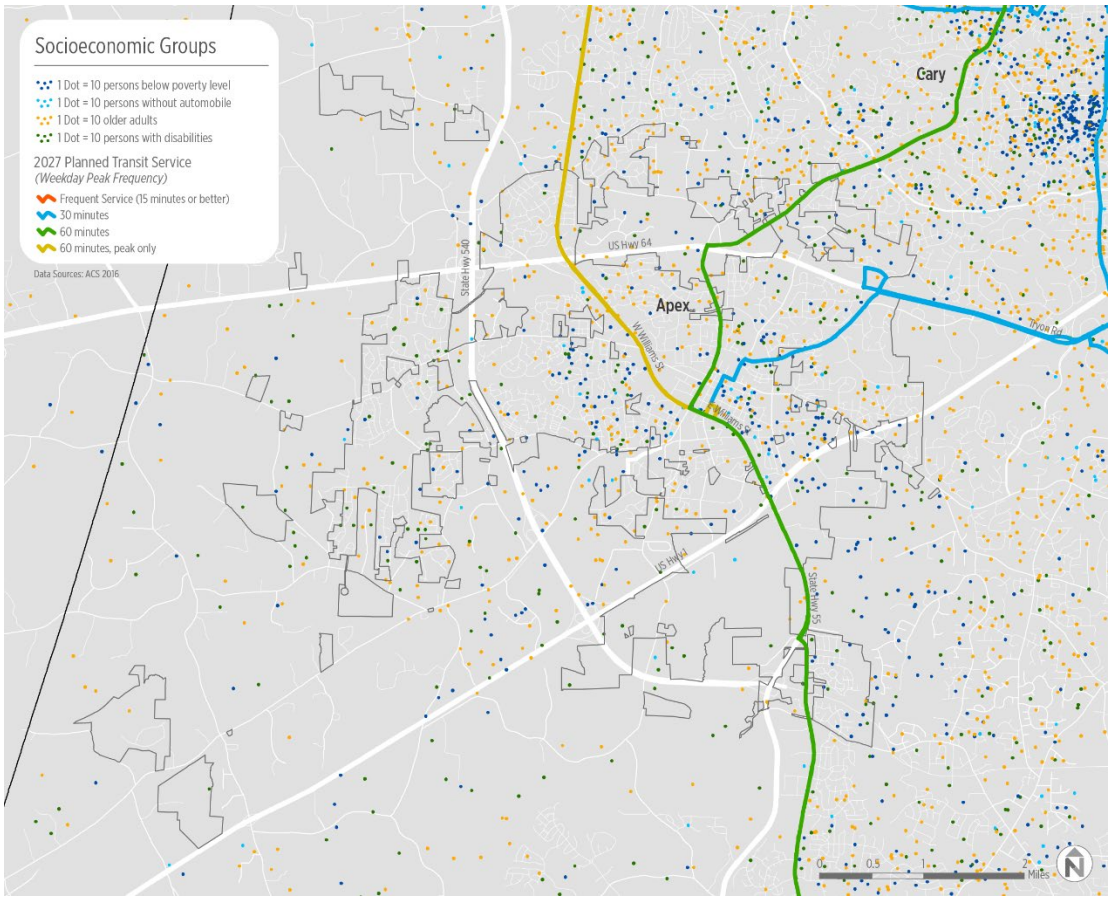


SOCIOECONOMIC CHARACTERISTICS

The socioeconomic characteristics of Apex residents do not demonstrate a strong propensity for transit use. The town has a low poverty rate, a small senior community, and a small number of residents with a disability. About 5% of residents are below the poverty line. Seven percent (7%) of the population is 65 years of age or older, and 4.5% of Apex's residents have a disability.

Low-income residents without an automobile, seniors, and residents with a disability are relatively concentrated near the town center. Elsewhere in Apex, these more transit-inclined residents reside in low density settings (Figure 2-3).

Figure 2-3 Apex Dot Density of Select Socioeconomic Characteristics

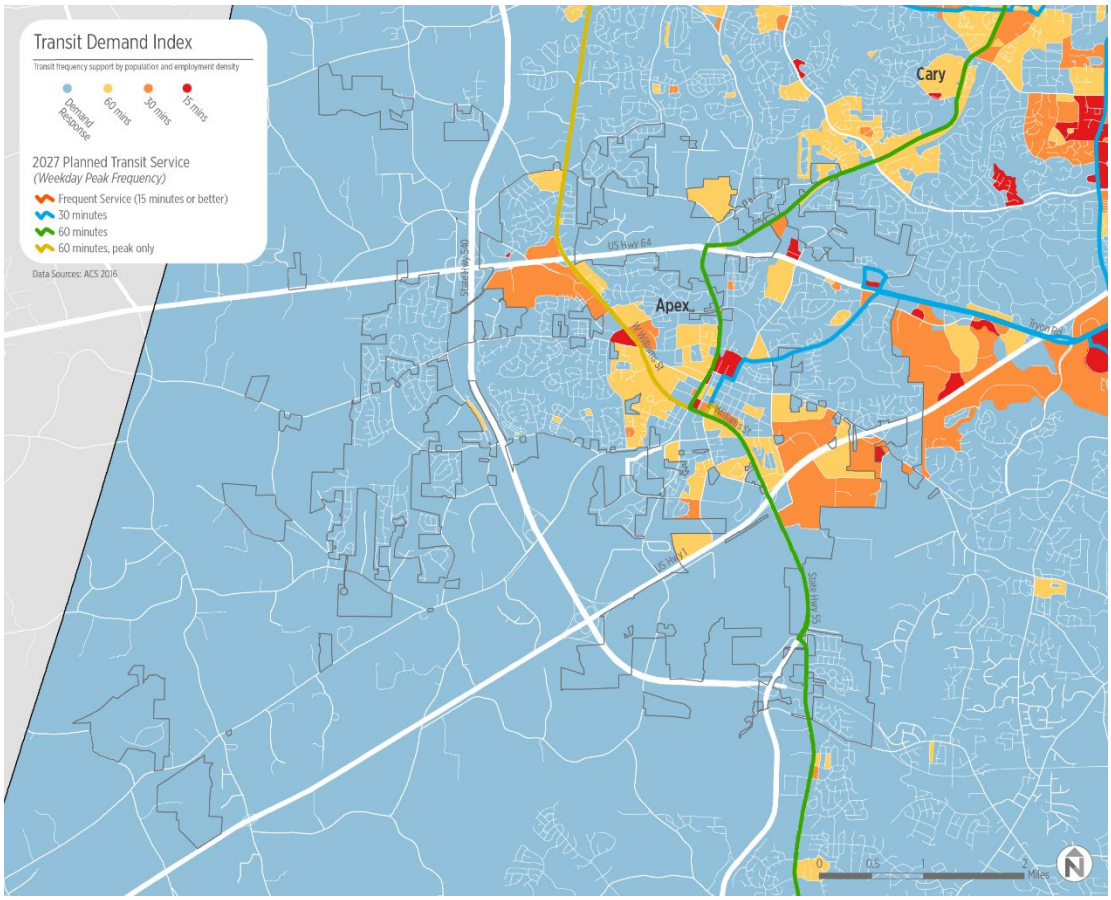


Transit Demand Index

As discussed, population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. However, population and employment analyses do not consider factors other than density. Similarly, the analysis of socioeconomic groups with a high propensity to use transit considers these population subgroups individually.

Figure 2-4, which shows a transit propensity index that estimates the underlying market and demand for transit, suggests that Apex can support the planned all-day fixed-route transit service from Apex town center to downtown Raleigh and the planned peak-hour fixed-route transit service from Apex to Holly Springs and downtown Cary. In addition, there may exist a market for midday service connecting the town to Holly Springs and downtown Cary and a market for internal circulation within Apex that connects the various concentrations of population and employment density together with planned regional transit services.

Figure 2-4 Apex Transit Demand Index



TRANSIT INVESTMENT OPTIONS

Apex could leverage Community Funding Area Program funds to support the following types of transit. These transit investments are well suited to Apex's socioeconomic characteristics and existing commuting patterns.

Guide to Service Costs:

Operating Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Capital Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Partner with Ride-Hailing Companies ($)

A less expensive and more flexible way to give residents an alternative way to travel would be by collaborating with ride-hailing companies (e.g. Uber and Lyft). Ride hailing service could be available to provide local circulation or connections to transit facilities.

Increase Provision of Demand Response Service ($-$$)

The low- to moderate-density nature of most of Apex makes it well suited for enhanced demand response service for trips within the community. This type of door-to-door service is already provided by GoWake Access but is limited to eligible riders (primarily older adults and persons with disabilities) and certain trip purposes, such as travel to medical appointments or employment. CFAP funds could be used to expand the availability of demand response service for use by a wider group of people and / or for more types of travel.

Demand response service could be used to connect residents with existing and planned transit services and/or provide local circulation.

Develop Local Circulator Service ($$$$ and $$)

CFAP funds could be used to establish a local route that operates within Apex and provides service between residential and service areas and potentially to local park and ride lots. The existing land uses suggest that any fixed route services would need to be carefully designed to match needs. As density increases, however, the demand and need – and likelihood of success - for local transit service will increase.

Develop Mid-Day Flex Route Service between Apex and Cary ($$$$ and $$)

CFAP funds could be used to establish a flex route service between the town center in Apex and Cary town center along Old Apex Road. This alignment will be served by peak-only service beginning in 2021, so CFAP funds could be used to supplement this corridor with midday service.

Develop All-Day Flex Route Service between Apex and Holly Springs ($$$$ and $$)

Apex could work with Holly Springs to use CFAP funds to develop a flex route connecting Apex and Holly Springs. A flex route option would allow residents within a quarter mile of the corridor connecting Apex to Holly Springs to access jobs and shopping in Apex as well as the all-day bus service between Apex and Raleigh. There is no planned midday transit service between Holly Springs and Apex in the Wake Transit Plan.

3 Fuquay-Varina

Fuquay-Varina is a town in south Wake County with a population of 27,906 (2017). It was one of the fastest growing towns in Wake County from 2010-2017, growing by 42%. About 5,310 jobs are located in Fuquay-Varina. The town has a relatively high concentration of jobs and retail located along Main Street at Judd Parkway, which is a regional big box retail center, and in downtown Fuquay-Varina, which is concentrated along 8 blocks on Main Street at Highway 42. Fuquay-Varina has a small population of residents with a high propensity for transit, but Community Funding Areas Program-funded local transit could play an important role in improving regional access to the activity hubs along Main Street as well as connecting the town to planned all-day service at Wake Technical Community College as well as the nearby town of Holly Springs.

PLANNED TRANSIT CAPITAL AND SERVICE INVESTMENTS

Fuquay-Varina will continue to be served by the Fuquay-Varina Express (FRX) route which provides peak-only express service from Fuquay's Park-and-Ride lot inbound to downtown Raleigh. The Wake Bus Plan is recommending minor changes to bus services on the NC 401 corridor including augmenting the Wake Tech funded Wake Tech Express (40X) so the service eoperates year round. The new proposed service, Garner – Wake Tech (Route 29) will operate from Garner to the Wake Tech Campus on days when the Wake Tech Express is not in service.

The Wake Bus Plan will also add a stop at the Wake Tech Main Campus so that people living in Fuquay-Varina will have direct service to the campus. The new stop is currently planned for 2023.

POPULATION AND EMPLOYMENT DENSITY

Population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. Density is important for two reasons: 1) places with large numbers of people and jobs produce the greatest demand for transit service and 2) nearly every transit trip also includes a walk trip; dense areas have more destinations (or origins) within a close, safe and comfortable walking distance.

Fuquay-Varina's population and employment density is relatively high along Main Street. This type of medium population and employment density could support transit, however the sprawling nature of the retail area along North Main Street at Judd Parkway reduces the walkability of the area.

Population Density

Population density in Fuquay-Varina is relatively high south and east of Main Street (Figure 3-1), where the population density averages 4 residents per acre. While the population density could be supportive of transit, the area lacks pedestrian connectivity between the two downtowns of the town, especially along Main Street and Judd Parkway. Population densities are also higher

north of the town's center along Steward Avenue, which has single-family housing on smaller sized lots. This area has an average population density of 3 people per acre, while the rest of the town has about 1 resident per acre.

Employment Density

Employment density is relatively high along Main Street, at Highway 42/West Academy Street, as well as at Main Street and Judd Parkway; these areas have an employment density of 6-30 jobs per acre (Figure 3-2). This employment density is high enough to potentially support local transit service, however the big box retail center at Main Street and Judd Parkway lacks comfortable pedestrian and bicycling infrastructure, and most uses are separated by large surface parking lots.

Figure 3-1 Fuquay-Varina Population Density

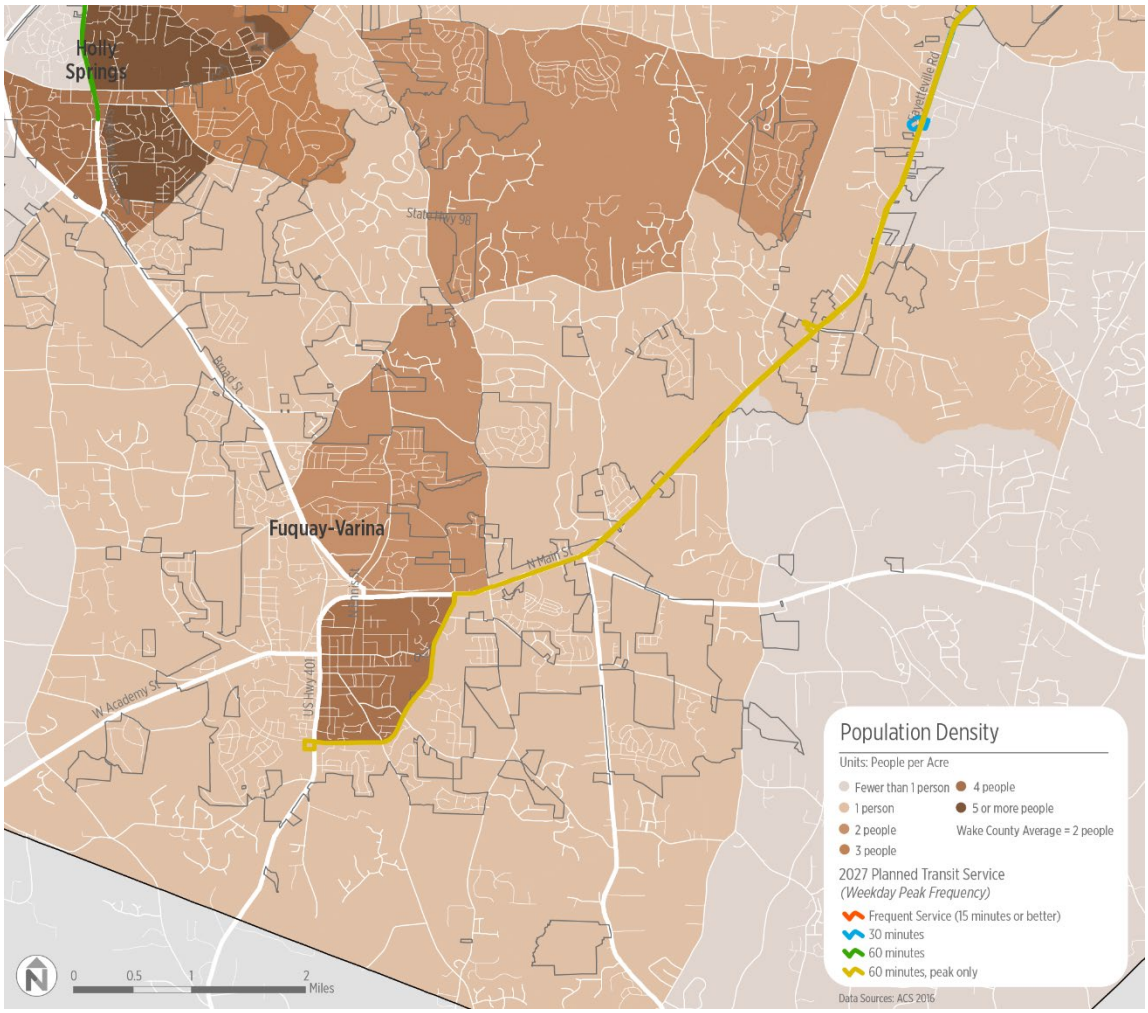
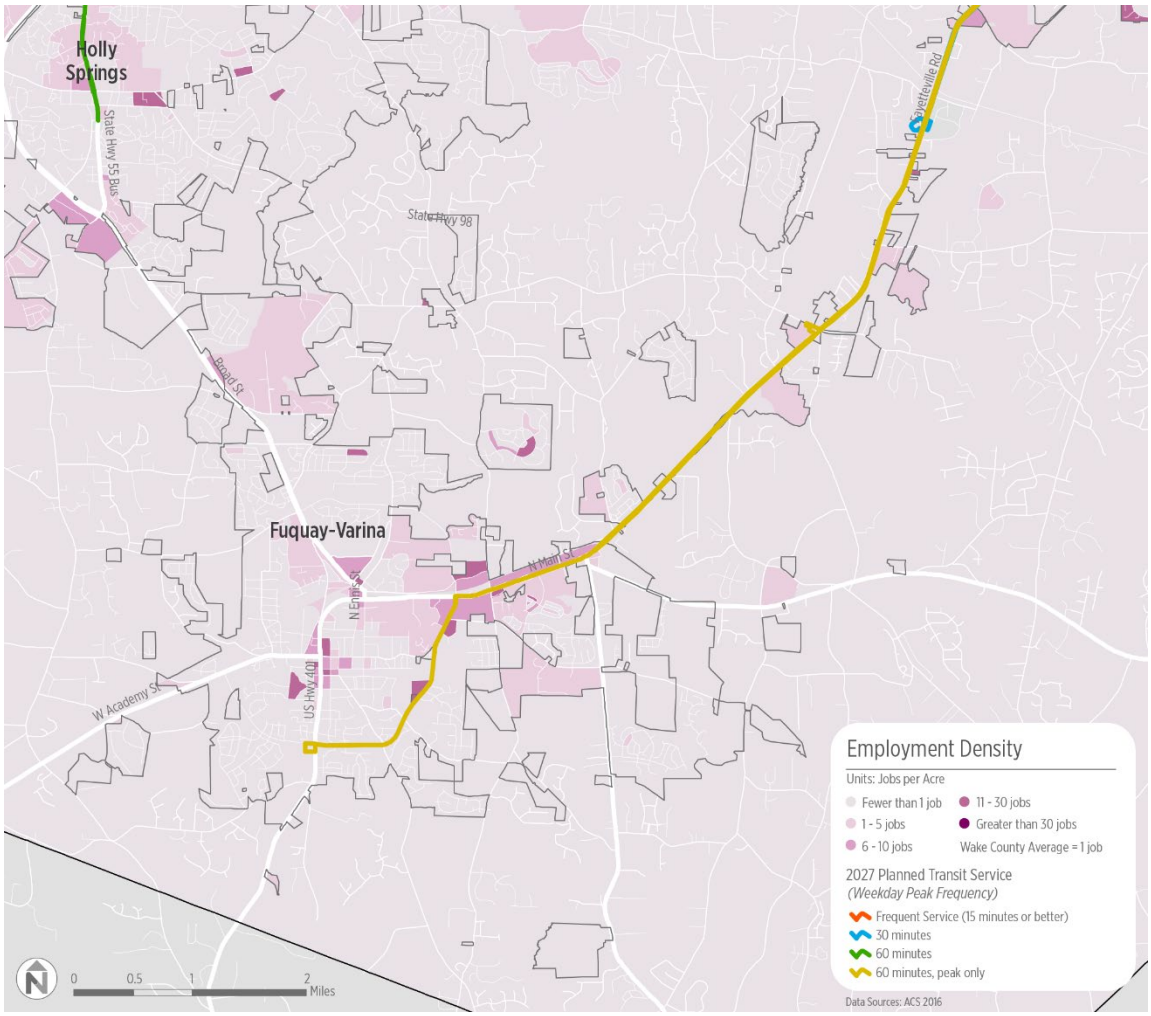


Figure 3-2 Fuquay-Varina Employment Density

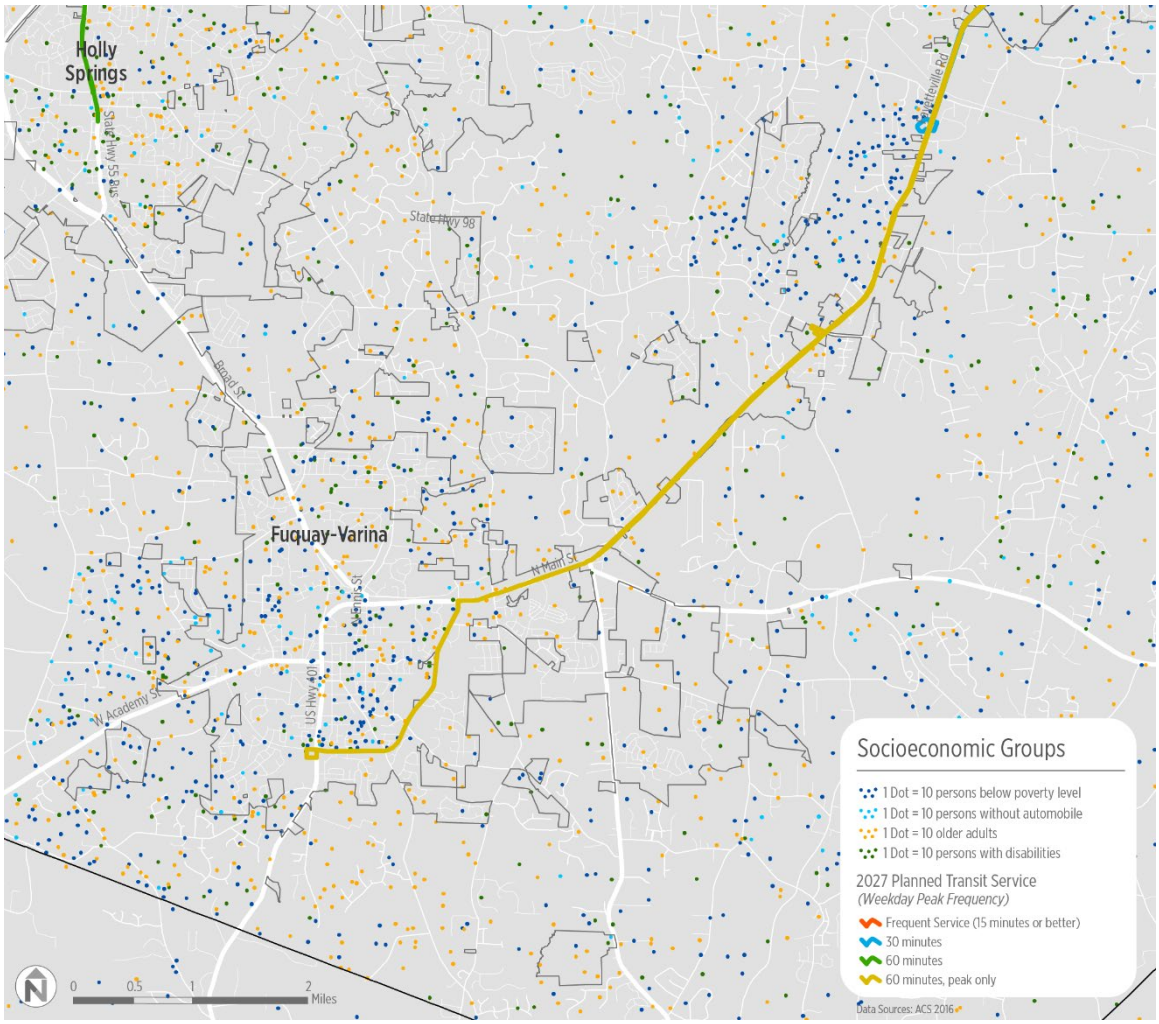


SOCIOECONOMIC CHARACTERISTICS

Fuquay-Varina lacks a significant number of residents with a high propensity for transit. The town has a low poverty rate, a small senior community, and a small number of residents with a disability. 4% of residents are below the poverty line. 11% of the population is 65 years of age or older, and 6% of Fuquay-Varina's residents has a disability.

Low-income residents without an automobile, seniors, and residents with a disability are relatively concentrated south and east of Main Street. Elsewhere in Fuquay-Varina, these more transit-inclined residents reside in low densities (Figure 3-3).

Figure 3-3 Fuquay-Varina Dot Density of Select Socioeconomic Characteristics

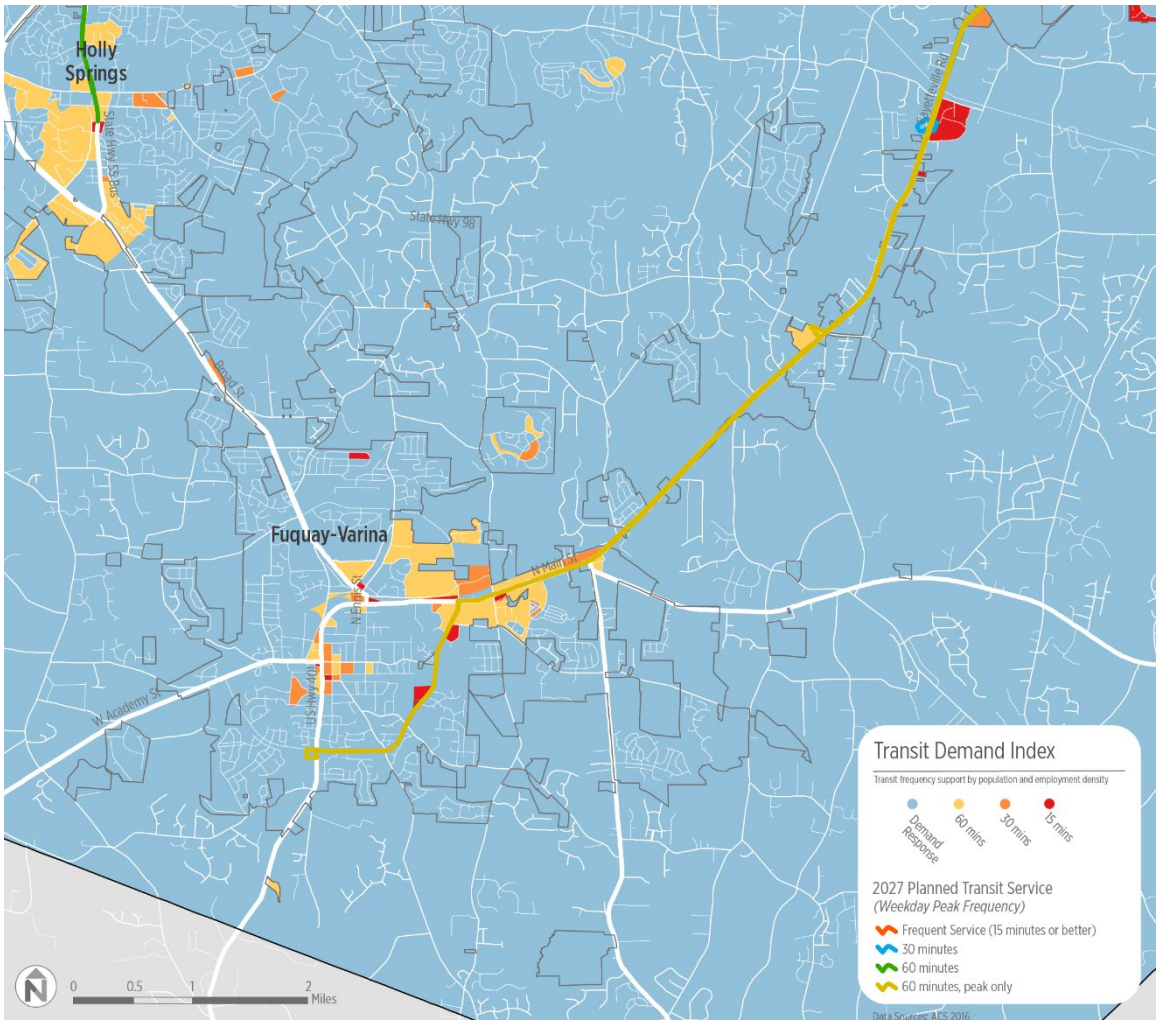


Transit Demand Index

As discussed, population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. However, population and employment analyses do not consider factors other than density. Similarly, the analysis of socioeconomic groups with a high propensity to use transit considers these population subgroups individually.

Figure 3-4, which shows a transit propensity index that estimates the underlying market and demand for transit, suggests that Fuquay-Varina can support fixed-route transit service along Main Street and there may exist a market for service connecting the town to Holly Springs and the Wake Tech Campus on Fayetteville Road.

Figure 3-4 Fuquay-Varina Transit Demand Index



TRANSIT INVESTMENT OPTIONS

Fuquay-Varina could leverage Community Funding Area Program funds to support the following types of transit. These transit investments are well suited to Fuquay-Varina's socioeconomic characteristics and existing commuting patterns.

Guide to Service Costs:

Operating Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Capital Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Partner with Ride-Hailing Companies ($)

A less expensive and more flexible way to give residents an alternative way to travel would be by collaborating with ride-hailing companies (e.g. Uber and Lyft). Ride hailing service could be available to bring passengers to the park-and-ride lot on Main Street in Fuquay Varina or to travel to/from the Wake Tech Main Campus (for example).

Increase Provision of Demand Response Service ($-$$)

The low-density nature of most of Fuquay-Varina except along Main Street makes it well suited for enhanced demand response service for trips within the community. This type of door-to-door service is already provided by GoWake Access but is limited to eligible riders (primarily older adults and persons with disabilities) and certain trip purposes, such as travel to medical appointments or employment. CFAP funds could be used to expand the availability of demand response service for use by a wider group of people and / or for more types of travel.

Demand response service enhances regional transit opportunities for Fuquay-Varina residents, because it can connect less mobile residents with service like the peak hour express service to downtown Raleigh via the Wake Tech Main Campus. It can also serve demand for midday transit trips by bringing residents to shopping options in the regional activity center along Main Street.

Develop Fixed-Route Local Circulator Service ($$$$ and $$)

In the future with additional and higher density land uses, Fuquay-Varina may support a fixed-route commuter service along Main Street that connects the park-and-ride lot to the big box retail at Main Street and Judd Parkway with potentially an express connection to the Wake Tech Main Campus which will be served by all-day 30 minute service to downtown Raleigh.

Develop All-Day Service between Fuquay-Varina and Wake Tech ($$$$ and $$)

CFAP funds could be used to establish an all-day route service between the Main Street corridor in Fuquay-Varina and the Wake Tech Main Campus. The connecting service would meet the Wake Tech Express, which operates with 30-minute frequency all day into downtown Raleigh. This all day service could be operated as a direct service with or without flexibility to deviate off route in Fuquay-Varina.

Develop All-Day Service between Fuquay-Varina and Holly Springs ($$$$ and $$)

Fuquay-Varina is linked economically to Holly Springs. Holly Springs and Fuquay-Varina could work together to leverage CFAP funds and develop a bus route that operates between Fuquay-Varina and Holly Springs. This connection would give Fuquay-Varina residents more direct access to destinations in Western Wake County, including Apex, Cary, RTP and North Carolina State University.

4 Garner

Garner is a town in south central Wake County with a population of 28,858 (2017), having grown by 11% since 2010. Garner has a relatively high concentration of jobs and retail located along Highway 70, a regional activity corridor with large big box style shopping destinations. Garner has concentrations of residents with a high propensity for transit; Community Funding Areas Program-funded local transit could play an important role in connecting the denser neighborhoods of Garner to the activity hub along Highway 70 as well as the planned 15-minute service from Fayetteville Road at Wilmington Street to downtown Raleigh.

Garner is currently served by the Raleigh-Garner route, which provides peak-only service between the White Oak Shopping Center, Garner's Park-and-Ride lot and downtown Raleigh. In the morning, Route 102 travels in a large loop from downtown Raleigh to the White Oak Shopping Center via I-40 before serving Garner's Park-and-ride lot then returning to Raleigh. In the evening, the route travels along the loop in the reverse direction, originating in downtown Raleigh then serving the White Oak Shopping Center and Garner's Park-and-Ride lot before returning to Raleigh via I-40.

PLANNED TRANSIT CAPITAL AND SERVICE INVESTMENTS

Garner is slated to receive significant transit capital and service investments from the Wake Transit Plan. Although the final location has not yet been determined, Garner's northwestern corner will be the terminus of a new north-south Bus Rapid Transit (BRT) line. The BRT line will operate all day and provide 10-minute service for most of the day.

Garner is also scheduled to be served by commuter rail, with two stations to be built within the town. One station will be built near Benson Road just north of Highway 70. This station is also planned to be served by hourly direct service to downtown Raleigh beginning in 2021 and half-hourly beginning in 2024. The other commuter rail station will be in the Auburn neighborhood near the intersection of Auburn Knightdale Road and US 70. The commuter rail line provides service to Durham via downtown Raleigh, Morrisville, and RTP; it will have up to 8 peak direction trips during peak period and 2 to 3 midday trips. This station is also planned to be served by hourly direct service to downtown Raleigh beginning in 2021 and half-hourly beginning in 2024.

In the short-term, the Wake Transit Plan will also expand transit service into Garner with two new routes. Route 20 Garner will connect downtown Raleigh with the Forest Hill Shopping Area, traveling via Hammon Route. This route is designed top operate all day, seven days a week with buses departing every 30 minutes. It is planned for implementation in 2020 and will be operated by GoRaleigh. From the Forest Hill Shopping Area, Route 20 Garner split into Route 20L Garner South, which add service to the White Oak Shopping Center, alternating travel between East Garner Road and Timber Drive.

Other planned investments in Garner include an enhanced transfer point at Garner Station Boulevard that will include both park and ride facilities and passenger amenities.

POPULATION AND EMPLOYMENT DENSITY

Population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. Density is important for two reasons: 1) places with large numbers of people and jobs produce the greatest demand for transit service and 2) nearly every transit trip also includes a walk trip; dense areas have more destinations (or origins) within a close, safe and comfortable walking distance.

Garner's employment density is relatively high along Highway 70 and at Timber Drive and Aversboro Road. Population density is relatively high, with more than 5 people per acre, between Aversboro Road and Vandora Springs Road. This type of medium-to-high population and employment density could support transit, however the sprawling nature of the town, as well as the high-speed design of Highway 70 reduces the walkability of the area.

Population Density

Population density in Garner is densest immediately east of Vandora Springs Road and west of Aversboro Road (Figure 4-1), where the population density averages 5 or more residents per acre. Most other areas of Garner south of Highway 70 have a population density of at least 3 people per acre, except for the far western area of Garner along Highway 401, where there is very low population density. While the population density south of Highway 70 could be supportive of transit, the area lacks pedestrian connectivity between the residential subdivisions and the employment area along Highway 70.

Employment Density

Employment density is relatively high along Highway 70, which is a regional hub for retail—primarily big box stores—as well as some industrial uses (Figure 4-2). Employment densities along Highway 70 range from 5-30+ jobs per acre along this corridor, high enough to potentially support local transit service. Like much of the rest of Garner, the area lacks comfortable pedestrian and bicycling infrastructure, and most uses are separated by large surface parking lots. Garner also has some employment clusters along Timber Drive at Aversboro Road and at Vandora Springs Road, where job density is between 6 and 30 jobs per acre.

An isolated employment cluster exists in Garner along Raynor Road. This industrial park has an average job density of 1-10 jobs per acre.

Figure 4-1 Garner Population Density

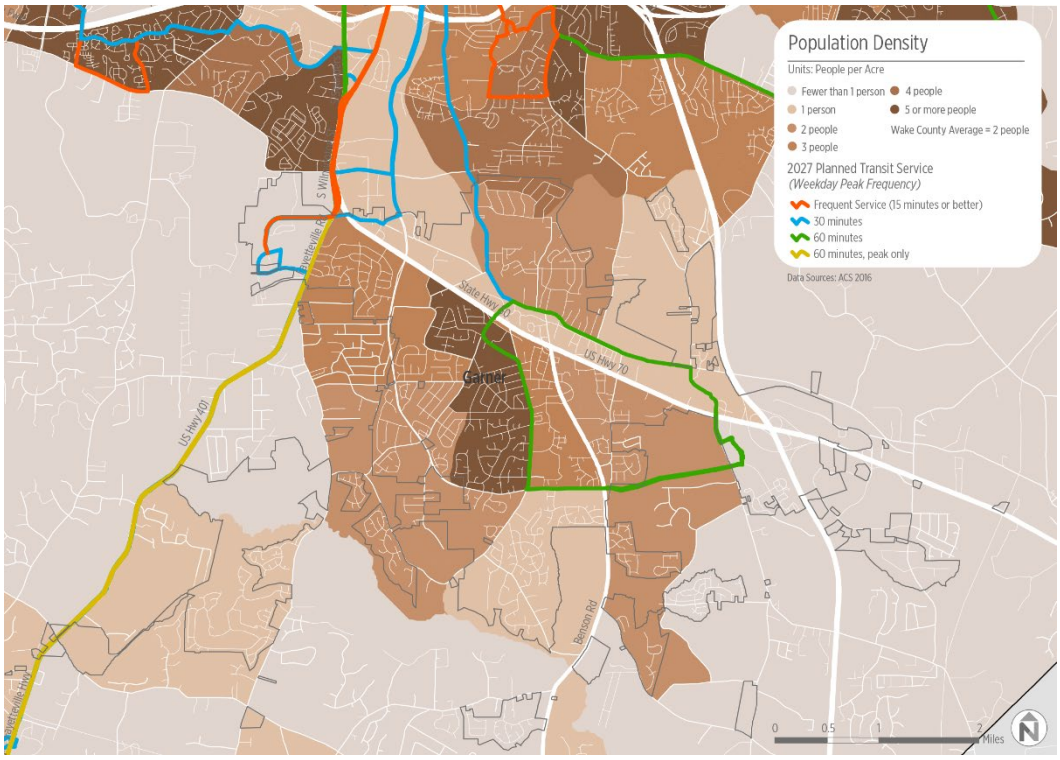
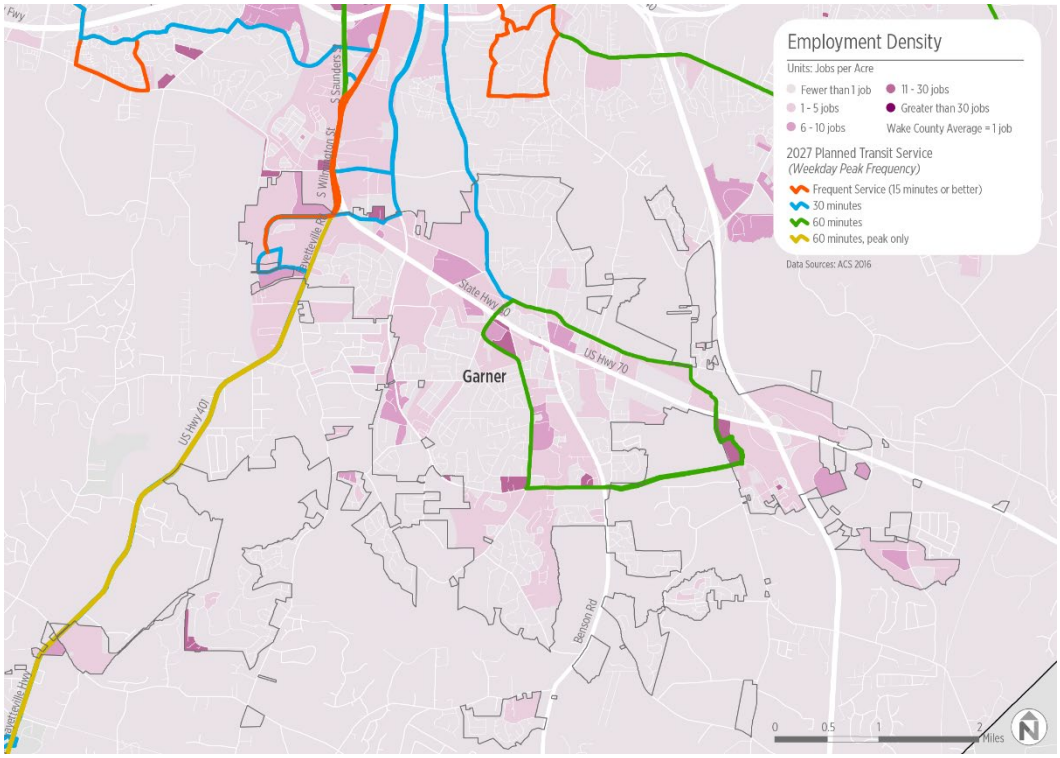


Figure 4-2 Garner Employment Density

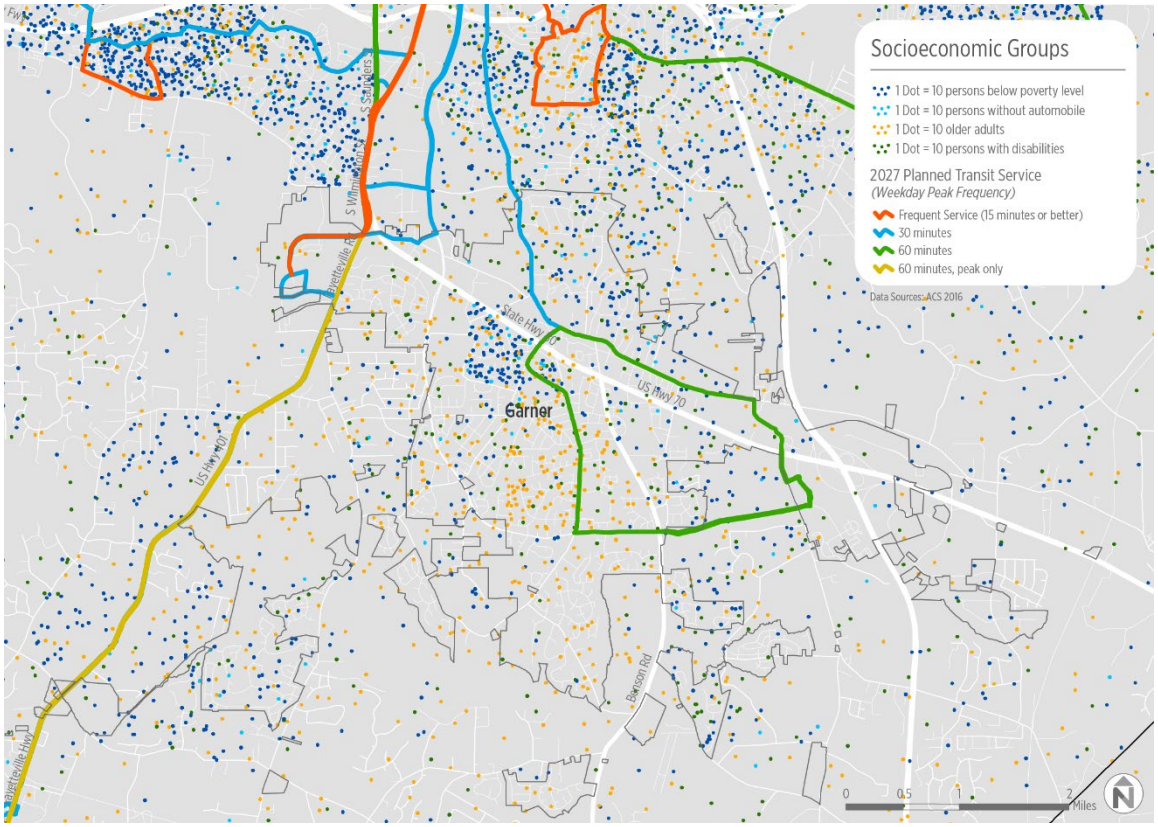


SOCIOECONOMIC CHARACTERISTICS

Garner has some concentrated areas with a significant number of residents with a high propensity for transit. The town has an average poverty rate, an average-sized senior community, and a small number of residents with a disability. 11% of residents are below the poverty line. 13.4% of the population is 65 years of age or older, and 7.2% of Garner's residents has a disability.

People living below the poverty level are relatively concentrated south of Highway 70 at Vandora Springs Road, and residents with a disability are relatively concentrated between Vandora Springs Road and Aversboro Road, where there are some medium-density residential neighborhoods. Elsewhere in Garner, these more transit-inclined residents reside in low densities (Figure 4-3).

Figure 4-3 Garner Dot Density of Select Socioeconomic Characteristics

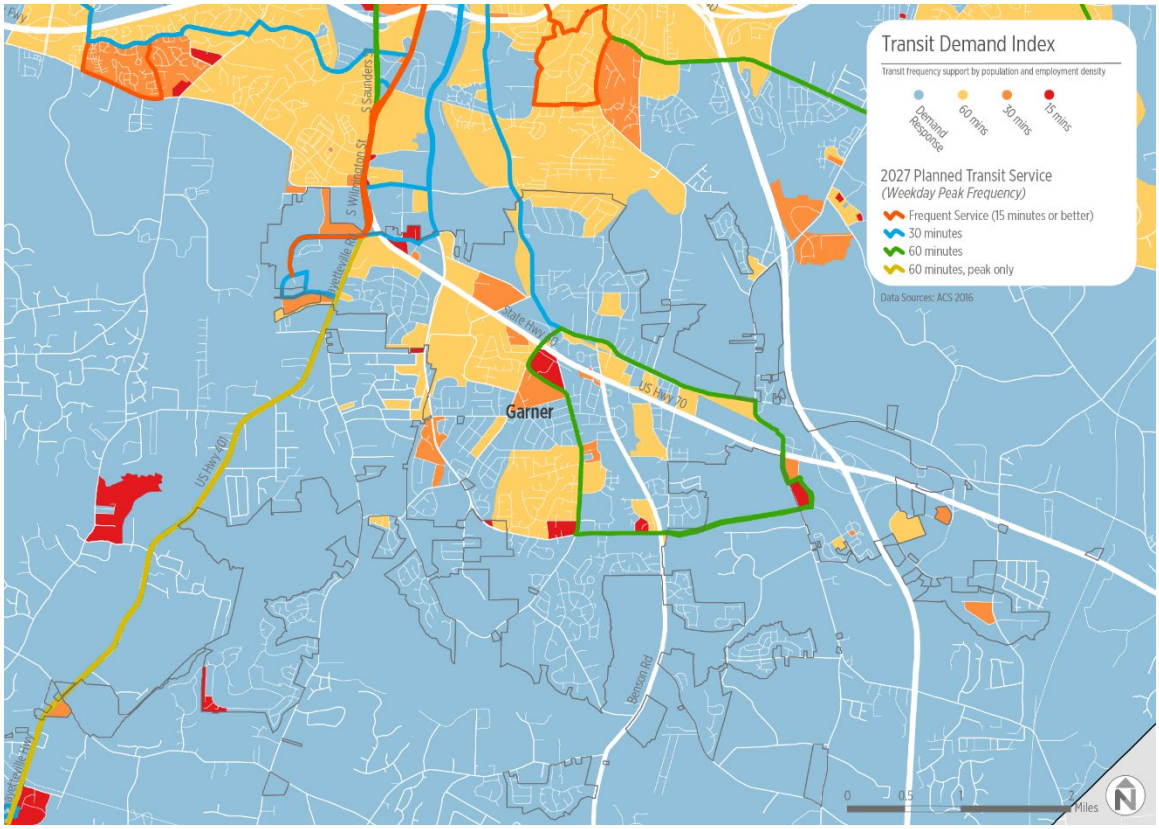


Transit Demand Index

As discussed, population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. However, population and employment analyses do not consider factors other than density. Similarly, the analysis of socioeconomic groups with a high propensity to use transit considers these population subgroups individually.

This next map (Figure 4-4) shows a transit propensity index that estimates the underlying market and demand for transit including both densities and demographic and socioeconomic characteristics. This data suggests that Garner can support fixed route transit service in the denser area along and south of Highway 70, and along and northeast of Timber Drive. The other areas of Garner are low-density and can support demand response service.

Figure 4-4 Garner Transit Demand Index



TRANSIT INVESTMENT OPTIONS

Garner could leverage Community Funding Area Program funds to support the following types of transit. These transit investments are well suited to Garner's socioeconomic characteristics and existing commuting patterns.

Guide to Service Costs:

Operating Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Capital Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Extending GoRaleigh Routes ($$-$$$)

Garner may consider using Community Funding Areas funds to extend existing GoRaleigh routes, by expanding or changing the existing route alignments or expanding the hours of operation. This strategy could be used to extend Route 5 Biltmore Hills and/or Route 22 State Street to provide a combination of local circulation and access to Garner Station; or extensions or changes to existing GoRaleigh routes. This strategy may be effective in the short-term before the Wake Transit Plan is fully implemented and/or before BRT and CRT are operating.

Garner could collaborate with GoRaleigh to design extensions to existing routes and develop an appropriate cost share formula. The advantage to this strategy is that it offers an efficient and effective way to expand service and at the same time, build Garner's transit market.

Partner with Ride-Hailing Companies ($)

A less expensive and more flexible way to give residents an alternative way to travel would be by collaborating with ride-hailing companies (e.g. Uber and Lyft). Ride hailing services could be used to create options for ad hoc local travel, or potentially to make connections to Wake Transit Plan routes.

Increase Provision of Demand Response Service ($-$$)

The low-density nature of most of Garner makes it well suited for enhanced demand response service, including for travel within the community. This type of door-to-door service is already provided by GoWake Access but is limited to eligible riders (primarily older adults and persons with disabilities) and certain trip purposes, such as travel to medical appointments or employment. CFAP funds could be used to expand the availability of demand response service

for use by a wider group of people and / or for more types of travel. For this type of project to be successful, the investment in demand response service would be directed to Garner residents only.

Demand response service enhances regional transit opportunities for Garner residents, because it gives less mobile residents options for conducting local trips for shopping and services. Demand response can also be used to make connections with new routes, like the planned frequent service to downtown Raleigh.

Improve Pedestrian and Bicycle Infrastructure ($-$$)

Safer and more direct access to bus stops along the corridor to be served by hourly service to Raleigh will make Garner a more accessible and less car-dependent place.

Improvements to sidewalks, crosswalks, and bicycle infrastructure will serve to support planned hourly service to Raleigh by facilitating easier pedestrian connections to the planned frequent bus service stops at Garner Station, or potentially near Fayetteville St. and Garner Station Blvd. and to the planned CRT station.

Develop All-Day Flex Route Service along Highway 70 ($$$$ and $$)

Garner could leverage CFAP funds to subsidize flex route service connecting residents living within a 1/4 mile radius of Highway 70 and Aversboro Road to the planned frequent BRT service to Raleigh that will terminate near Fayetteville Street and Garner Station Blvd. A flex route option would also allow these residents to access jobs and shopping along Highway 70, as well as connect to the planned half-hourly service from Garner Station and the commuter rail station.

Develop All-Day Circulator Service ($$$$ and $$)

In the future, with additional density, Garner could operate a Circulator Loop as identified in the Garner Forward Transportation Plan along major employment and shopping/retail corridors like US 70, Jones Sausage Road, and White Oak Rd. to connect residents to employment centers and shopping.

5 Holly Springs

Holly Springs is a town in southwest Wake County with a population of 35,223 (2017). It was one of the fastest growing towns in Wake County from 2010-2017, growing by 33%. About 5,310 jobs are located in Holly Springs. The town has a relatively high concentration of jobs and retail located along Highway 55, which is a regional big box retail corridor with some large employer sites like Novartis. Holly Springs Town Center, at Holly Springs Road and Main Street, also has some relatively high job density. Holly Springs has a small population of residents with a high propensity for transit, but Community Funding Areas Program-funded local transit could play an important role in improving regional access to the activity hubs along Highway 55 as well as connecting the town to planned all-day service at Wake Technical Community College as well as the nearby town of Fuquay-Varina.

PLANNED TRANSIT CAPITAL AND SERVICE INVESTMENTS

The Wake Transit Plan is planning a new regional express service, the Holly Springs Express (HSX) that will provide peak period express service from Holly Springs to Cary via Apex. This new route is scheduled to open in 2020. Passengers will have the option to transfer at Apex or Cary to get to Research Triangle Park, downtown Raleigh or North Carolina State University.

The Wake Transit Plan has also planned a new park and ride lot in Holly Springs to support access to the new express route.

POPULATION AND EMPLOYMENT DENSITY

Population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. Density is important for two reasons: 1) places with large numbers of people and jobs produce the greatest demand for transit service and 2) nearly every transit trip also includes a walk trip; dense areas have more destinations (or origins) within a close, safe and comfortable walking distance.

Holly Springs' population density is highest near the town center east of Main Street. Employment density is relatively high along Highway 55 and east of the town center on Holly Springs Road. This type of medium population and employment density could support transit, however the sprawling nature of the retail and job destinations along Highway 55 reduces the walkability of the area.

Population Density

Population density in Holly Springs is relatively high within a one mile radius of the town center at Main Street and Holly Springs Road, with the density east of Main Street expected to continue to grow as more housing is developed. East of the town center, population density is more than 5 residents per acre close to town and gradually decreases with distance. Southwest of the town center and east of Highway 55, the population density is about 4 residents per average. While the population density close to the town center could be supportive of transit, the area lacks

pedestrian connectivity between its residential areas and Route 55. Most of the rest of Holly Springs east of Highway 55 is dense enough to support only demand response service. West of the retail and job sites along Highway 55, population density is too low to support any transit (Figure 5-1).

Employment Density

Employment density is relatively high along Highway 55, in the town center, and directly east of the town center at Holly Springs Road and Bass Lake Road. The retail and job sites along Highway 55 and in the town center have an employment density of 1-10 jobs per acre (Figure 5-2). The strip mall at Holly Springs Road and Bass Lake Road has a job density of between 11-30 jobs per acre. The employment densities in these areas are high enough to potentially support local transit service, however the general lack of comfortable pedestrian and bicycle infrastructure to access these sites, as well as their siting behind large surface parking lots, poses challenges for fixed-route transit.

Figure 5-1 Holly Springs Population Density

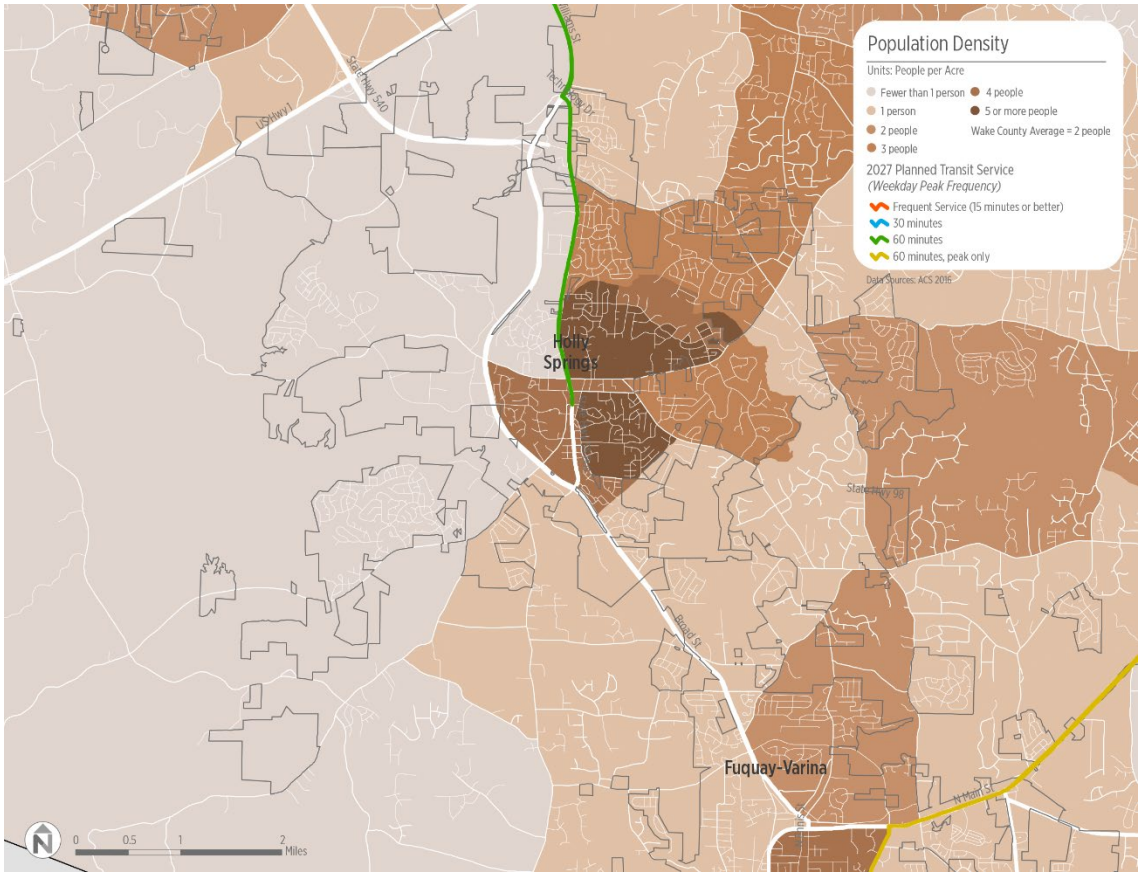
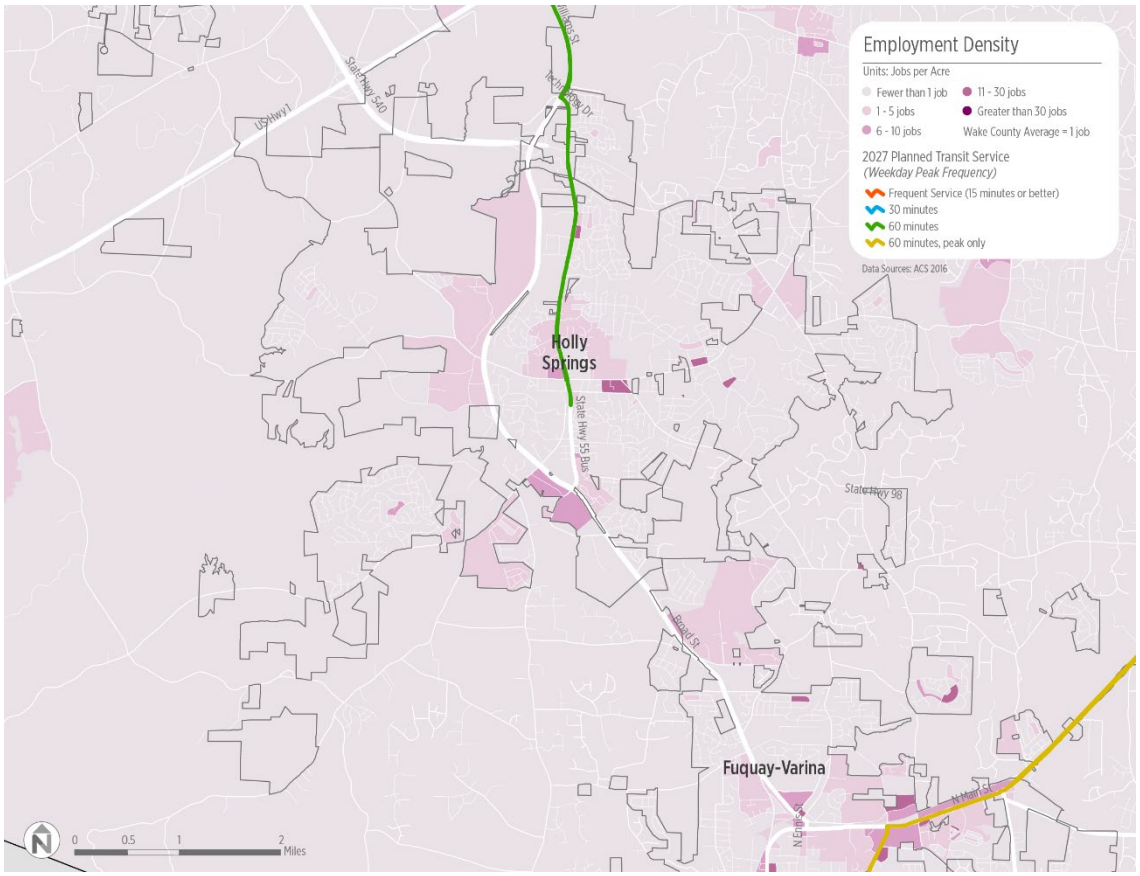


Figure 5-2 Holly Springs Employment Density

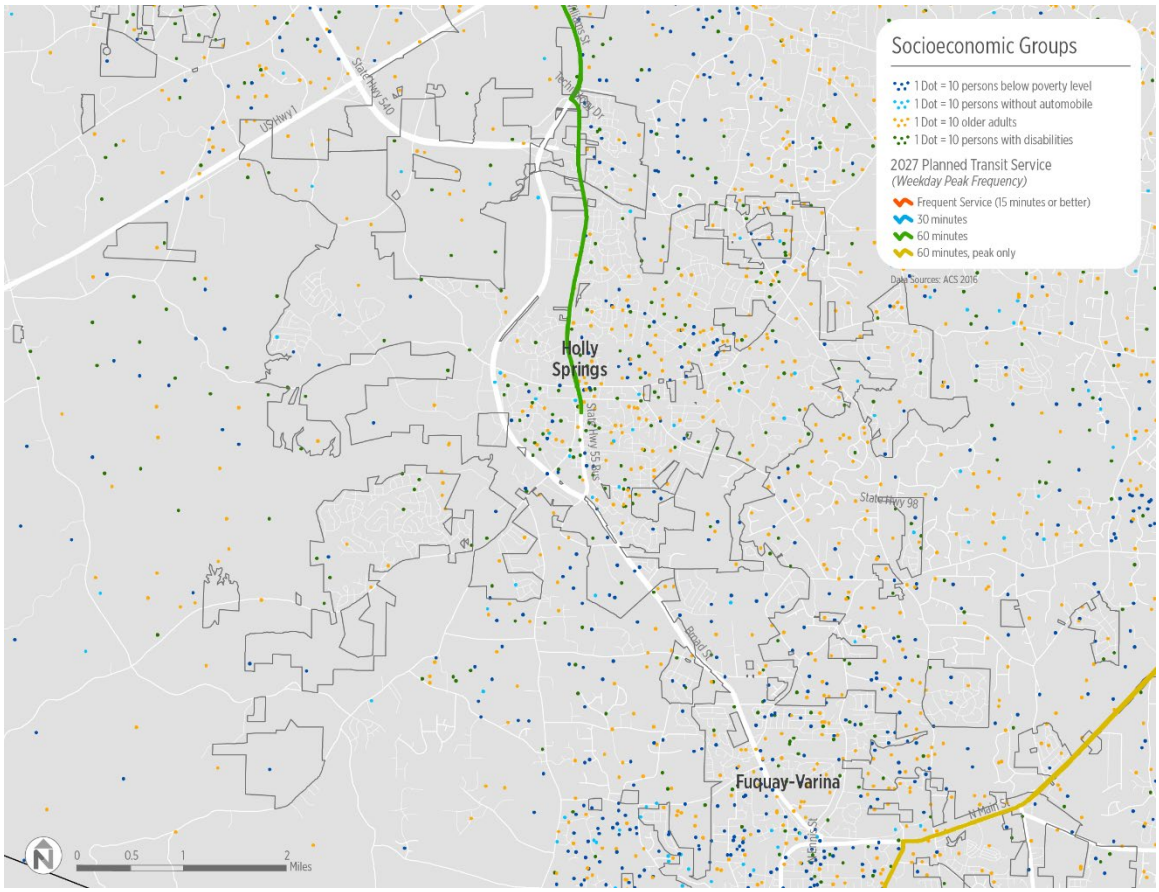


SOCIOECONOMIC CHARACTERISTICS

From a socio-economic perspective, Holly Springs' residents do not demonstrate a strong propensity to use transit. The town has a low poverty rate, a small senior community, and a small number of residents with a disability. 2% of residents are below the poverty line. 7% of the population is 65 years of age or older, and 5% of Holly Springs residents has a disability.

Most of Holly Springs' senior community lives east of Main Street in the relatively denser parts of the town. Low-income residents and people without an automobile are dispersed evenly throughout the town. Overall, in Holly Springs, these more transit-inclined residents reside in low densities (Figure 5-3).

Figure 5-3 Holly Springs Dot Density of Select Socioeconomic Characteristics

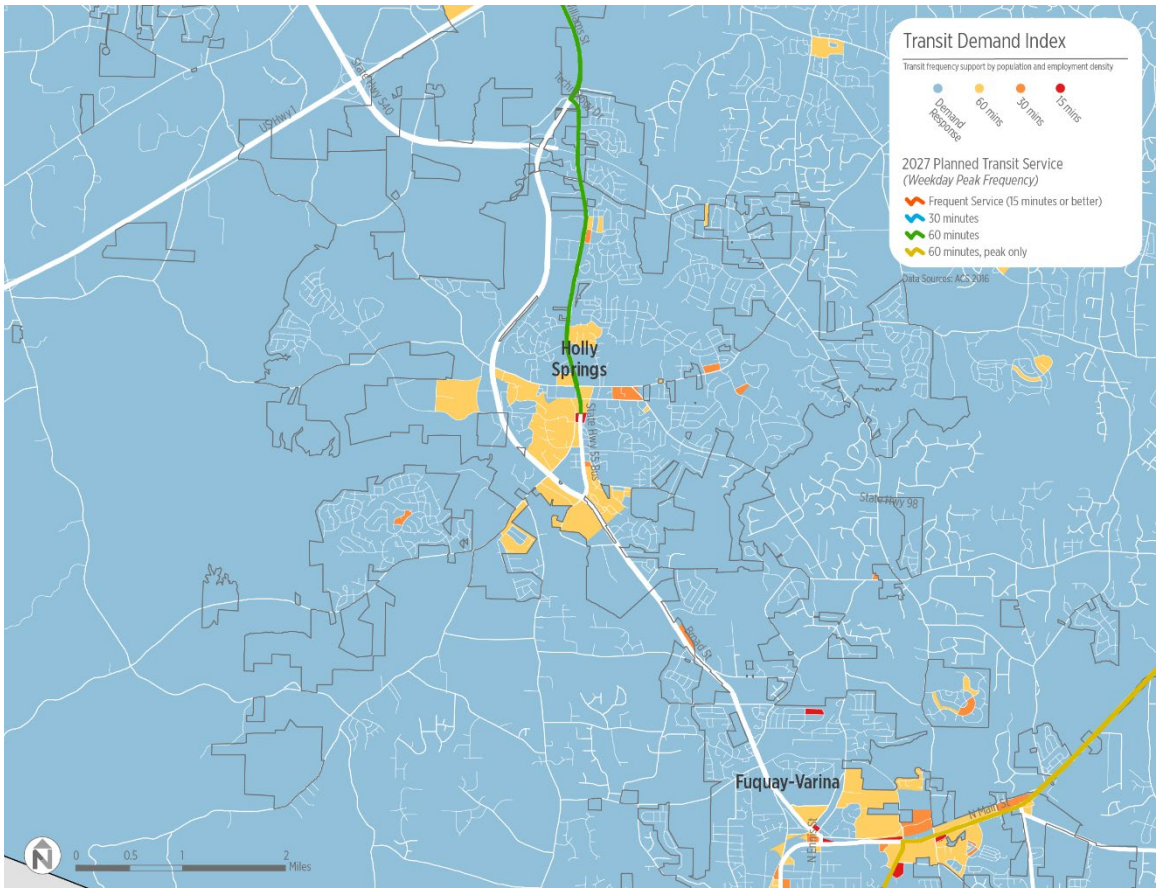


Transit Demand Index

As discussed, population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. However, population and employment analyses do not consider factors other than density. Similarly, the analysis of socioeconomic groups with a high propensity to use transit considers these population subgroups individually.

Figure 5-4, which shows a transit propensity index that estimates the underlying market and demand for transit, suggests that Holly Springs can support fixed-route transit service along Main Street and there may exist a market for service connecting the town to Fuquay-Varina and the sprawling job sites along Highway 55.

Figure 5-4 Holly Springs Transit Demand Index



TRANSIT INVESTMENT OPTIONS

Holly Springs could leverage Community Funding Area Program funds to support the following types of transit. These transit investments are well suited to Holly Springs' socioeconomic characteristics and existing commuting patterns.

Guide to Service Costs:

Operating Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Capital Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Bus Pass Subsidy or GoPass Program ($)

The HS Holly Springs Express will be a brand new service for Rolesville and the first time residents have had access to transit service. An option for encouraging ridership and helping to make the route successful would be for the City of Holly Springs to subsidize the bus service. The subsidy could be implemented as a free or reduced cost monthly bus pass, or potentially negotiated as part of the GoPass program. The GoPass program is likely more advantageous for Holly Springs, as the city only pays when people ride the bus. The goal of either program is to encourage transit ridership.

Partner with Ride-Hailing Companies ($)

A less expensive and more flexible way to give residents an alternative way to travel would be by collaborating with ride-hailing companies (e.g. Uber and Lyft). Ride hailing service could be available to allow passengers to travel within Holly Springs or provide regional travel, such as trips to the new enhanced bus stop / transfer location in Apex.

Increase Provision of Deman Response Service ($-$$)

Holly Springs' low-density land uses mean the most feasible transit service is demand response. This type of door-to-door service is already provided by GoWake Access but is limited to eligible riders (primarily older adults and persons with disabilities) and certain trip purposes, such as travel to medical appointments or employment. CFAP funds could be used to expand the availability of demand response service for use by a wider group of Holly Springs residents and / or for more types of travel.

Demand response service enhances regional transit opportunities for Holly Springs residents, because it can connect less mobile residents with service like the peak hour express service to Cary via Apex. It can also serve demand for midday transit trips by bringing residents to the sprawling shopping options in the regional activity corridor along Highway 55.

Develop All-Day Flex Route Service Fuquay-Varina and Holly Springs ($$$$ and $$)

Holly Springs is linked economically with Fuquay-Varina. The two communities could work together to leverage CFAP funds and jointly develop a flex route service connecting the Fuquay-Varina and Holly Springs (and potentially Apex). A flex route option would allow residents within a quarter mile of the corridor connecting Fuquay-Varina to Holly Springs to access jobs and shopping in Fuquay-Varina and/or to connect to transit services in both communities, plus potentially Apex.

6 Knightdale

Knightdale is a town in eastern Wake County with a population of 15,849 (2017). It was one of the fastest growing towns in Wake County from 2010-2017, growing by 28%. Knightdale has a high concentration of jobs and retail located along Knightdale Boulevard, making the north area of the town well suited for transit. Knightdale has a small population of residents with a high propensity for transit, but Community Funding Areas Program-funded local transit could play an important role in improving regional access to the activity hub along Knightdale Boulevard as well as the planned improvements to the existing Knightdale-Raleigh Express Route.

PLANNED TRANSIT CAPITAL AND SERVICE INVESTMENTS

By 2021, the Knightdale-Raleigh Express (KRX) Route will increase from a peak period only service to operate all day with hourly departures. The KRX connects the Walmart Park-and-Ride and Rex Healthcare along Knightdale Boulevard to downtown Raleigh via the WakeMed Campus on New Bern Avenue. When the service expands to all-day, the KRX will terminate at the East Raleigh Transit Center when it is constructed, where passengers can connect to the Wake Bus Plan's Frequent Transit Service, which will offer frequent service into Raleigh and other parts of Wake County.

POPULATION AND EMPLOYMENT DENSITY

Population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. Density is important for two reasons: 1) places with large numbers of people and jobs produce the greatest demand for transit service and 2) nearly every transit trip also includes a walk trip; dense areas have more destinations (or origins) within a close, safe and comfortable walking distance.

Knightdale's population and employment density is relatively high along Knightdale Boulevard east of I-540. This type of medium-to-high population and employment density could support transit; however, Knightdale Boulevard is a high-speed corridor that reduces the walkability of the area.

Population Density

Population density in Knightdale is relatively high immediately south of Knightdale Boulevard (Figure 6-1), and north of Old Faison Road where the population density averages 4-5 residents per acre. While the population density could be supportive of transit, the area lacks pedestrian connectivity between the residential subdivisions and the employment area along Knightdale Boulevard.

Elsewhere in Knightdale, population density is low and not supportive of transit, with population densities of 1-3 people per acre.

Employment Density

Employment density is relatively high along Knightdale Boulevard, which is a regional hub for retail—primarily big box stores—as well as some office and healthcare (Figure 6-2). Employment densities along Knightdale Boulevard range from 5-30+ jobs per acre along this corridor, high enough to support local transit service. Like much of the rest of Knightdale, the area lacks comfortable pedestrian and bicycling infrastructure, and most uses are separated by large surface parking lots.

Figure 6-1 Knightdale Population Density

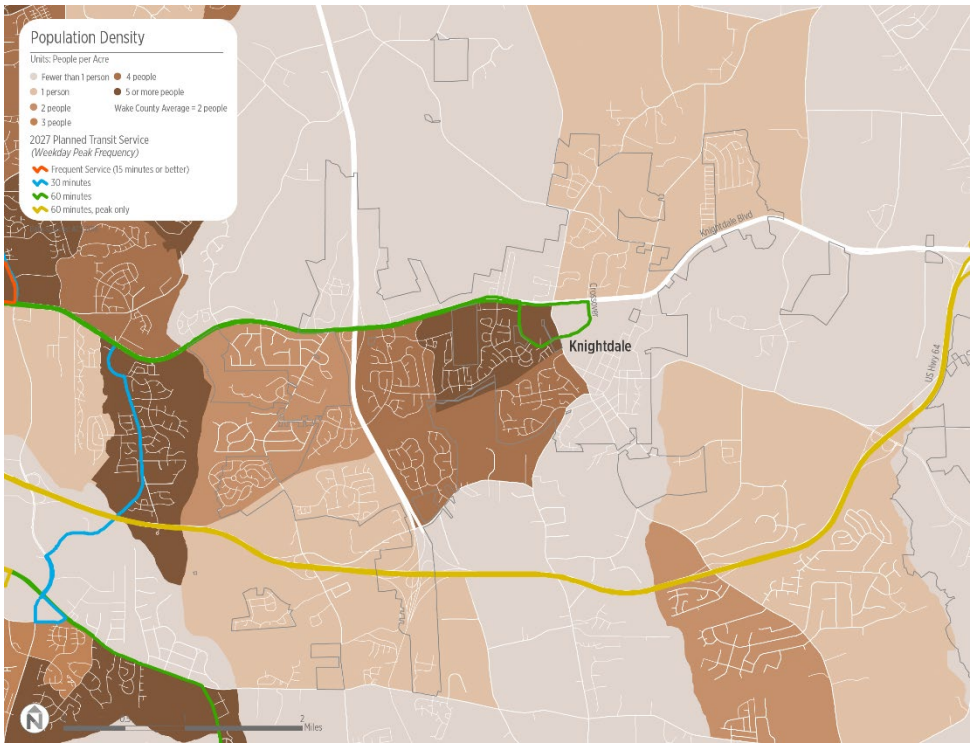
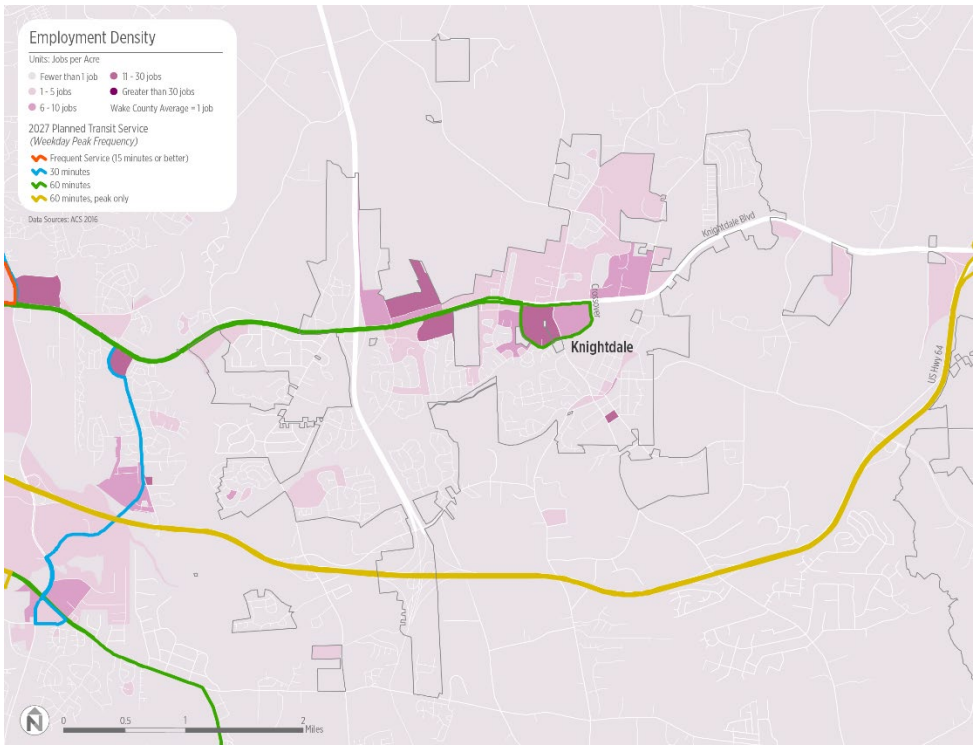


Figure 6-2 Knightdale Employment Density

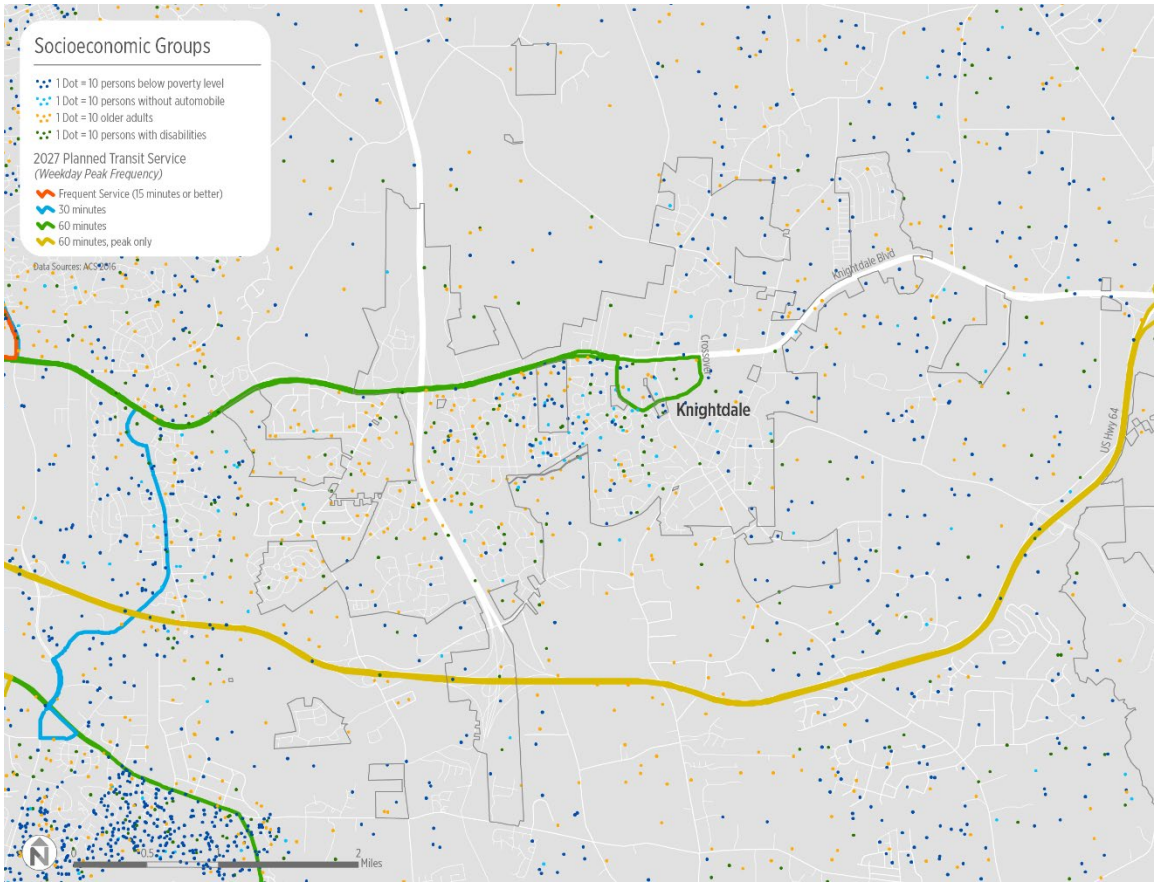


SOCIOECONOMIC CHARACTERISTICS

Knightdale lacks a significant number of residents with a high propensity for transit. The town has a low poverty rate, a small senior community, and a small number of residents with a disability. 3.3% of residents are below the poverty line. 8.7% of the population is aged 65 or older, and 6.5% of Knightdale's residents have a disability.

Low-income residents without an automobile, seniors, and residents with a disability are relatively concentrated immediately south of Knightdale Boulevard, where there are some medium-density residential neighborhoods. Elsewhere in Knightdale, these more transit-inclined residents reside in low densities (Figure 6-3).

Figure 6-3 Knightdale Dot Density of Select Socioeconomic Characteristics

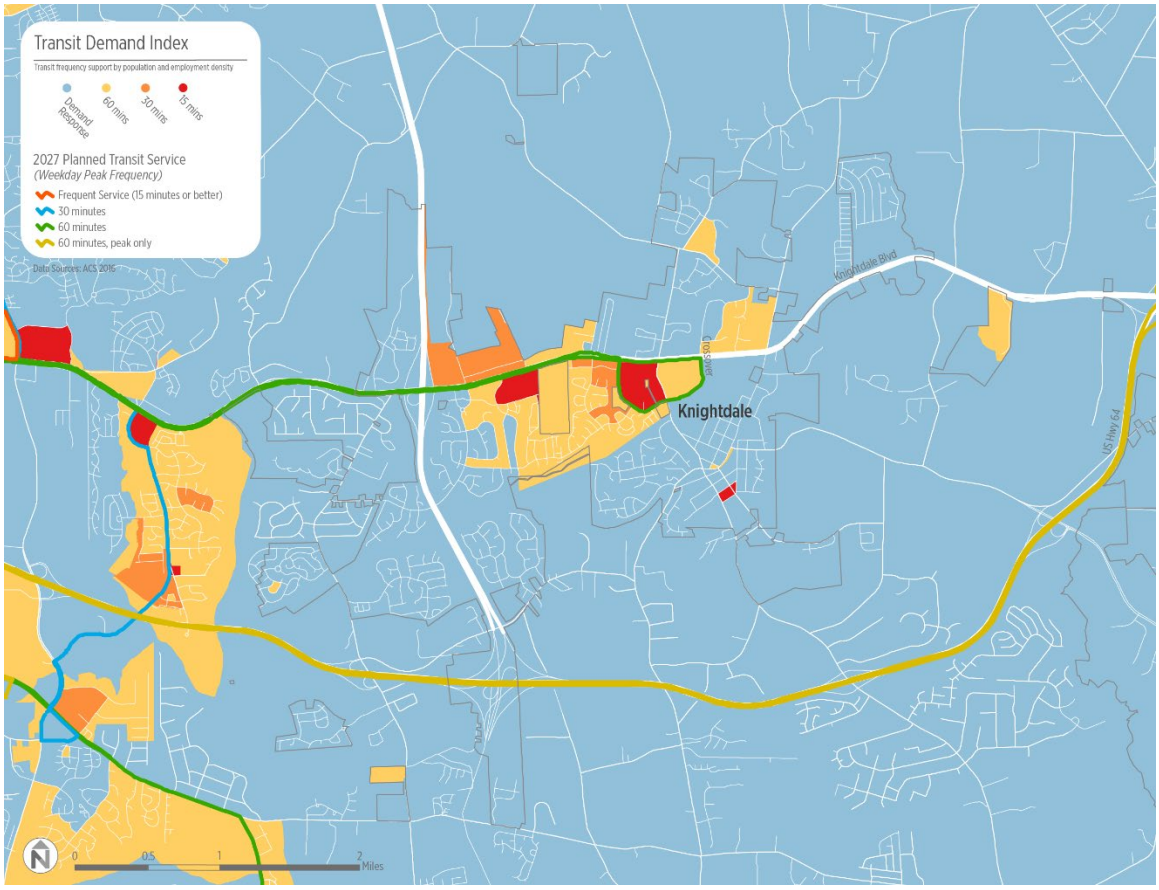


Transit Demand Index

As discussed, population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. However, population and employment analyses do not consider factors other than density. Similarly, the analysis of socioeconomic groups with a high propensity to use transit considers these population subgroups individually.

This next map (Figure 6-4) shows a transit propensity index that estimates the underlying market and demand for transit including both densities and demographic and socioeconomic characteristics. This data suggests that Knightdale can support fixed route transit service in the denser area along and south of Knightdale Boulevard and east of I-540. The other areas of Knightdale are low-density and can support demand response service.

Figure 6-4 Knightdale Transit Demand Index



TRANSIT INVESTMENT OPTIONS

Knightdale could leverage Community Funding Area Program funds to support the following types of transit. These transit investments are well suited to Knightdale's socioeconomic characteristics, planned transit service, and existing commuting patterns.

Guide to Service Costs:

Operating Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Capital Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Partner with Ride-Hailing Companies ($)

A less expensive and more flexible way to give residents an alternative way to travel would be to collaborate with ride-hailing companies (e.g. Uber and Lyft). Ride hailing service could be available to bring passengers to the park-and-ride lots along Knightdale Boulevard, which will offer hourly service to Wake Med and downtown Raleigh.

Increase Provision of Demand Response Service ($-$$)

The low-density nature of most of Knightdale except along Knightdale Boulevard makes it well suited for enhanced demand response service for trips within the community. This type of door-to-door service is already provided by GoWake Access but is limited to eligible riders (primarily older adults and persons with disabilities) and certain trip purposes, such as travel to medical appointments or employment. CFAP funds could be used to expand the availability of demand response service for use by a wider group of people and / or for more types of travel.

Demand response service enhances regional transit opportunities for Knightdale residents, because it can connect residents to the KRX. Demand response services could also bring people to shopping and appointments within Knightdale, including shopping and services along Knightdale Boulevard.

Improve Pedestrian and Bicycle Infrastructure ($-$$)

CFAP funds could be used to make it easier and safer to get to / from the KRX bus stops and park and ride lots. Improvements may include sidewalks, crosswalks, and bicycle infrastructure (bike paths or bike storage facilities) along or connecting to the Knightdale-Roley Express stops and park and ride lots.

Develop Fixed-Route Local Circulator Service ($$$$ and $$)

In the future with additional and higher density land uses, Knightdale may eventually be able to support a fixed-route commuter service connecting the denser residential neighborhoods of Knightdale to the park-and-ride lots and /or activity centers along Knightdale Boulevard.

Develop All-Day Flex Route Service between Knightdale and Wendell ($$$$ and $$)

Knightdale is linked economically with Wendell. In partnership with Wendell, Knightdale could leverage CFAP funds to subsidize service connecting Knightdale and Wendell. With the Wake Transit Plan, Wendell will be served by peak-hour express service but there is no planned transit connection between Knightdale and Wendell.

The route could be implemented with a flexible service option that would allow the bus to deviate up to a quarter mile of the ends of the corridor (in Knightdale or Wendell). The flex option would allow people to be picked up or dropped off at the park and ride lots and locations within a quarter or half mile of each community. The flexible service option would help attract riders and allow people to access jobs, services and shopping in each of the communities without a car.

7 Morrisville

Morrisville is a town in northwest Wake County with a population of 26,461 (2017), having grown by 32% since 2010. Morrisville is a major regional job center, with 24,540 jobs located in the town. It is expected that Morrisville will continue to grow at a rapid pace; there are several areas where significant housing developments will be occurring in the next 1-3 years. Housing is concentrated west of Highway 54 and east of Davis Drive, while most jobs are concentrated east of Davis Drive. Much of the employment in Morrisville is located in office parks surrounded by large surface parking lots, which make them difficult to serve with fixed-route bus service. Morrisville has a very small population of residents with a high propensity for transit.

PLANNED TRANSIT CAPITAL AND SERVICE INVESTMENTS

The Wake Bus Plan is planning service adjustments that will increase service to Morrisville in the short-term. In 2020, GoTriangle will split off the portion of Route 300 (Raleigh to RTC) that travels between Cary and RTC into Route 31 Cary-RTC. This new route will travel along Chapel Hill Road (NC-54) and provide local service in Cary and Morrisville, including service to the new Wake Tech RTP Campus. This new service will operate with hourly service on weekdays only. It is scheduled for expansion in 2025, expanding the route to seven days a week and provide 30-minute service during peak periods nad in the midday.

Morrisville is also schedule to host a commuter rail station, with up to 8 peak hour trips (both directions) from a station near Chapel Hill Road and McCrimmon Parkway. The commuter rail will serve downtown Raleigh and Garner eastbound and RTP and Durham westbound. Transfer to a number of bus services will be available from the commuter rail station, and transit-oriented development is planned for the surrounding area.

Community Funding Areas Program-funded local transit could play an important role in improving regional access to these developing transit and activity corridors, through both infrastructure improvements as well as alternative transit like improved demand response or ridehailing subsidies.

POPULATION AND EMPLOYMENT DENSITY

Population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. Density is important for two reasons: 1) places with large numbers of people and jobs produce the greatest demand for transit service and 2) nearly every transit trip also includes a walk trip; dense areas have more destinations (or origins) within a close, safe and comfortable walking distance.

Morrisville's population density is highest west of Chapel Hill Road and south of McCrimmon Parkway. Employment density is highest east of Chapel Hill Road in the large office parks as well as in the regional activity center at Chapel Hill Road and Morrisville Parkway. These levels of medium to high population and employment density will support transit, however the sprawling nature of the retail area along most of these corridors reduces the walkability of the area.

Population Density

Population density in Morrisville is highest west of Chapel Hill Road, where population densities range from 3 people per acre north of McCrimmon Boulevard and south of Crabtree Creek, to more than 5 people per acre south of McCrimmon Boulevard and north of Crabtree Creek. East of Chapel Hill Road, population densities are lower than 1 person per acre (Figure 7-1). Most residential areas are physically isolated from the job and activity centers in Morrisville and lack pedestrian connectivity to the town's transit corridors, making them poorly suited for fixed-route service.

Employment Density

Employment density is high in the office parks and company campuses in the northeast corner of Morrisville along Aviation Parkway, Airport Boulevard, and Carrington Mill Boulevard. There are also employment clusters near Chapel Hill Road at Morrisville Parkway and near Morrisville Carpenter Road at Davis Drive. These areas have a job density of at least 11 jobs per acre (Figure 7-2). This employment density is high enough to support local transit service, however most job sites in the northeast corner of Morrisville are separated from the street by large surface parking lots.

Figure 7-1 Morrisville Population Density

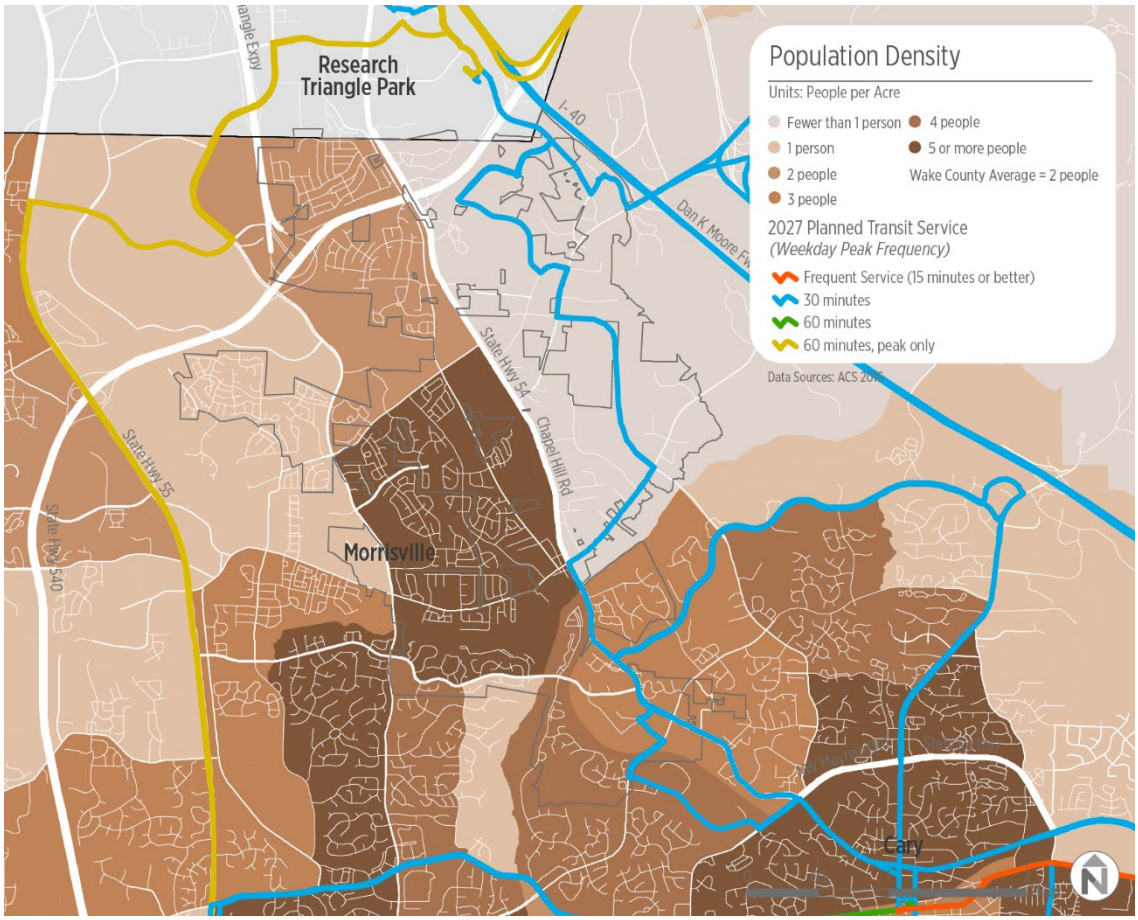
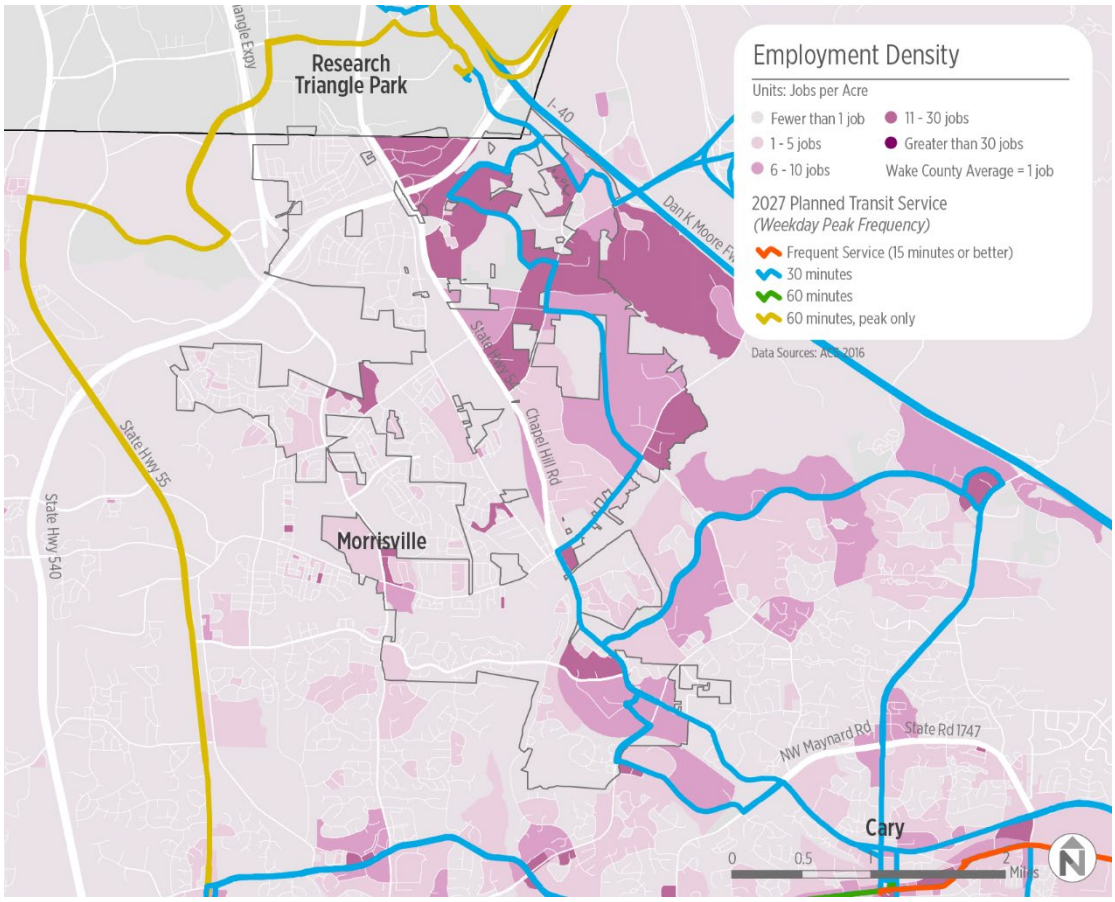


Figure 7-2 Morrisville Employment Density

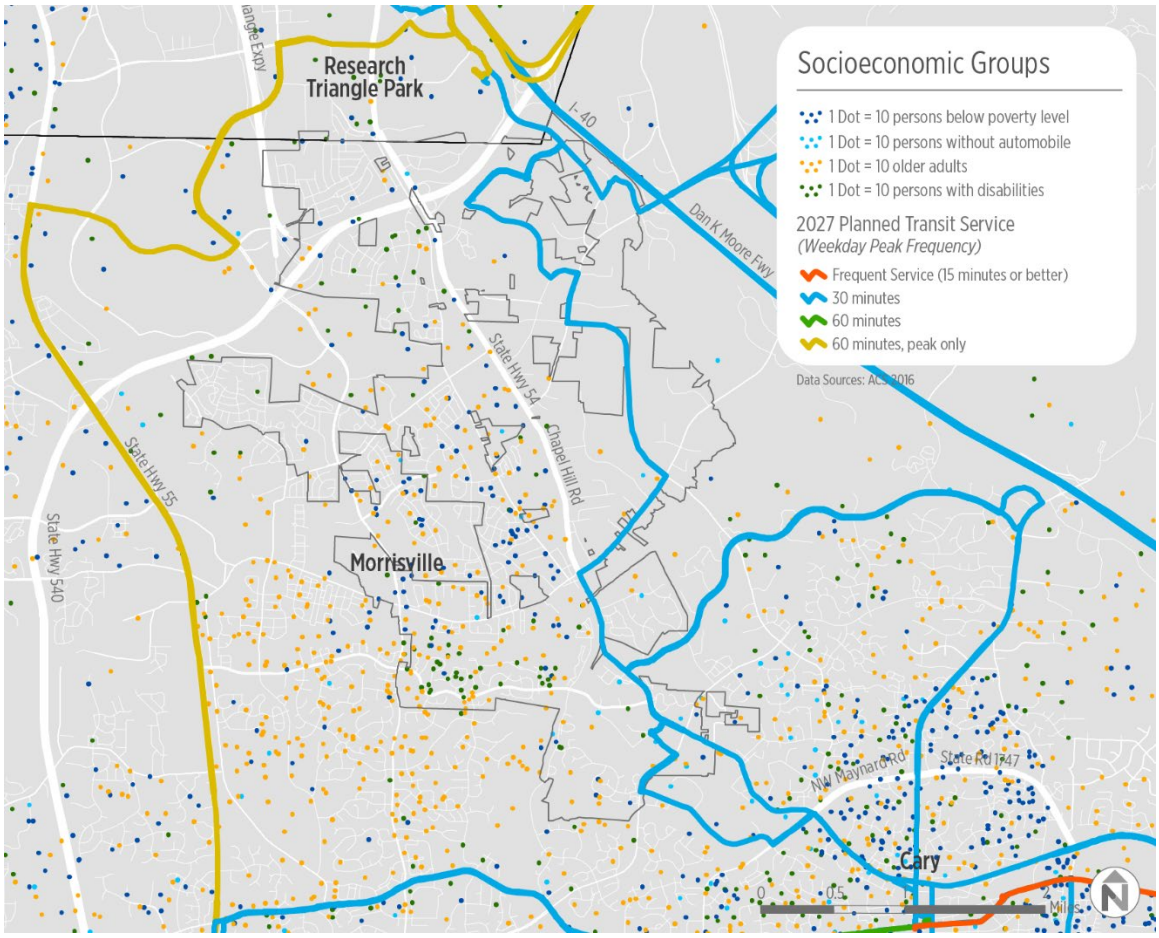


SOCIOECONOMIC CHARACTERISTICS

The socioeconomic characteristics of Morrisville residents do not demonstrate a strong propensity to use transit. The town has a low poverty rate, a small senior community, and a small number of residents with a disability. 6% of residents are below the poverty line. 6% of the population is 65 years of age or older, and 3% of Morrisville's residents has a disability.

Low-income residents without an automobile and seniors are evenly dispersed in low densities across Morrisville (Figure 7-3). Residents with a disability are relatively concentrated in the Huntington and Crosstimbers Apartments on Morrisville Parkway.

Figure 7-3 Morrisville Dot Density of Select Socioeconomic Characteristics

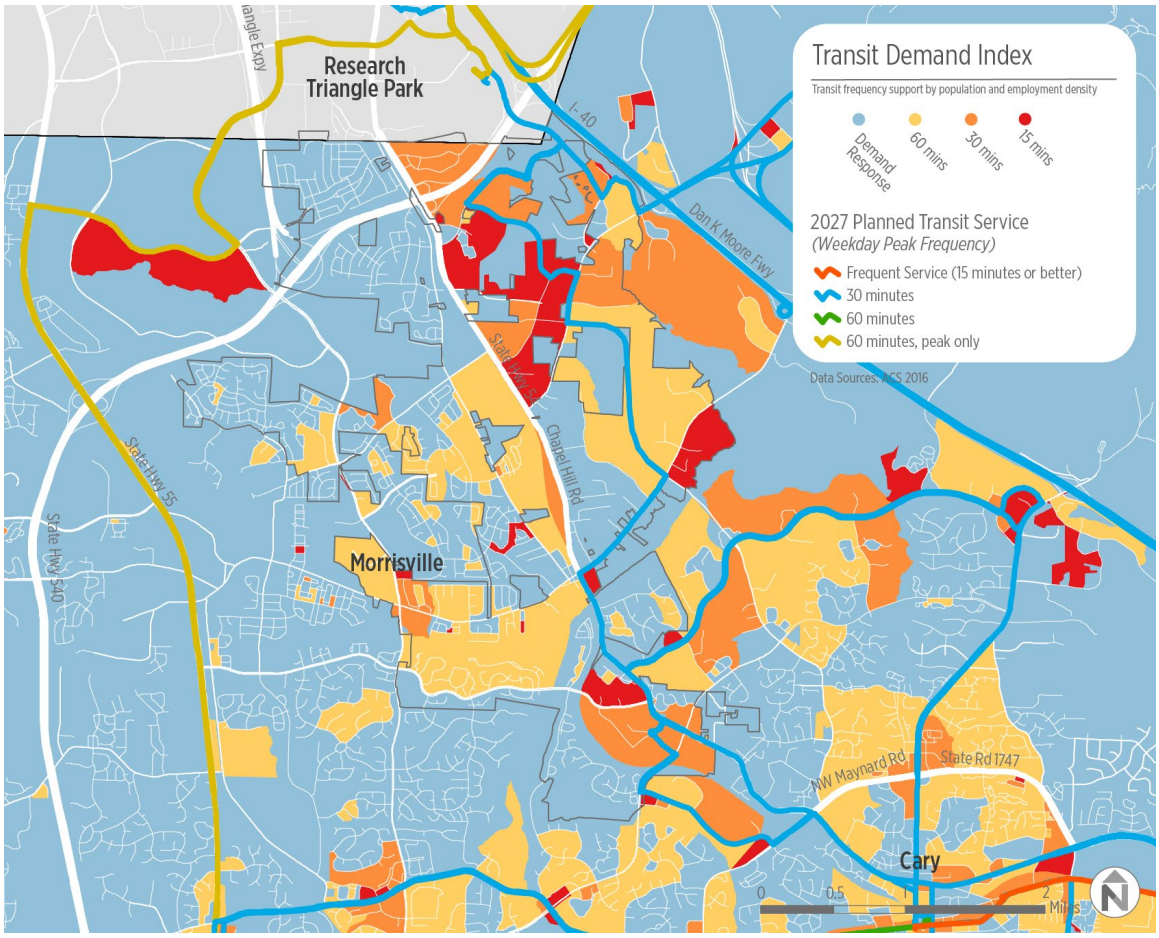


Transit Demand Index

As discussed, population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. However, population and employment analyses do not consider factors other than density. Similarly, the analysis of socioeconomic groups with a high propensity to use transit considers these population subgroups individually.

Figure 7-4, which shows a transit propensity index that estimates the underlying market and demand for transit, suggests that Morrisville can indeed support the planned fixed-route transit service with 30- to 60- minute frequencies along most of its major thoroughfares. Community Funding Areas money could be best used to improve demand response service and/or subsidize ride-hailing fares along the major thoroughfares of Morrisville, as well as to address through infrastructure improvements the disconnected nature of development in the town and the lack of robust pedestrian and bicycle connections to planned transit.

Figure 7-4 Morrisville Transit Demand Index



TRANSIT INVESTMENT OPTIONS

Morrisville could leverage Community Funding Area Program funds to support the following types of transit. These transit investments are well suited to Morrisville's socioeconomic characteristics and existing commuting patterns.

Guide to Service Costs:

Operating Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Capital Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Develop Fixed-Route Local Circulator Service ($$$$ and $$)

Land uses and population densities in Morrisville suggest that portions of the community have viable markets for local fixed route service. Morrisville may look to developing a local service that connects residential areas, activity centers and other service centers within the community and/or potentially with regional destinations.

Partner with Ride-Hailing Companies ($)

A relatively inexpensive and more flexible way to give residents an alternative way to travel would be by collaborating with ride-hailing companies (e.g. Uber and Lyft). Ride hailing service could be available to bring passengers to the major transit corridors, provide local circulation or connect to major transit centers in RTP and Cary.

Increase Provision of Demand Response Service ($-$$)

The low-density nature of most of Morrisville except in its isolated activity centers makes it well suited for enhanced demand response service for trips within the community. This type of door-to-door service is already provided by GoWake Access but is limited to eligible riders (primarily older adults and persons with disabilities) and certain trip purposes, such as travel to medical appointments or employment. CFAP funds could be used to expand the availability of demand response service for use by a wider group of people and / or for more types of travel.

Demand response service enhances regional transit opportunities for Morrisville residents, because it can provide local circulation and/or connect residents with new transit services like the commuter rail or bus services to Cary, Raleigh and RTP. It can also serve demand for midday

transit trips by bringing residents to shopping options in the regional activity centers along Davis Drive and Chapel Hill Road.

Improve Pedestrian and Bicycle Infrastructure ($$-$$$)

Safer and more direct access to bus stops along the transit corridors will make Morrisville a more accessible and less car-dependent place. Specific locations that would benefit from sidewalks, crosswalks, and bicycle infrastructure include Chapel Hill Road and McCrimmon Parkway.

Expand RTP On Demand Flex Shuttles to Morrisville during Midday ($$$)

GoTriangle currently operates a "Go OnDemand Shuttle" during weekdays. This smartphone app service is styled to be like Lyft or Uber and provides door-to-door transportation within RTP. In partnership with GoTriangle and RTP, Morrisville could leverage CFAP funds to expand this service option to residents. This service would operate much like ride-hailing subsidies or demand response service and could operate with existing vehicles already in use in RTP.

8 Research Triangle Park

The Research Triangle Park (RTP) is a service district with about 1/4 of its area in Wake County and 3/4 of its area in Durham County. Within RTP's boundaries there are about 250 companies and 50,000 daily employees that occupy some five million square feet of office space. The RTP is one of the largest and most successful regional office park developments in the United States.

RTP does not have residents. Instead, the campus consists of clusters of employment sites on corporate campuses, most of which have ample parking. However, RTP is planning to build transit-oriented residential infrastructure as well as a new "Park Center" development (at the intersection of NC 54 and Davis Drive adjacent to the planned commuter rail station). The planned Park Center development will transform an existing office park into a town center with public space, two hotels, 300,000 square feet of retail, and several hundred apartments.

The nearest transit center to RTP is the Regional Transit Center, served all day by GoTriangle Routes 100 (to Downtown Raleigh via RDU), 700 (to Durham Station), and 800 (to Chapel Hill). Route 800 provides midday local service in RTP along Highway 54. The Regional Transit Center is served during peak hours only by GoTriangle Routes 105 (to Downtown Raleigh), 201 (crosstown to Capital Crossing Shopping Center) , 300 (to Downtown Raleigh via Cary), 311 (crosstown to Apex), and 805 (to Chapel Hill via Woodcroft Shopping Center). Route 805 provides local service within RTP along Highway 54; Route 311 provides local service within RTP through The National Institute of Environmental Health Sciences.

In addition to the above fixed routes, GoTriangle runs an on-demand shuttle service, called Go OnDemand, on weekdays between 6 AM and 6 PM. The service operates point-to-point transportation for riders at bus stops within a service area covering RTP and some adjacent areas. Riders must order service 15-30 minutes ahead of time via telephone or a smartphone app.

PLANNED TRANSIT CAPITAL AND SERVICE INVESTMENTS

As described, the RTP is proximally positioned near the Regional Transit Center and is well served by several regional and local transit routes. The Wake Transit Plan has several planned service changes, including relocating the existing RTC to a new location that is closer to the interstate. This project is scheduled to begin within the next few years, although no specific dates have been proposed.

The planned commuter rail service will also serve the RTP with a station planned on Highway 54 in the Park's southeast corner. The commuter rail will provide up to eight trips to Durham or Garner via Downtown Raleigh during peak hours and one two trips each way during midday and evening hours. The planned RTP commuter rail station will be adjacent to the earlier described Park Center mixed-use development at Highway 54 and Davis Drive.

In the short-term, the Wake Bus Plan is planning to implement the North Raleigh Express (NRX) express service between Triangle Town Center and the RTC, traveling via Highway 540. This service will be a faster and more direct version of the existing GoTriangle Route 201 North

Raleigh – Regional Transit Center route. The service change is scheduled for implementation in 2020 and will be operated by GoTriangle.

Community Funding Areas Program-funded local transit and infrastructure improvements could play an important role in connecting the Park Center and planned commuter rail station to the larger employment sites of the Park, as well as creating better first/last mile connections from the planned station to adjacent uses.

POPULATION AND EMPLOYMENT DENSITY

Population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. Density is important for two reasons: 1) places with large numbers of people and jobs produce the greatest demand for transit service and 2) nearly every transit trip also includes a walk trip; dense areas have more destinations (or origins) within a close, safe and comfortable walking distance.

This demographic analysis covers Wake County only, where only about 1/4 of RTP's district lays. Within Wake County, RTP's employment density is very concentrated at job sites.

Population Density

Population density in RTP is currently very low, with no residential units in the Park. However, the development of the Park Center in the Park's southeastern corner will add 100s of residential units. In Wake County, there is some medium-density residential along Miami Boulevard at Highway 54 (Creekstone at RTP Apartments), near the site of the planned commuter rail station (Figure 8-1).

Employment Density

In Wake County, RTP employment density is extremely high along Kit Creek Road (Cisco Systems campus) and relatively high in Perimeter Park across the RTP boundary in Morrisville (Figure 8-2).

Figure 8-1 RTP Population Density

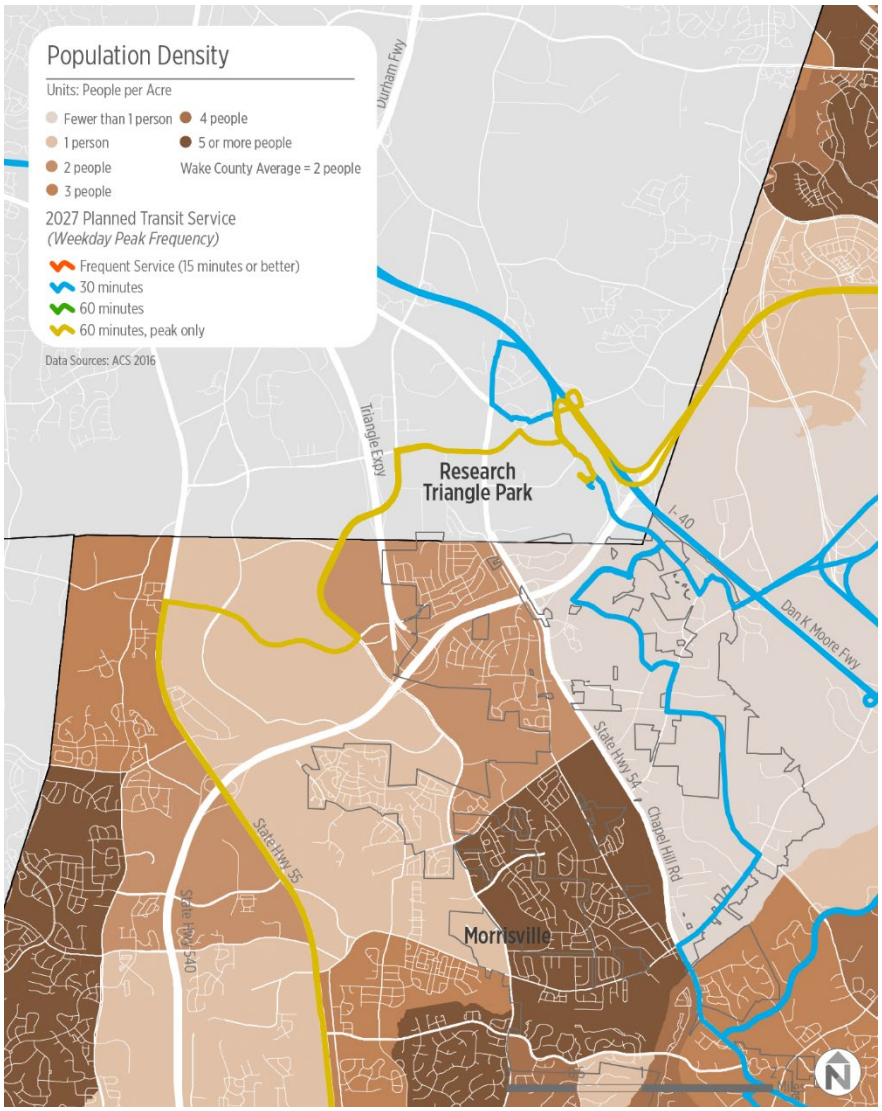
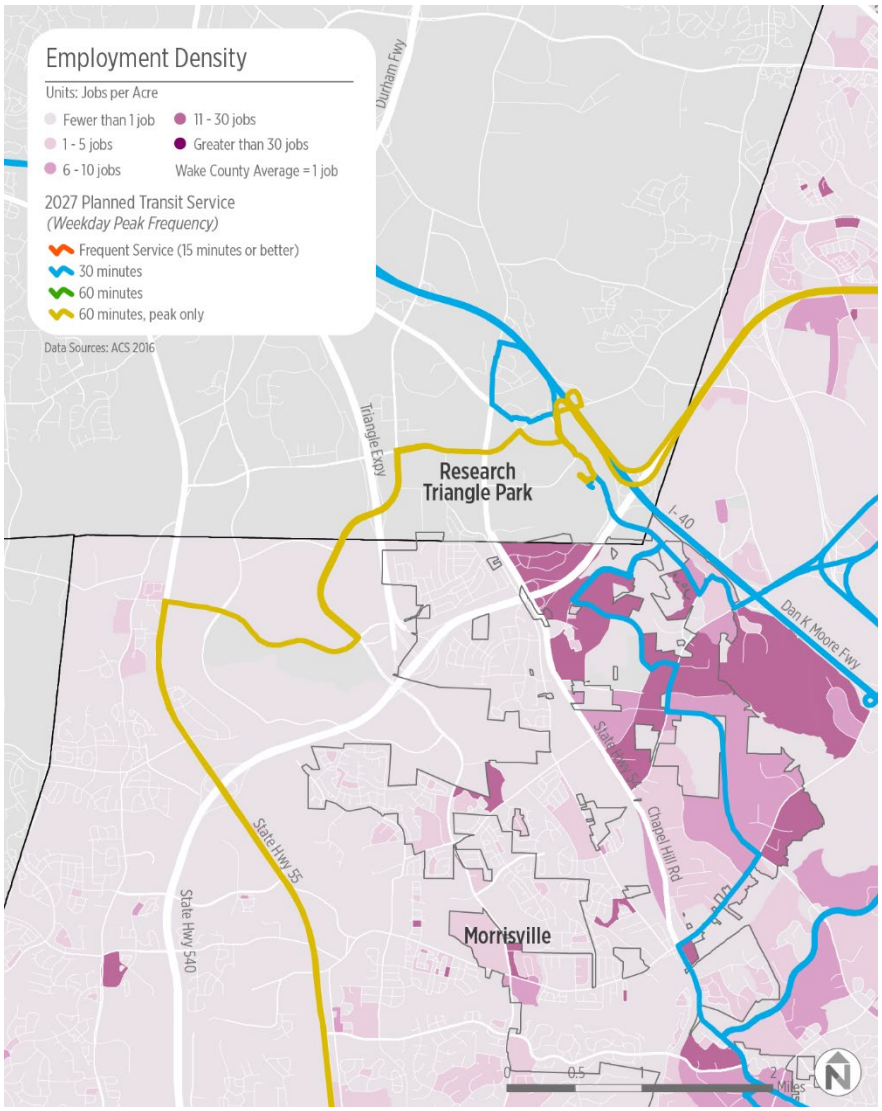


Figure 8-2 RTP Employment Density



SOCIOECONOMIC CHARACTERISTICS

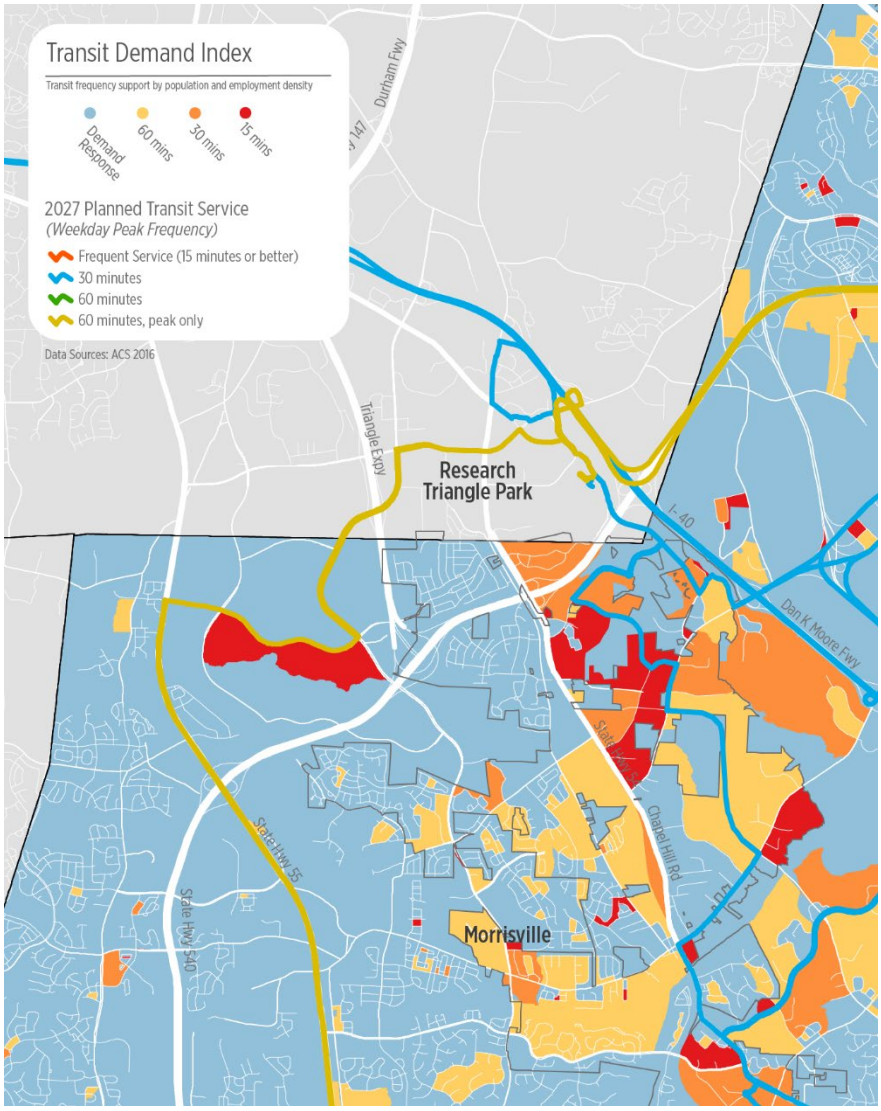
RTP is visited primarily by white collar workers who commute during peak hour, although there is some employment in the service sector at area hotels and restaurants. Without any residents currently, a detailed socioeconomic analysis of RTP residents is not possible.

Transit Demand Index

As discussed, population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. However, population and employment analyses do not consider factors other than density. Similarly, the analysis of socioeconomic groups with a high propensity to use transit considers these population subgroups individually.

This next map (Figure 8-3) shows a transit propensity index that estimates the underlying market and demand for transit including both densities and demographic and socioeconomic characteristics. This data suggests that within Wake County, RTP can support 30 minute all day service frequency near the planned commuter rail station and frequent service to the employment centers along Kit Creek Road.

Figure 8-3 RTP Transit Demand Index



TRANSIT INVESTMENT OPTIONS

RTP could leverage Community Funding Area Program funds to support the following types of transit. These transit investments are well suited to RTP's socioeconomic characteristics and existing commuting patterns.

Guide to Service Costs:

Operating Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Capital Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Partner with Ride-Hailing Companies ($)

Compated to the on demand shuttles currently operated by RTP, a less expensive and more flexible way to give residents an alternative way to travel would be by collaborating with ride-hailing companies (e.g. Uber and Lyft). Ride hailing service could be available to bring passengers from the planned commuter rail station in RTP or the Regional Transit Center to the major employment sites located throughout the Park. Point-to-point service is well suited in RTP due to the lack of street-fronting development.

Improve Pedestrian and Bicycle Infrastructure ($$-$$$)

Safer and more direct access to the planned commuter rail station will make RTP a more accessible and less car-dependent place. Highway 54 in particular is a thoroughfare that would benefit from sidewalks, crosswalks, and bicycle infrastructure.

Expand RTP On Demand Shuttle Fleet and Service Spand and Expand to Morrisville during Midday ($$$$ & $$$)

RTP currently operates a Go OnDemand Shuttle during weekdays between 6 AM and 6 PM. This smartphone app service is styled to be like Lyft or Uber and provides door-to-door transportation within RTP. In partnership with GoTriangle and Morrisville, RTP could leverage CFAP funds to expand this service option to employees and nearby residents during early morning, evening, and weekend hours. This service would operate much like ride-hailing subsidies or demand response service and could operate with existing vehicles already in use in RTP. Expanding the service fleet could reduce waiting times and make service more attractive to commuters.

9 Rolesville

Rolesville is a town in northeastern Wake County with a population of 7,666 (2017). It was the fastest growing town in North Carolina from 2010-2017, growing by 83%. About 1,000 jobs are located in Rolesville. Generally speaking, the market and demand for transit service in Rolesville is low. The community's population and employment density is low, and the population has a high rate of vehicle ownership, a low poverty rate, and a small senior population. In addition, Rolesville currently has no transit service.

PLANNED CAPITAL AND SERVICE INVESTMENTS

The Wake Bus Plan is scheduled to implement peak period weekday express service to downtown Raleigh in 2020. This new service will operate hourly during the commuter periods and be operated by GoRaleigh. The Wake Transit Plan also expects to add a park and ride lot in Rolesville in conjunction with the new bus service. This service is designed largely to serve commuters.

POPULATION AND EMPLOYMENT DENSITY

Population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. Density is important for two reasons: 1) it means that there are a lot of people or jobs along the bus route which means it serves a larger market and 2) nearly every transit trip also includes a walk trip; dense areas have more destinations (or origins) within a close, safe and comfortable walking distance.

Rolesville's population and employment density is low. There are a handful of isolated clusters of activities where density is marginally higher. This type of low density land use is typical of suburban and rural communities, but is not especially transit supportive.

Population Density

Population density in Rolesville is low (Figure 9-1). The densest part of Rolesville is the area north of N Main Street, which has a population density of approximately two residents per acre.

Employment Density

Rolesville also has a very low employment density; the majority of the town has an employment density of less than one job per acre (Figure 9-2). Low job density (between one and five jobs per acre) exists in the southern part of the town along N. Main Street. Data also shows that most residents work outside of Rolesville.

Figure 9-1 Rolesville Population Density

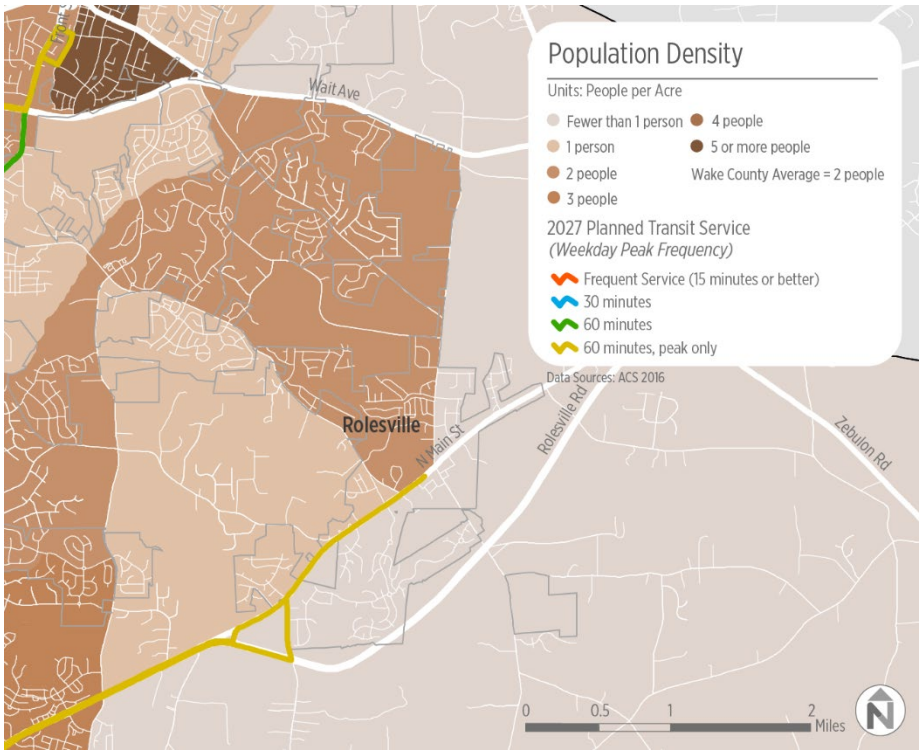
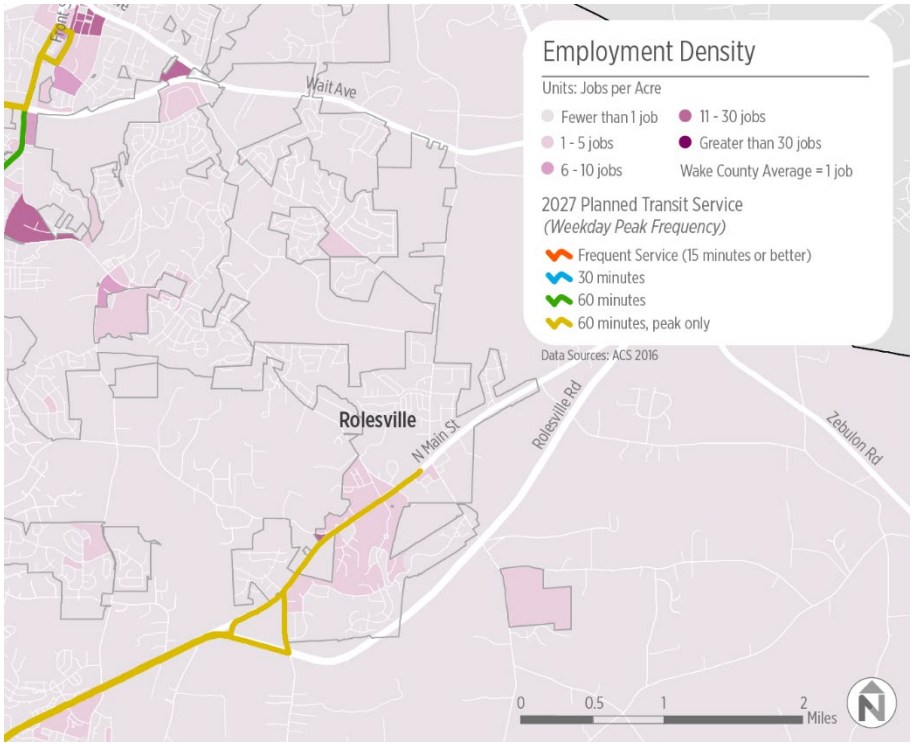


Figure 9-2 Rolesville Employment Density

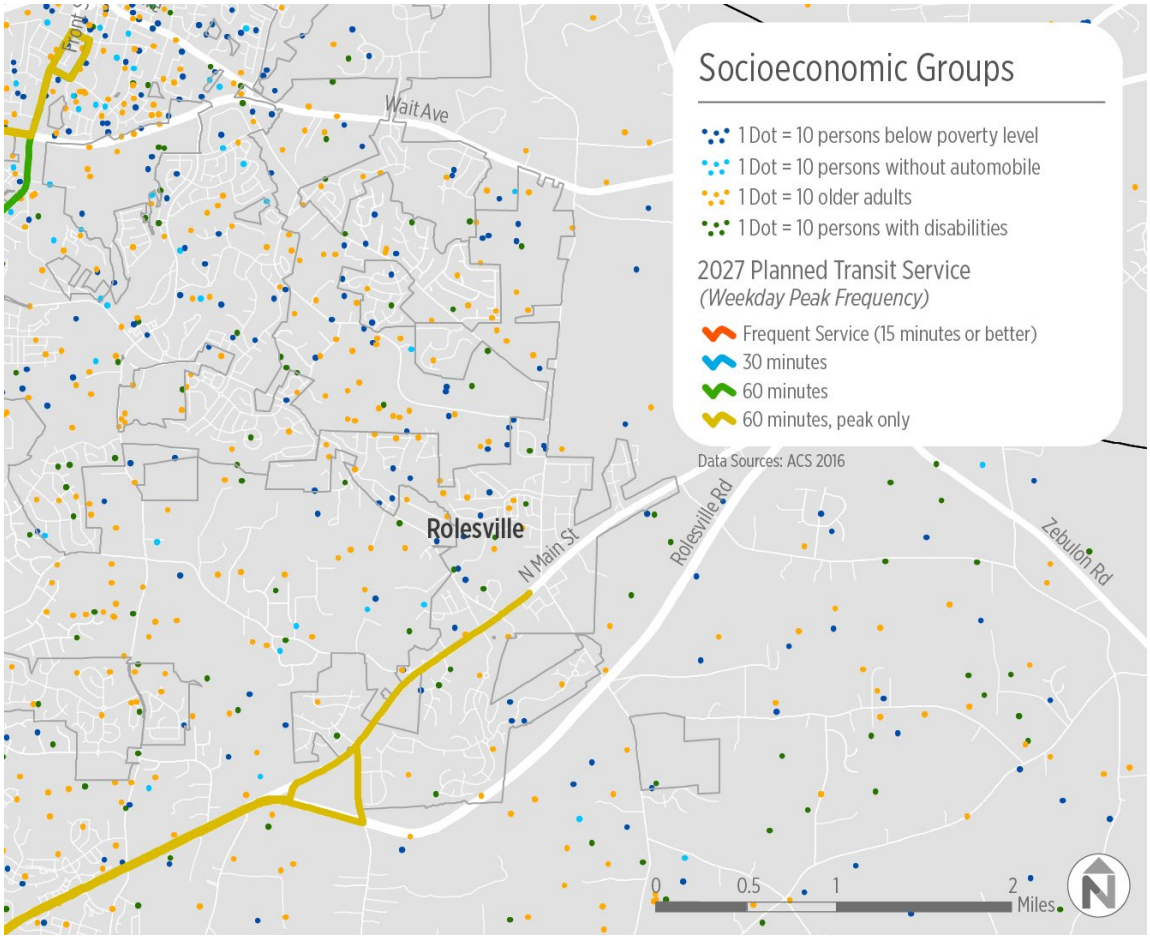


SOCIOECONOMIC CHARACTERISTICS

The demographic composition of Rolesville residents contribute to the town's low market and demand for transit. Rolesville has a low poverty rate, a small senior community, and a small number of residents with a disability.

Low-income residents, residents without an automobile, seniors, and residents with a disability are spread evenly across Rolesville (**Error! Reference source not found.**).

Figure 9-3 Rolesville Dot Density of Socioeconomic Characteristics



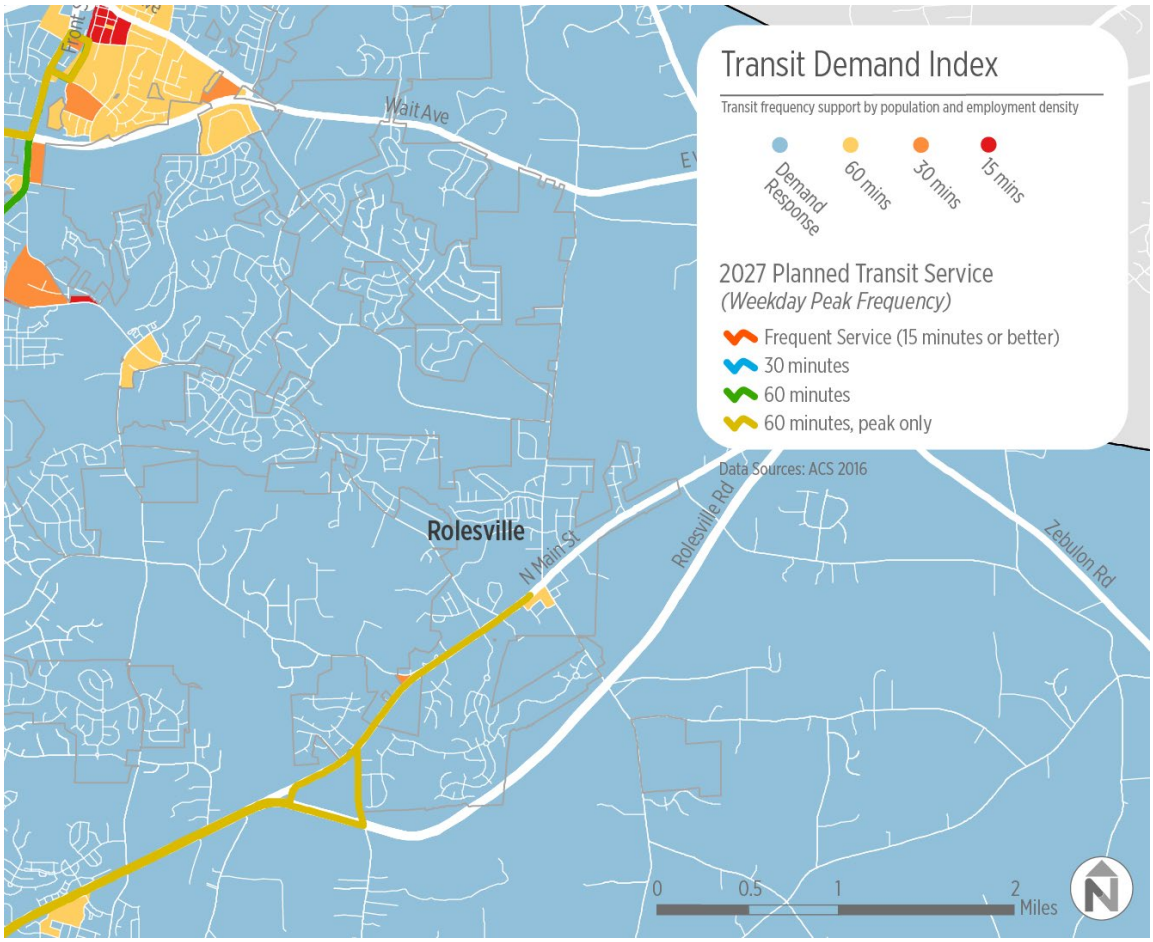
Transit Demand Index

As discussed, population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. However, population and employment analyses do not consider factors other than density. Similarly, the analysis of socioeconomic groups with a high propensity to use transit considers these population subgroups individually.

This next map (Figure 9-4) shows a transit propensity index that estimates the underlying market and demand for transit including both population densities and demographic and

socioeconomic characteristics. This data suggests that Rolesville can support demand response service, but in the short-term, there is not sufficient demand for fixed-route service.

Figure 9-4 Rolesville Transit Demand Index



TRANSIT INVESTMENT OPTIONS

Rolesville could leverage Community Funding Area Program funds to support the following types of transit. These transit investments are well suited to Rolesville's socioeconomic characteristics, planned service improvements, and existing commuting patterns.

Guide to Service Costs:

Operating Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Capital Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Bus Pass Subsidy or GoPass Program ($)

The Route 401 Rolesville Express will be a brand new service for Rolesville and the first time residents have had access to transit service. An option for encouraging ridership and helping to make the route successful would be for the City of Rolesville to subsidize the bus service. The subsidy could be implemented as a free or reduced cost monthly bus pass, or potentially negotiated as part of the GoPass program. The GoPass program is likely more advantageous for Rolesville, as the city only pays when people ride the bus. The goal of either program is to encourage transit ridership.

Partner with Ride-Hailing Companies ($)

An inexpensive and flexible way to give residents access to transportation services could involve collaborating with ride-hailing companies (e.g. Uber and Lyft). Rolesville could offer subsidies or discounts for using these services to make travel affordable. Ride hailing service could be available to residents to travel during middays and/or to bring passengers to the planned park-and-ride in Rolesville.

Increase Provision of Demand Response Service ($-$$)

The low-density nature of Rolesville makes it well suited for demand response service for trips within the community. This type of door-to-door service is already provided by GoWake Access, but access is limited to older adults and persons with disabilities and to some trip purposes, like traveling to/from work. CFAP funds, however, could be used to expand these services to broaden the eligible population and increase the eligible trips.

Demand response service enhances regional transit opportunities for Rolesville residents, because it can provide local mobility and /or connections to planned investments, like the park-and-ride facility. It can also serve demand for midday transit trips by bringing residents to regional transit centers in Triangle Town Center and Wake Forest.

Improve Pedestrian and Bicycle Infrastructure ($-$$)

Safer and more direct access to the planned park-and-ride facility will make Rolesville a more accessible and less car-dependent place. Improvements to sidewalks, crosswalks, and bicycle infrastructure adjacent to the planned facility will serve to support planned peak hour service to Raleigh by facilitating easier pedestrian connections to bus stops.

Develop Peak-Only Fixed-Route Circulator Service ($$$ and $$)

In the future with additional and higher density land uses, Rolesville may eventually be able to support a fixed-route commuter service connecting the denser residential neighborhoods of Rolesville to the planned park-and-ride lot to be served by peak service to downtown Raleigh.

Peak-Only Flex Route Service between Rolesville and Wake Forest ($$$$ and $$$)

Rolesville and Wake Forest are linked economically, with some residents commuting between the two communities. Rolesville could work with Wake Forest to leverage CFAP funds and develop flex route service connecting Rolesville and Wake Forest. A flex route option would allow residents within a quarter mile of the corridor connecting Rolesville to Wake Forest to access jobs and shopping in Wake Forest as well as the planned all day bus service between Wake Forest and Raleigh.

10 Wake Forest

Wake Forest is a town in northeast Wake County with a population of 42,269 (2017), having grown by 32% since 2010. About 10,440 jobs are located in Wake Forest. The town has a relatively high concentration of jobs and retail located along Main Street, the western end of Rogers Road, its town center at Wait Avenue and White Street, and in the isolated big box retail centers along Highway 1. Wake Forest has a small population of residents with a high propensity for transit. Community Funding Areas Program-funded local transit could play an important role in improving regional access to the activity hubs along the "triangle" formed by Stadium Road, Main Street, and Highway 1, which will continue to be served by the hourly Wake Forest Loop service, as well as potentially linking the town to nearby Rolesville.

Wake Forest is currently served by the Wake Forest-Raleigh Express (WRX) route, which provides peak-only express service from Wake Forest's Park-and-Ride lot inbound to downtown Raleigh via the Triangle Town Center at Orvis Park-and-Ride, and the Wake Forest Loop.

PLANNED TRANSIT CAPITAL AND SERVICE INVESTMENTS

Wake Forest is currently connected to the regional transit network via the Wake Forest Express (WRX) operated by GoTriangle). The existing service is available during peak periods only and provides two morning and three afternoon trips. This service is not scheduled to change as par tof the Wake Bus Plan.

Instead bus service to Wake Forest wil improve with implementation of Route 2 Falls of Neuse. The Falls of Neuse trunk route will be extended to operate between downtown Raleigh and WakeMed North. This route will operate daily with 30 minute service.

Two routes implemented in conjunction with Route 2 Falls of Neuse include Falls of Neuse North (2L), which will connect downtown Wake Forest with WakeMed North and Route 25 Durant, which will provide connections from Wake MedNorth to the Wake Tech Northern Wake Campus and Triangle Town Center. The combined impact of these routes means that Wake Forest will have all day access to Wake MedNorth, where riders can transfer to travel into downtown Raleigh or to Triangle Town Center. GoRaleigh will operate all three of these routes (Route 2 Falls of Neuse, Route 2L Falls of Neuse North and Route 25 Durant). This service change is scheduled for implementation in 2023.

A handful of capital investments are also scheduled as part of implementing Route 2, 2L and 25, including new and/or improved park and ride lot facilities in WakeForest, Wake Forest/Wakefield and Falls of Neuse / I-540. The Wake Bus Plan is also planning to build enhanced transfer points at WakeMed North and at the intersection of Falls of Neuse and Spring Forest.

POPULATION AND EMPLOYMENT DENSITY

Population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. Density is important for two

reasons: 1) places with large numbers of people and jobs produce the greatest demand for transit service and 2) nearly every transit trip also includes a walk trip; dense areas have more destinations (or origins) within a close, safe and comfortable walking distance.

Wake Forest's population density is highest in its town center and its employment density is highest in its town center and along Main Street, Highway 1, and the western end of Rogers Road. This type of medium population and employment density could support transit, however the sprawling nature of the retail area along Main Street and Highway 1 reduces the walkability of the area.

Population Density

Population density in Wake Forest is highest in its town center (between Wait Avenue, Dr. Calvin Jones Highway, and White Street) (Figure 10-1), where the population density averages more than 5 residents per acre. Elsewhere in Wake Forest, the population density averages between 1 and 3 residents per acre. Outside of the town center, the population density could be supportive of transit, but most area lack pedestrian connectivity to the town's transit corridors.

Employment Density

Employment density is relatively high along Highway 1, Main Street, Rogers Road at Forestville Road, and in the town center. These areas have a job density of at least 11 jobs per acre (Figure 10-2). This employment density is high enough to support local transit service, however all job sites except in the town center lack comfortable pedestrian and bicycling conditions and infrastructure, and most uses are separated by large surface parking lots. downtown Wake Forest, centered on about 10 blocks at White Street and Wait Avenue, is a walkable transit-friendly area that will be served by hourly service to downtown Raleigh.

Figure 10-1 Wake Forest Population Density

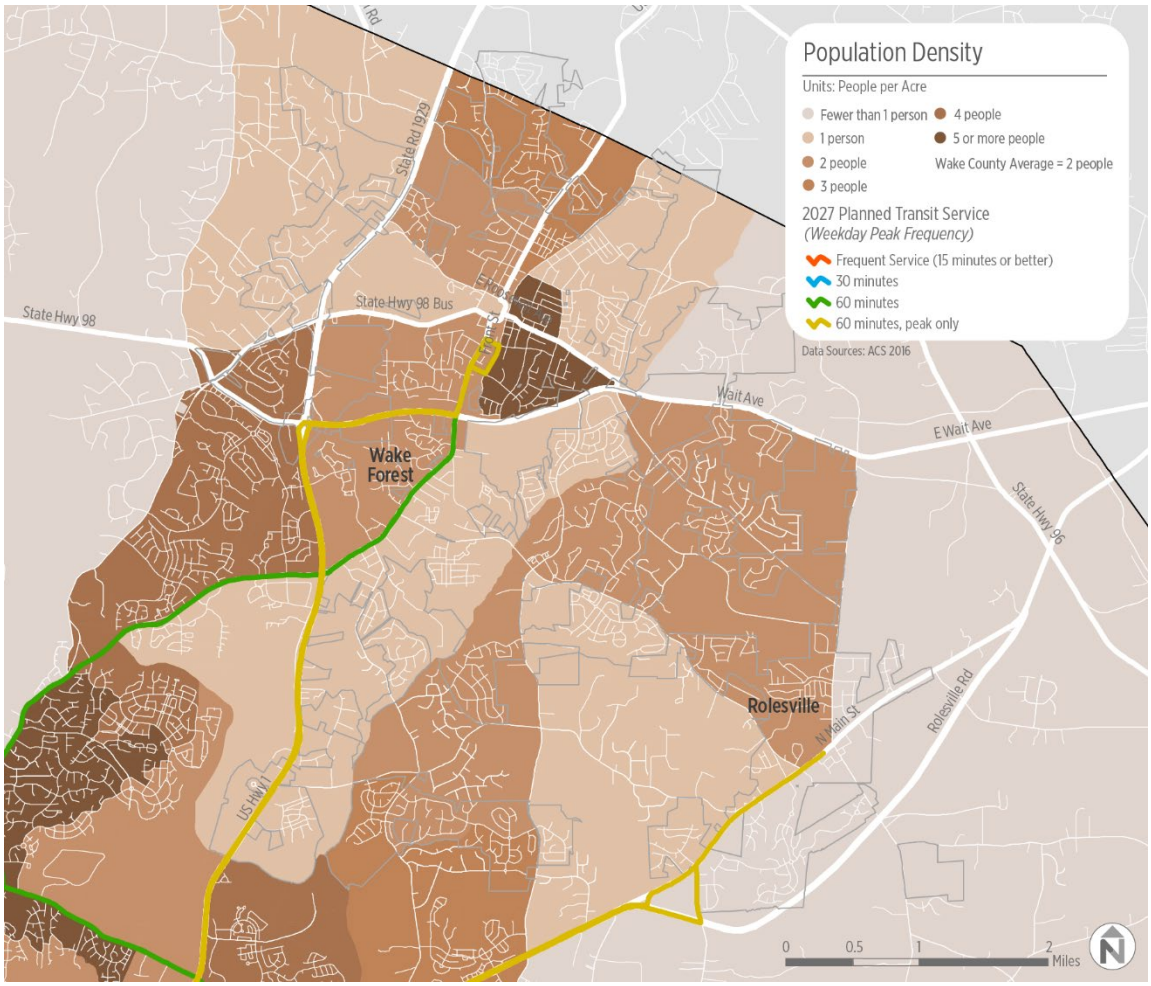
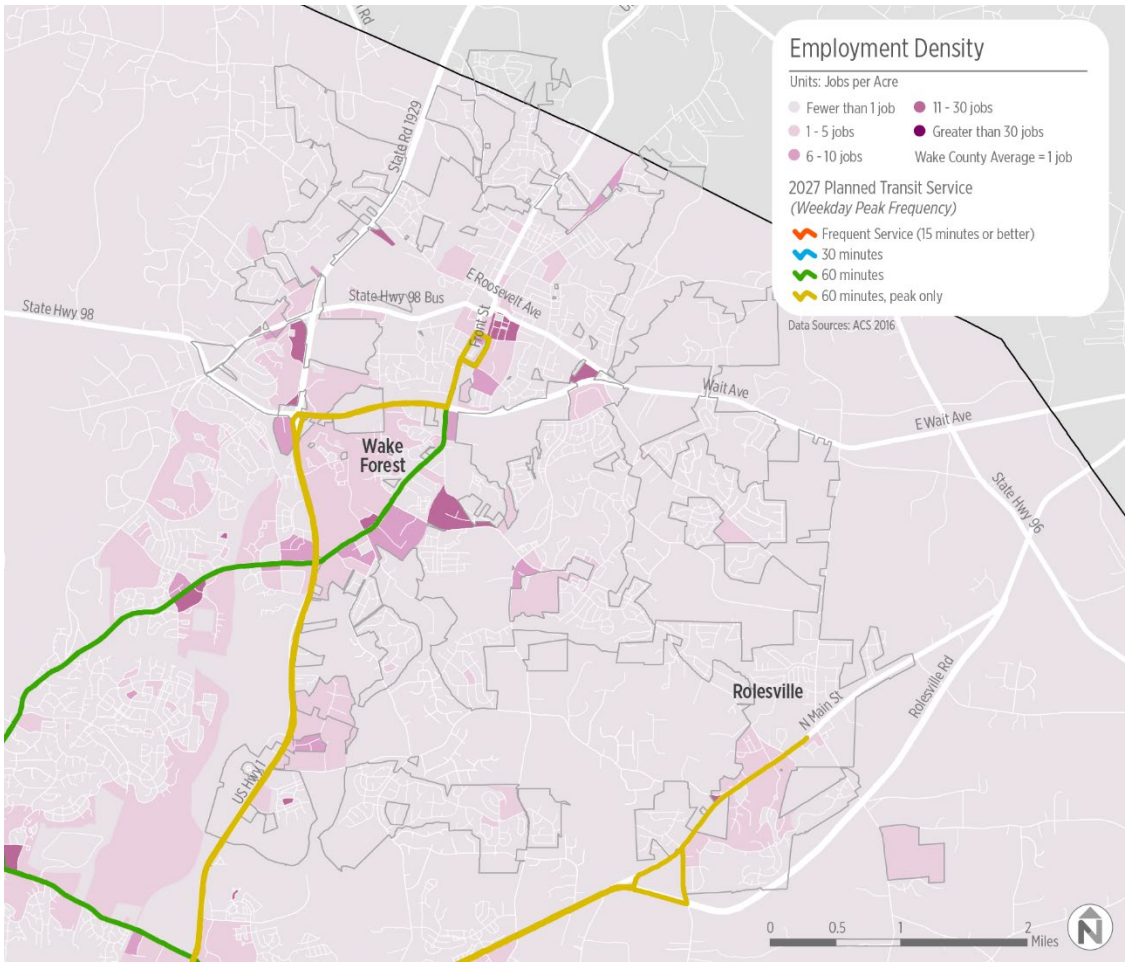


Figure 10-2 Wake Forest Employment Density

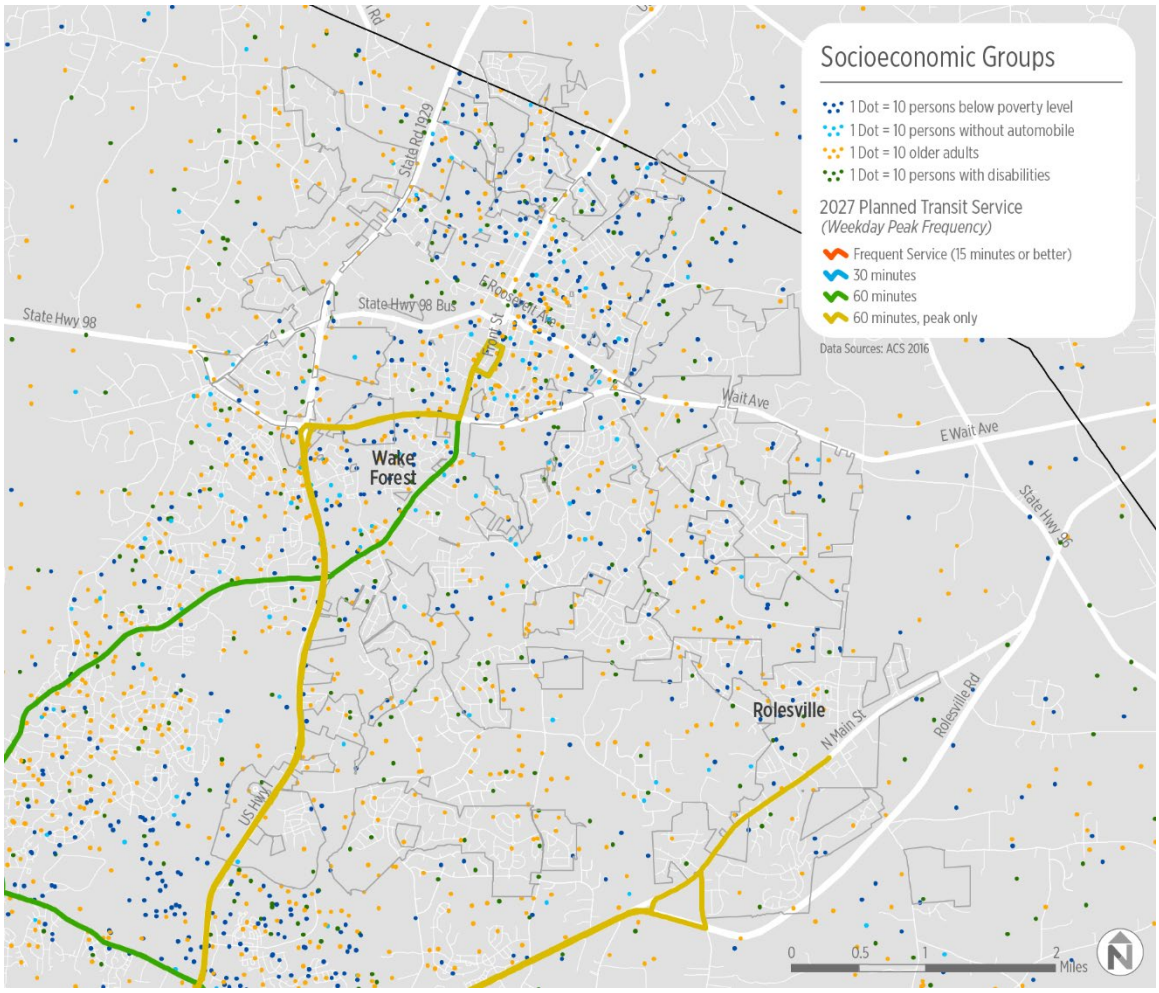


SOCIOECONOMIC CHARACTERISTICS

Socioeconomically, Wake Forest lacks a significant number of residents with a strong propensity for transit use. The town has a low poverty rate, a small senior community, and a small number of residents with a disability. 4% of residents are below the poverty line. 11% of the population is 65 years of age or older, and 5% of Wake-Forest's residents has a disability.

Low-income residents without an automobile, seniors, and residents with a disability are evenly dispersed in low densities across Wake Forest (Figure 10-3).

Figure 10-3 Wake Forest Dot Density of Select Socioeconomic Characteristics

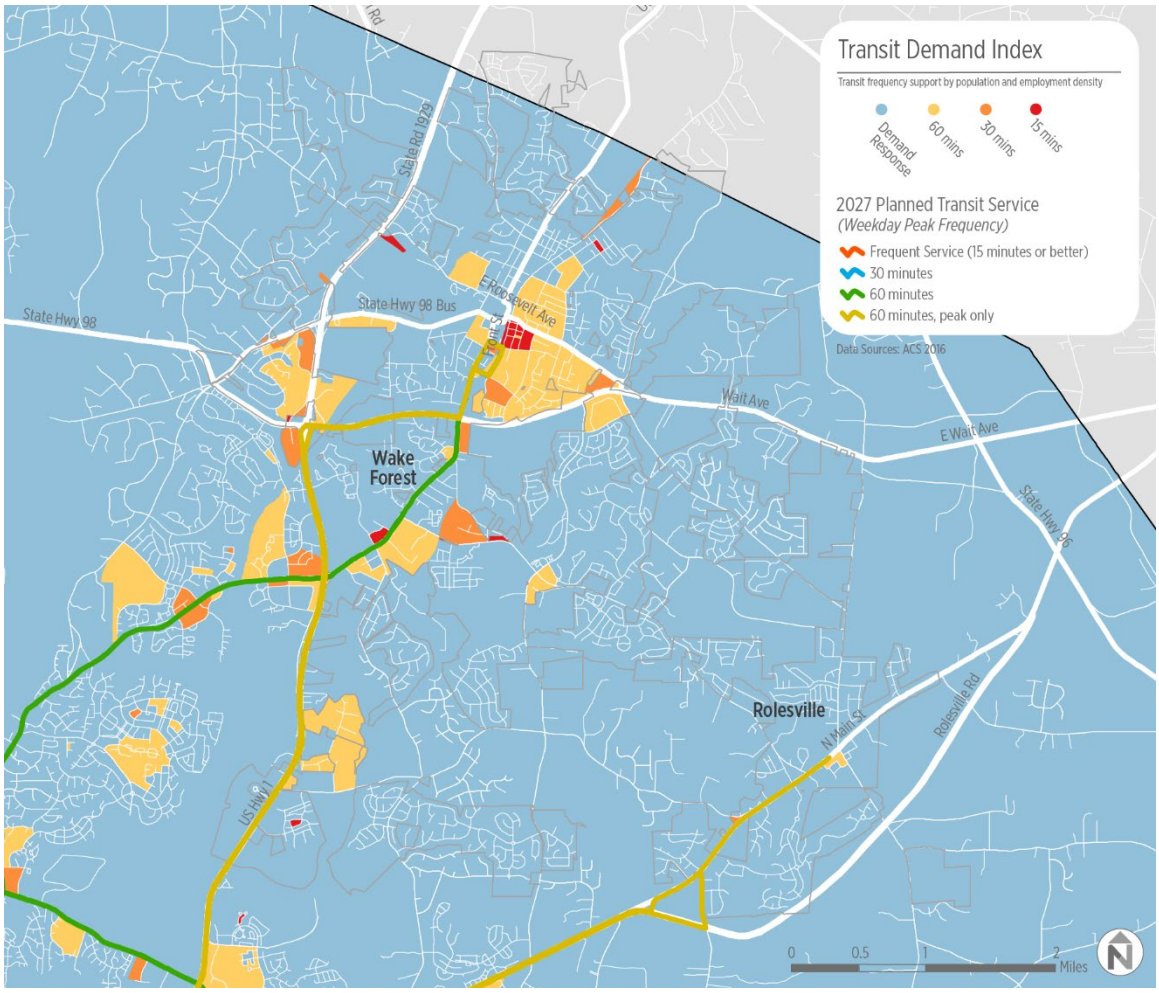


Transit Demand Index

As discussed, population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. However, population and employment analyses do not consider factors other than density. Similarly, the analysis of socioeconomic groups with a high propensity to use transit considers these population subgroups individually.

Figure 10-4, which shows a transit propensity index that estimates the underlying market and demand for transit, suggests that Wake Forest can support fixed-route transit service along the "triangle" of Stadium Road, Main Street, and Highway 1 (which is currently served by the Wake Forest Loop) and a market may exist for service connecting the town to Rolesville.

Figure 10-4 Wake Forest Transit Demand Index



TRANSIT INVESTMENT OPTIONS

Wake Forest could leverage Community Funding Area Program funds to support the following types of transit. These transit investments are well suited to Wake Forest's socioeconomic characteristics and existing commuting patterns.

Guide to Service Costs:

Operating Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Capital Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Partner with Ride-Hailing Companies ($)

A less expensive and more flexible way to give residents an alternative way to travel would be by collaborating with ride-hailing companies (e.g. Uber and Lyft). Ride hailing service could be available to offer local circulation and/or to provide connections to the WRX.

Increase Provision of Demand Response Service ($-$$)

The low-density nature of most of Wake Forest except in its downtown makes it well suited for enhanced demand response service for trips within the community. This type of door-to-door service is already provided by GoWake Access but is limited to eligible riders (primarily older adults and persons with disabilities) and certain trip purposes, such as travel to medical appointments or employment. CFAP funds could be used to expand the availability of demand response service for use by a wider group of people and / or for more types of travel.

Demand response service enhances regional transit opportunities for Wake Forest residents, because it can connect residents with new services, or provide local circulation including the shopping options along Main Street and Highway 1.

Increase Frequency of Fixed-Route Local Circulator Service ($$$ and $$)

Wake Forest may support increased frequencies on its fixed-route local circulator "loop" service currently operated by GoRaleigh. This service currently operates with hourly frequencies, but Wake Forest could leverage CFAP service to increase service frequency to every 30 minutes beginning in 2024 when service to Raleigh is improved to hourly frequencies.

Develop All-Day Flex Route Service between Rolesville and Wake Forest ($$$$ and $$)

Rolesville is linked economically to Wake Forest. As the communities develop, Wake Forest and Rolesville could collaborate on a new service that links the two communities. Operating as a "flex route" means the bus could travel within a quarter mile of the corridor connecting Rolesville to Wake Forest to access jobs and shopping in Wake Forest as well as the planned bus service between Wake Forest and Raleigh.

11 Wendell

Wendell is a town in eastern Wake County with a population of 7,261 (2017), an increase of 14% since 2010. About 1,090 jobs are located in the town of Wendell. The community's population and employment density is low, and the population has a high rate of vehicle ownership, a low poverty rate, and a small senior population. As a result, the market and demand for transit service in Wendell is low.

PLANNED TRANSIT CAPITAL AND SERVICE INVESTMENTS

Wendell is currently served by the Zebulon-Wendell-Raleigh (ZWX) Express Route, which provides peak-only express service from Wendell's Park-and-Ride lot inbound to downtown Raleigh via the WakeMed Campus or outbound to the town of Zebulon.

POPULATION AND EMPLOYMENT DENSITY

Population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. Density is important for two reasons: 1) places with large numbers of people and jobs produce the greatest demand for transit service and 2) nearly every transit trip also includes a walk trip; dense areas have more destinations (or origins) within a close, safe and comfortable walking distance.

Population Density

Population density in Wendell is extremely low (Figure 11-1). The densest part of Wendell is near Wendell Boulevard, which is surrounded by single-family residential developments on relatively small lots. This area of Wendell has a population density of about 1 person per acre, compared to the rest of Wendell, which averages less than 1 person per acre.

Employment Density

Downtown Wendell, which is concentrated on 6 square blocks along Main Street, has relatively high employment density, with between 11-30 jobs per acre. The rest of Wendell has fewer than 1 job per acre except for along Wendell Boulevard to the northwest of town, where there are some restaurants and grocery stores sited behind large surface parking lots. This area has 1-5 jobs per acre (Figure 11-2). Data also shows that most residents work outside of Wendell.

Figure 11-1 Wendell Population Density

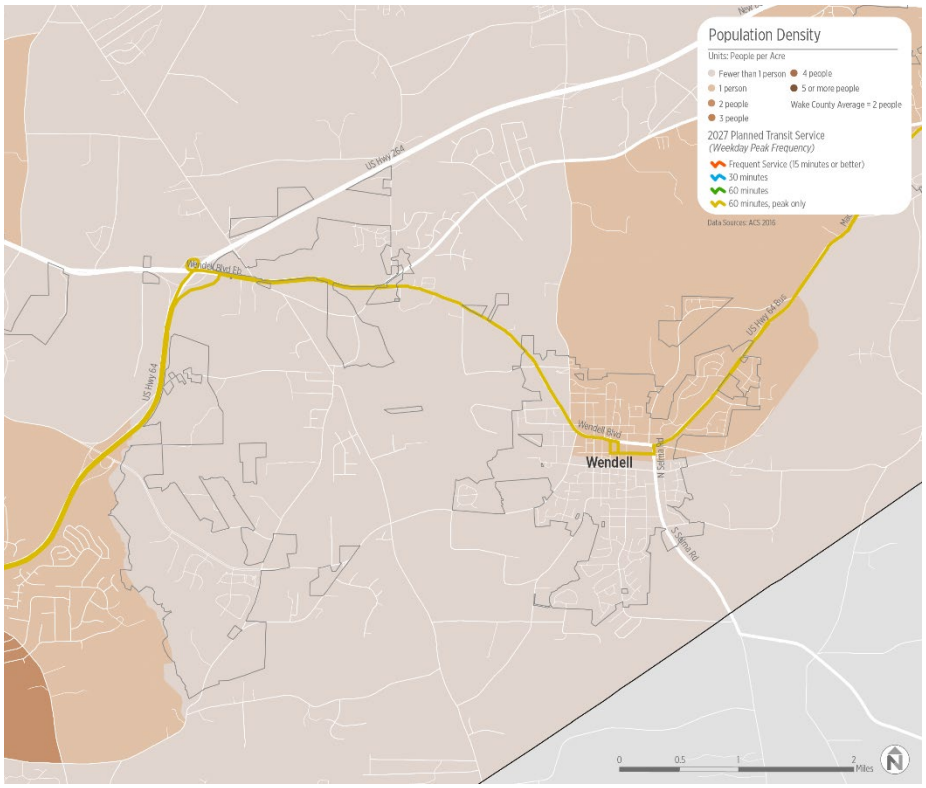
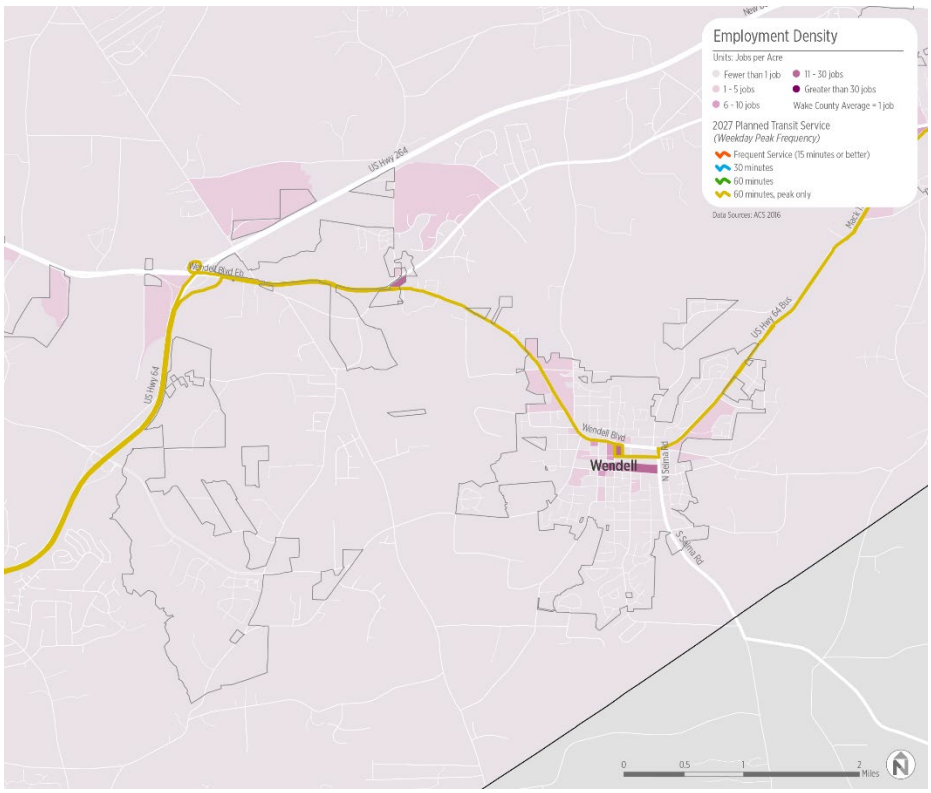


Figure 11-2 Wendell Employment Density

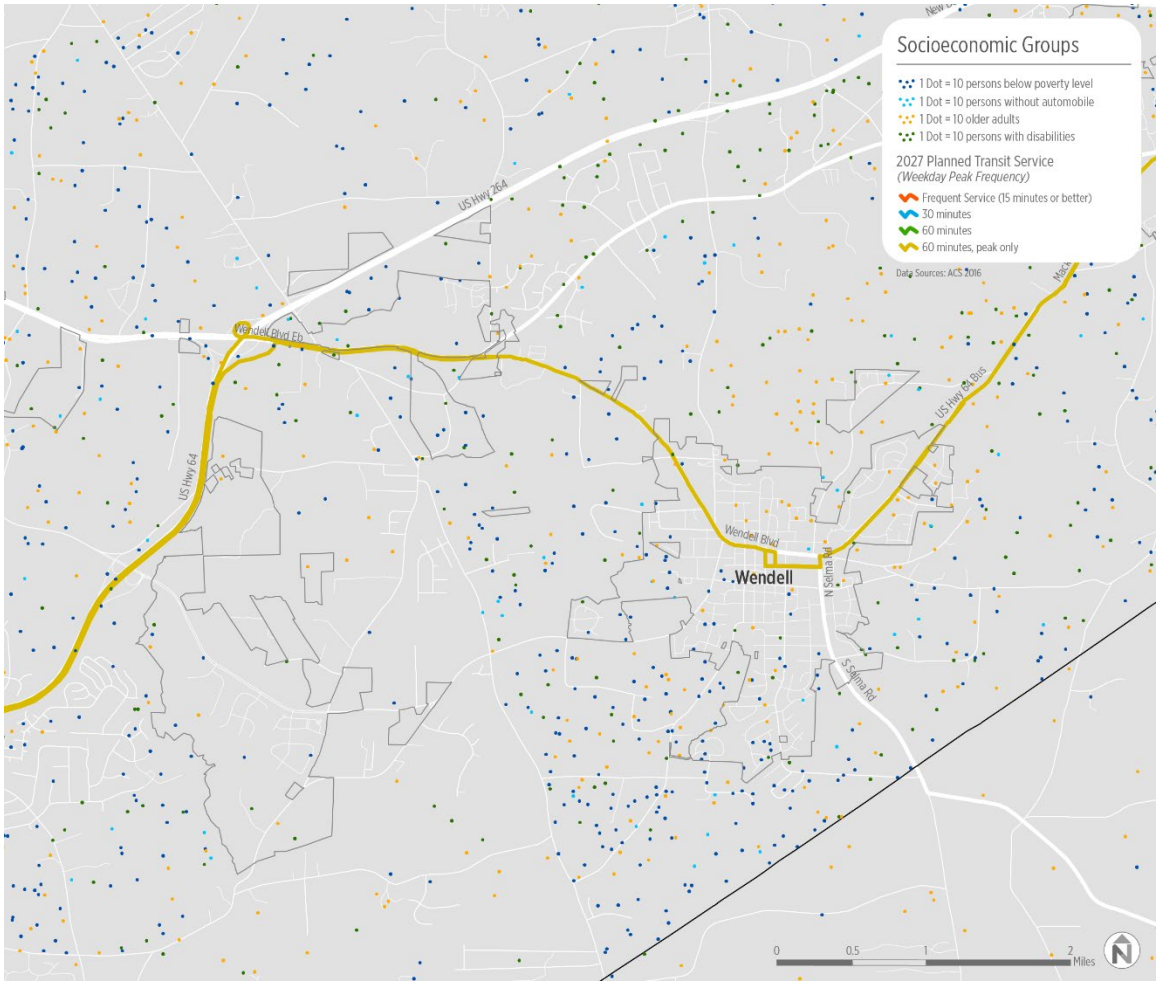


SOCIOECONOMIC CHARACTERISTICS

The demographic composition of Wendell residents contribute to the town's low market and demand for transit (Figure 11-3). Wendell has a low poverty rate, a small senior community, and a small number of residents with a disability. 7.9% of residents are below the poverty line. Twelve percent of the population is 65 years of age or older and 13.4% of Wendell's residents has a disability.

Low-income residents are located mostly in southern Wendell and in the rural areas south of the town boundary. Most older adults in the community live nearby Wendell Boulevard. Only 2% of Wendell residents (about 50 people) do not have an automobile.

Figure 11-3 Wendell Dot Density of Select Socioeconomic Characteristics



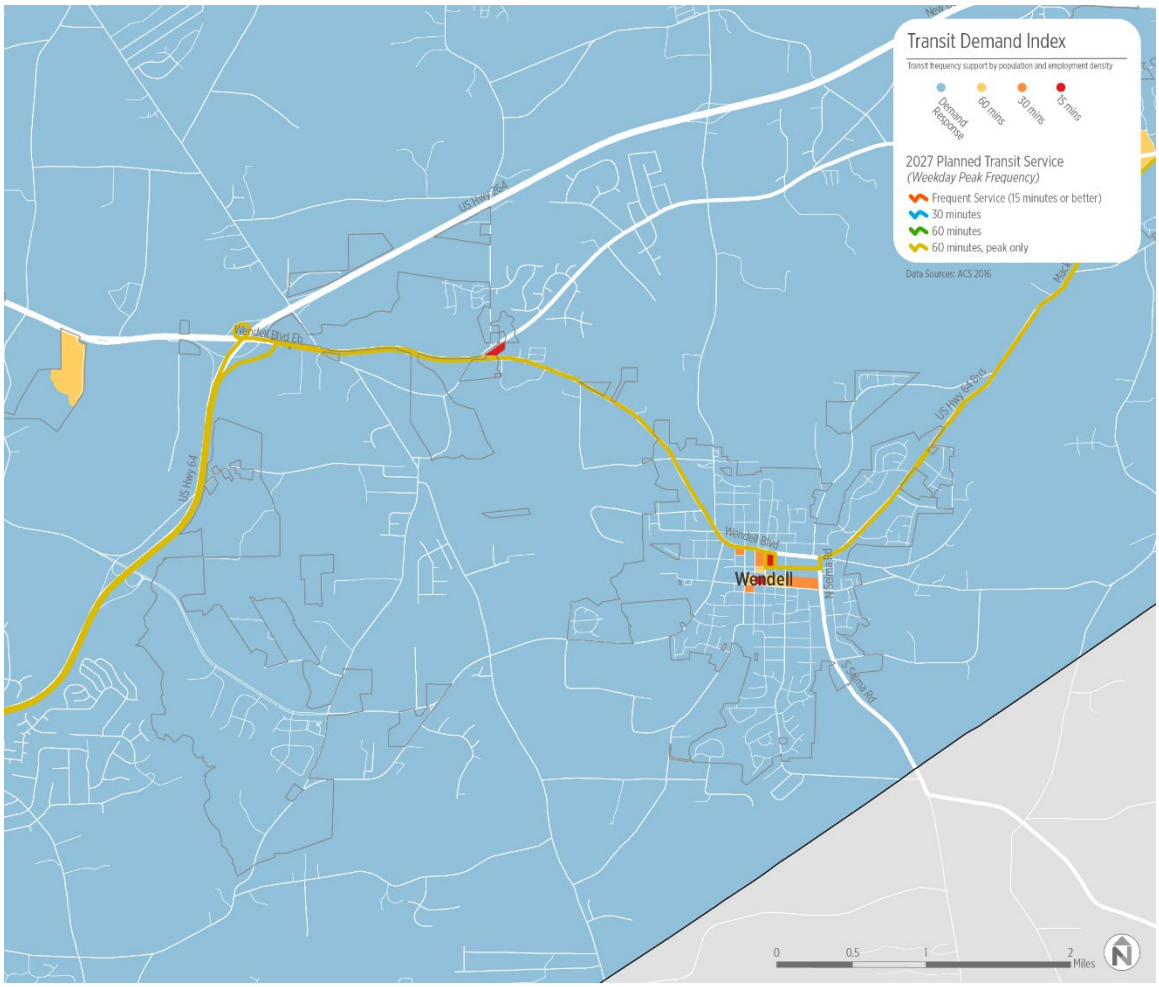
Transit Demand Index

As discussed, population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. However, population and employment analyses do not consider factors other than density. Similarly, the analysis of

socioeconomic groups with a high propensity to use transit considers these population subgroups individually.

This next map (Figure 11-4) shows a transit propensity index that estimates the underlying market and demand for transit including both densities and demographic and socioeconomic characteristics. This data suggests that Wendell can support demand response service in its outlying areas and fixed-route service in the downtown core.

Figure 11-4 Wendell Transit Demand Index



TRANSIT INVESTMENT OPTIONS

Wendell could leverage Community Funding Area Program funds to support the following types of transit. These transit investments are well suited to Wendell's socioeconomic characteristics, and existing commuting patterns.

Guide to Service Costs:

Operating Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Capital Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Partner with Ride-Hailing Companies ($)

A less expensive and more flexible way to give residents an alternative way to travel would be to collaborate with ride-hailing companies (e.g. Uber and Lyft). Ride hailing service could be available to residents to travel during middays and/or to bring passengers to the park-and-ride in Wendell.

Increase Provision of Demand Response Service ($-$$)

The low-density nature of Wendell makes it well suited for enhanced demand response service for trips within the community. This type of door-to-door service is already provided by GoWake Access but is limited to eligible riders (primarily older adults and persons with disabilities) and certain trip purposes, such as travel to medical appointments or employment. CFAP funds could be used to expand the availability of demand response service for use by a wider group of people and / or for more types of travel.

Demand response service enhances regional transit opportunities for Wendell residents, because it can connect less mobile residents with the park-and-ride facility for peak hour service to downtown Raleigh and Zebulon. A shared service could also serve demand for midday transit trips by bringing residents to shopping or hourly fixed-route service in Knightdale.

Improve Pedestrian and Bicycle Infrastructure ($-$$)

Safer and more direct access to the park-and-ride facility will make Wendell a more accessible and less car-dependent place. Improvements to sidewalks, crosswalks, and bicycle infrastructure adjacent to the planned facility will also serve to support the peak hour service to Raleigh by facilitating easier pedestrian connections to bus stops.

Develop Peak-Only Fixed-Route Circulator Service ($$$$ and $$)

In the future with additional and higher density land uses, Wendell may eventually be able to support a fixed-route commuter service connecting the denser residential neighborhoods of Wendell like Wendell Falls to the park-and-ride lot served by peak service to downtown Raleigh.

Develop All-Day Flex Route Service between Wendell and Knightdale and/or Wendell and Zebulon ($$$$and $$)

Wendell is linked economically to Knightdale, with some Wendell residents commuting to Knightdale for work. While Wendell will continue to be served by peak-hour, express service to Raleigh but there is no planned transit service between Knightdale and Wendell in the Wake Transit Plan. In partnership with Knightdale, Wendell could leverage CFAP funds to subsidize service connecting the two communities.

The route could be implemented with a flexible service option that would allow the bus to deviate up to a quarter mile of the ends of the corridor (in Knightdale or Wendell). A flex route option would allow residents within a quarter mile of the Wendell Boulevard (like those in Wendell Falls) and Knightdale Boulevard corridor connecting Wendell to Knightdale to access jobs and shopping in Knightdale as well as the planned all day bus service between Wendell and Raleigh.

Flex route service between Wendell and Zebulon would allow residents a mid-day transit option to access jobs and shopping in Zebulon.

12 Zebulon

Zebulon is a town in eastern Wake County with a population of 5,268 (2017), an increase of 16% since 2010. Zebulon has a strong job base that attracts many people who commute from western Wake County to the 4,390 jobs located in the town. The town is also a regional distribution and retail center. Zebulon's largest employer is GlaxoSmithKline, which operates a facility in the town and employs over 1,500 people. The community's population density is low, and employment density is concentrated at large isolated sites. The population has a high rate of vehicle ownership, a low poverty rate, and a small senior population. As a result, the market and demand for transit service in Zebulon is uneven, with dense employment centers that most employees currently drive to.

PLANNED TRANSIT CAPITAL AND SERVICE INVESTMENTS

Zebulon will continue to be served by the Zebulon-Wendell-Raleigh Express (ZWX) route. This route provides peak-only express service from Zebulon's Park-and-Ride lot inbound to downtown Raleigh via Wendell and the WakeMed Campus.

POPULATION AND EMPLOYMENT DENSITY

Population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. Density is important for two reasons: 1) places with large numbers of people and jobs produce the greatest demand for transit service and 2) nearly every transit trip also includes a walk trip; dense areas have more destinations (or origins) within a close, safe and comfortable walking distance.

Population Density

Population density in Zebulon is extremely low (Figure 12-1). The densest part of Zebulon is west of Arendell Avenue and north of Gannon Avenue, which is a traditional residential neighborhood on an urban street grid with some medium-density housing units. This area of Zebulon has a population density of about 1 person per acre, compared to the rest of Zebulon, which averages fewer than 1 person per acre.

Employment Density

The areas of Zebulon with relatively high employment density are downtown Zebulon (concentrated on 8 blocks along Arendell Avenue), GlaxoSmithKline and the big box shopping area at Arndell Avenue and Highway 64, and the US Foods Distribution center in far eastern Zebulon. These areas have between 11 and 30+ jobs per acre. The rest of Zebulon averages fewer than 5 jobs per acre except along West Gannon Avenue, where a large strip mall has about 10 jobs per acre (Figure 12-2).

Figure 12-1 Zebulon Population Density

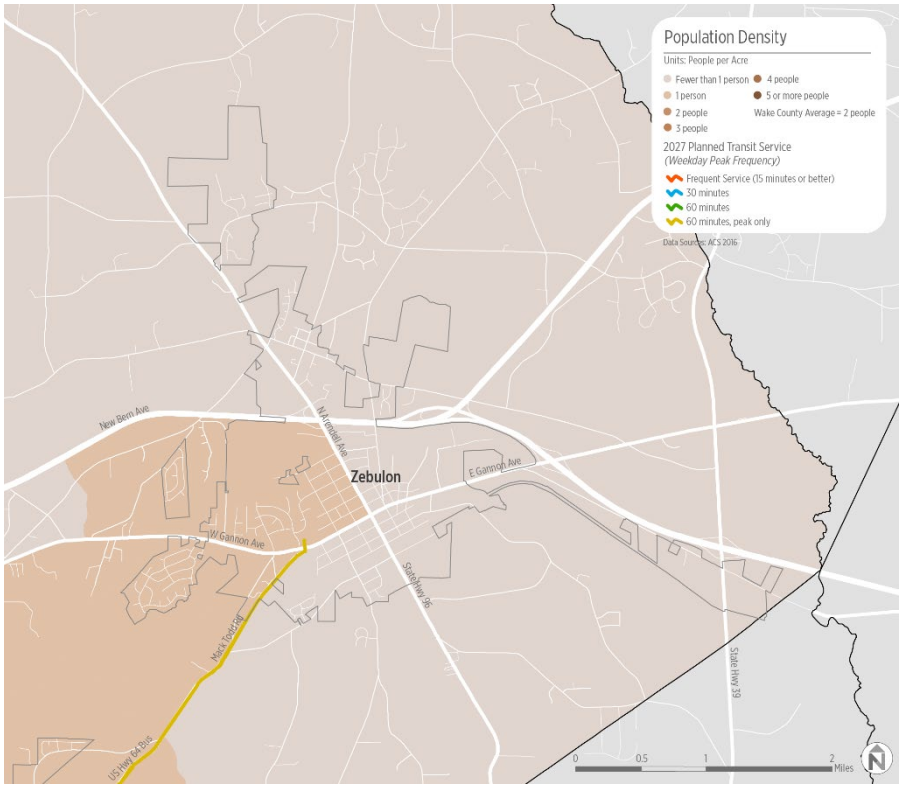
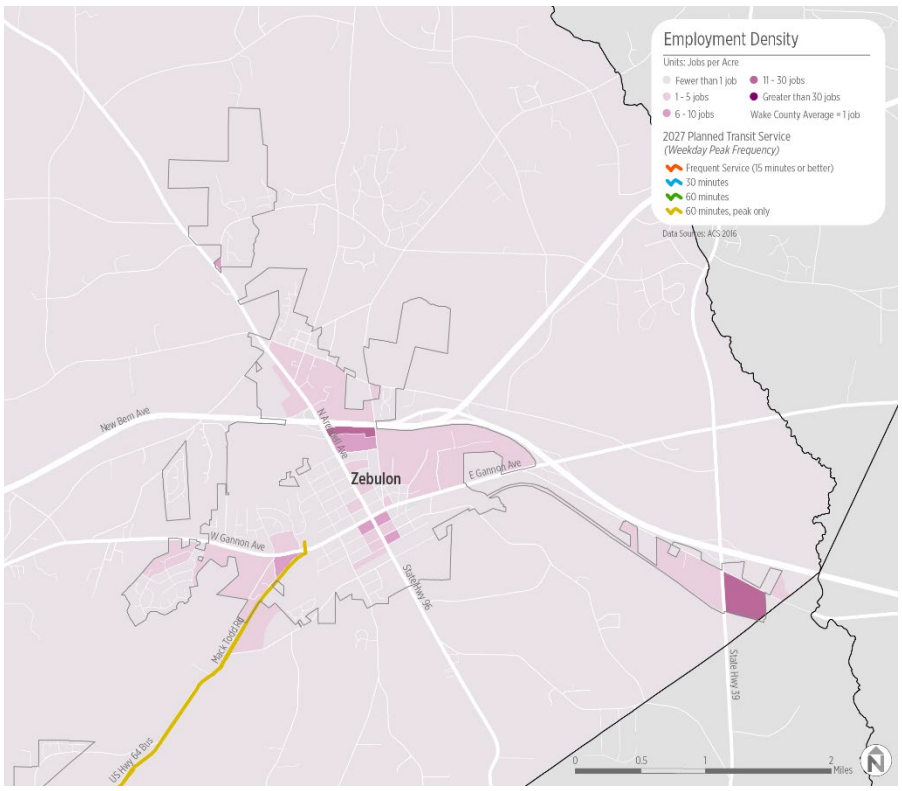


Figure 12-2 Zebulon Employment Density

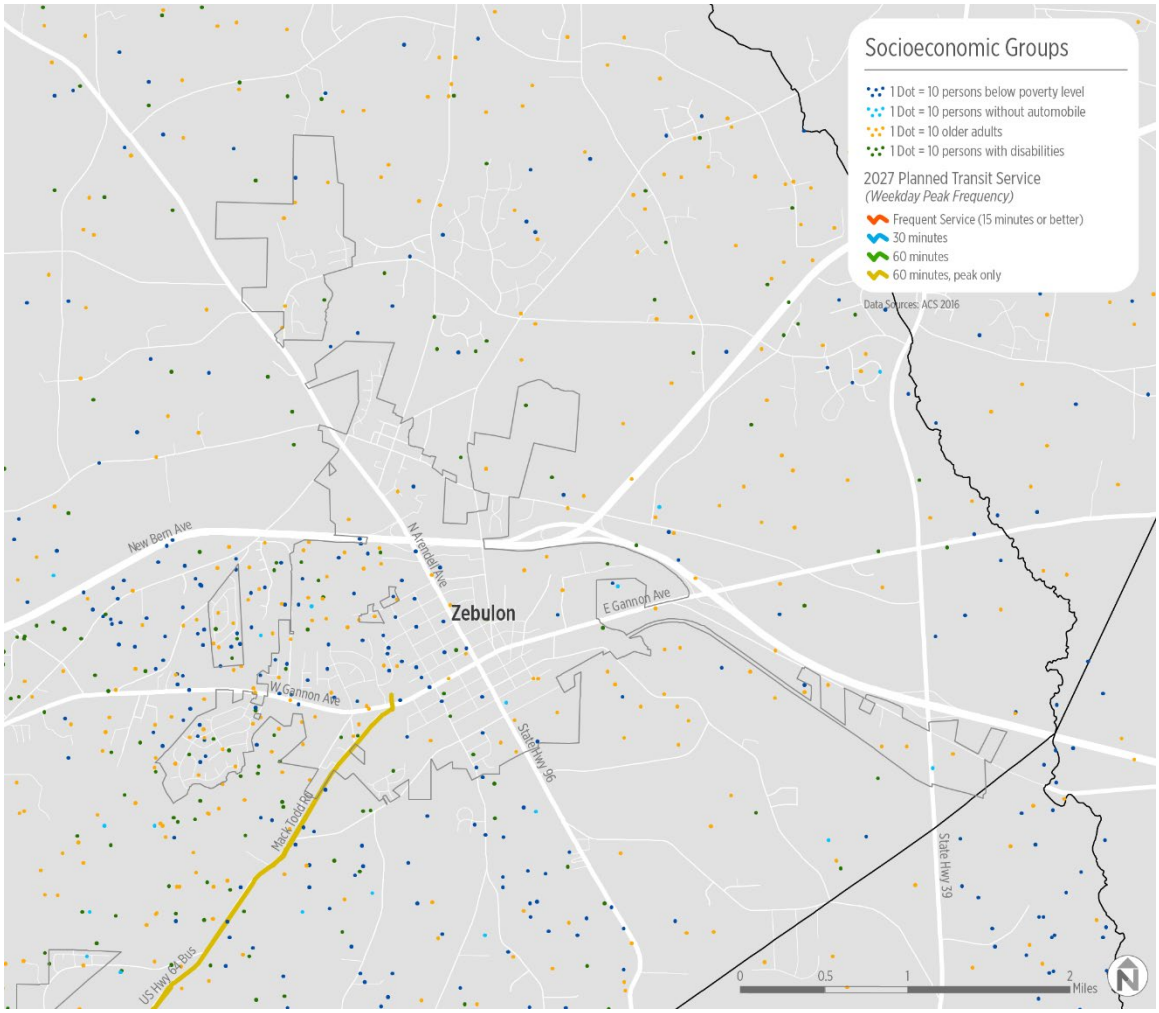


SOCIOECONOMIC CHARACTERISTICS

The demographic composition of Zebulon residents limits the town's market and demand for transit (Figure 12-3). Wendell has a low poverty rate, a small senior community, and a small number of residents with a disability. 5.5% of residents are below the poverty line. 13.5% of the population is 65 years of age or older, and 9% of Zebulon's residents has a disability.

Low-income residents and seniors are located mostly in western Zebulon and in the rural areas west of the town boundary. Less than 1% of Zebulon residents do not have an automobile.

Figure 12-3 Zebulon Dot Density of Select Socioeconomic Characteristics

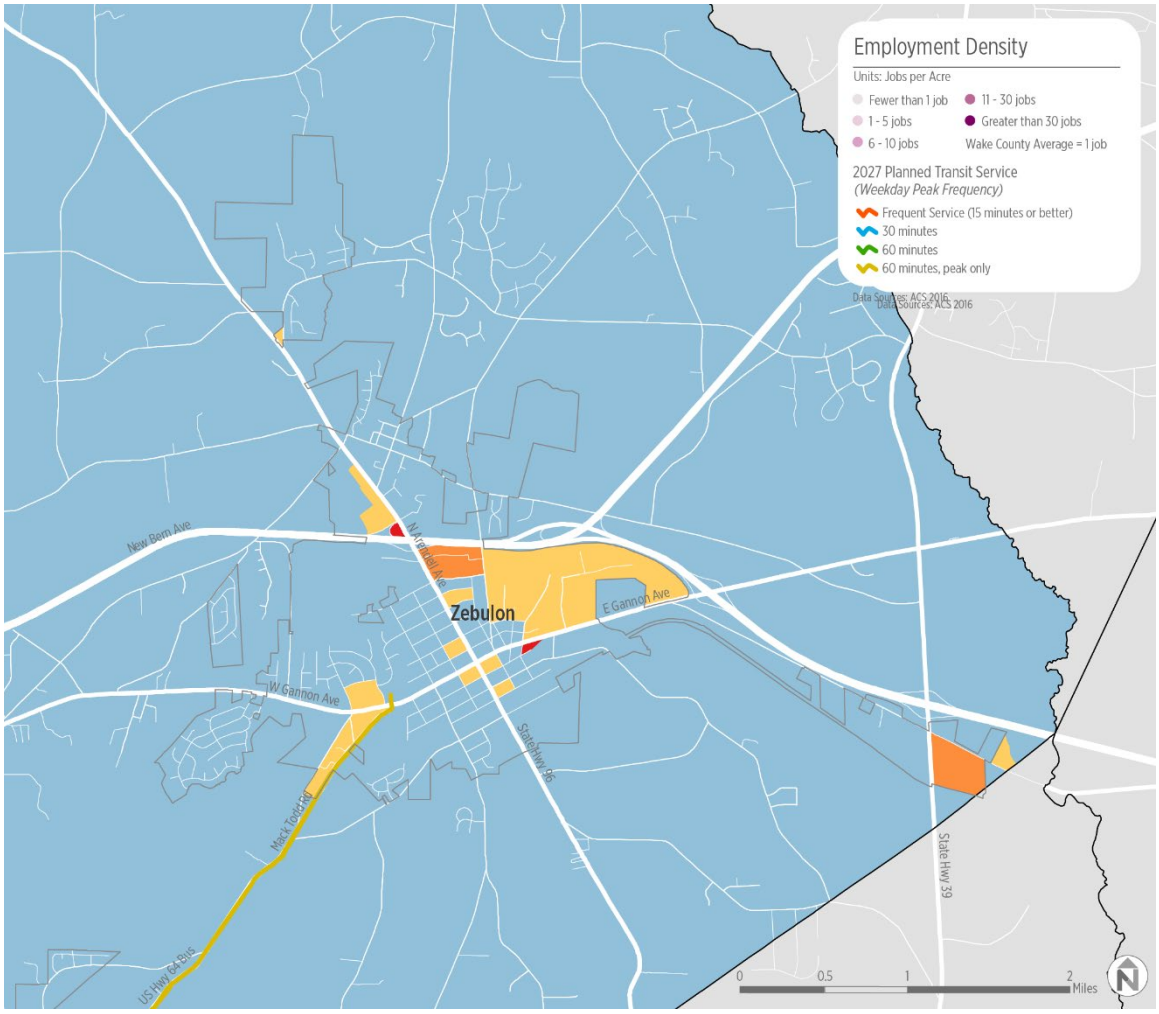


Transit Demand Index

As discussed, population and employment densities are two of the strongest indicators of both where the demand for transit will be highest and where it will work best. However, population and employment analyses do not consider factors other than density. Similarly, the analysis of socioeconomic groups with a high propensity to use transit considers these population subgroups individually.

This next map (Figure 12-4) shows a transit propensity index that estimates the underlying market and demand for transit including both densities and demographic and socioeconomic characteristics. This data suggests that Zebulon can support some fixed route service between its isolated activity centers and demand response in most of the rest of the town.

Figure 12-4 Zebulon Transit Demand Index



TRANSIT INVESTMENT OPTIONS

Zebulon could leverage Community Funding Area Program funds to support the following types of transit. These transit investments are well suited to Zebulon's socioeconomic characteristics and existing commuting patterns.

Guide to Service Costs:

Operating Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Capital Costs
$: $50,000 or less
$$: $50,000-$100,000
$$$: $100,000-$150,000
$$$$: $150,000 or more

Partner with Ride-Hailing Companies ($)

A less expensive and more flexible way to give residents an alternative way to travel would be to collaborate with ride-hailing companies (e.g. Uber and Lyft). Ride hailing service could be available to residents to travel during middays and/or to bring passengers to the park-and-ride in Zebulon.

Increase Provision of Demand Response Service ($-$$)

The low-density nature of the outlying areas of Zebulon makes it well suited for enhanced demand response service for trips within the community. This type of door-to-door service is already provided by GoWake Access but is limited to eligible riders (primarily older adults and persons with disabilities) and certain trip purposes, such as travel to medical appointments or employment. CFAP funds could be used to expand the availability of demand response service for use by a wider group of people and / or for more types of travel.

Demand response service enhances regional transit opportunities for Zebulon residents, because it can connect less mobile residents with the park-and-ride facility for peak hour service to Wendell and downtown Raleigh. It can also serve demand for midday transit trips by bringing residents to shopping.

Develop Peak-Only Fixed-Route Circulator Service ($$$$ and $$)

Zebulon may support a fixed-route commuter service connecting the denser residential neighborhoods of Rolesville to the west of the town center to the park-and-ride lot served by peak service to downtown Raleigh, downtown Zebulon, the big box stores near Highway 64, and some of the larger employment sites. This circulator service could potentially be subsidized by large town employers like US Foods or GlaxoSmithKline.

Develop All-Day Route Service between Zebulon and Wendell and/or Knightdale ($$$$and $$)

Zebulon is linked economically to both Wendell and Knightdale, with residents commuting from those communities to Zebulon. The three communities could collaborate to create a new service that connects them. The service could be implemented with a flexible service option available in Wendell, Knightdale or Zebulon to allow travel within a quarter mile of the Mack-Todd Road, Wendell Boulevard, and Knightdale Boulevard corridors. This type of service would allow individual to access jobs and shopping in all three towns as well as the planned all day bus service between Knightdale and Raleigh.