Clay County Transit Study

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Clay County Transit Study

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ACKNOWLEDGEMENTS

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Chapter 1. Executive Summary

The Jacksonville Transportation Authority (JTA) became the Community Transportation Coordinator for Clay County in 2019 and assumed the operations responsibility for paratransit service for Transportation Disadvantaged (TD) commuters in the county. JTA relaunched the flex route bus services and rebranded the service as Clay Community Transportation (CCT). Branded as CCT, the bus transit service currently consists of four flex bus routes throughout the county. JTA also provides bus rapid transit (BRT) and express bus services that connect Clay County to Jacksonville in partnership with Clay County.

Clay Community Transportation

With the recent growth in the county, Clay County, in coordination with the JTA identified the need to update a 2017 Clay County Transit Study to meet the needs stemming from the rapid growth in the county and to ensure that the transit system is appropriately meeting mobility needs of the community.

The update to the Clay County Transit Study, hereafter referred to as Transit Study, was focused on the following elements:

- Updating the plan to address the changing conditions within the county and meet the transit needs of the community
- Incorporate community input and feedback as a key element of the plan development
- Develop an overall system-wide vision for the transit service
- Complete a Comprehensive Operational Analysis (COA)
- Develop a recommended service framework
- Develop short-and mid-range recommendations and an action plan for implementation

Clay County Transit Study Public Meeting

The planning process incorporated extensive public outreach, including six public meetings, an on-line survey, an on-board survey, in-person surveys conducted at three community events, stakeholder meetings, and telephone surveys for the TD as well as meeting with nonprofit agencies in the community. The feedback received from these outreach efforts provided significant insights into the desires of the community as it relates to transit service.

The technical analysis included an assessment of the demographic and economic conditions, documentation of the transportation system characteristics, a peer and trend analysis, review of pertinent plans and policies, estimates of transit demand, land use assessment, and a technology review.

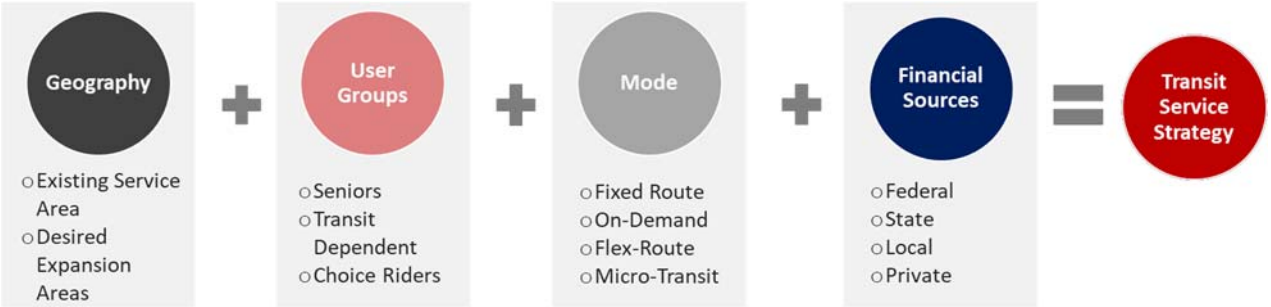
To develop the recommendations, the ridership trends and statistics were identified, current route productivity assessed, a financial analysis completed, including fares, a review of on-time performance, maintenance and management processes and procedures, and an infrastructure assessment.

The key findings are shown below.

Key Findings

• Improved marketing and education • Expanded service hours • Increased frequency • Improved access to medical facilities • Senior access to transit • First and last mile service such as JTA's ReadiRide service • Expanded service to new population and employment centers	• Trip attractors concentrated in Orange Park, Lakeside, Fleming Island, Green Cove Springs, and Middleburg • Regional travel and connection to JTA service is highly desired • Northeast quadrant of Clay County has highest concentration of transit propensity and future demand • Plans for enhanced regional travel opportunities require upgrades to fare system technology and mobility hub infrastructure	• Ridership and productivity are low for Green and Magenta Routes • Financial analysis shows exceptional diversification of grant sources • Level of service, frequency, directness and stop accessibility does not meet existing or projected demand • Duplication of service is present in both fixed flex routes and demand response programs • Operational efficiency exceeds peer system performance, but service levels are significantly lower

The service framework focused on identifying where service is needed, who is being served, what mode best fits the goals of the community, and what funding is available and how it can be used. The graphic displays the components of the service framework.



The results of the analysis provided framework strategies, including:

- Short-term, mid-term, and long-term recommendations
- Eliminate / enhance underperforming services
- Expand service to meet demand
- Maximize existing infrastructure and partnerships
- Enhance operational efficiency
- Increase service accessibility

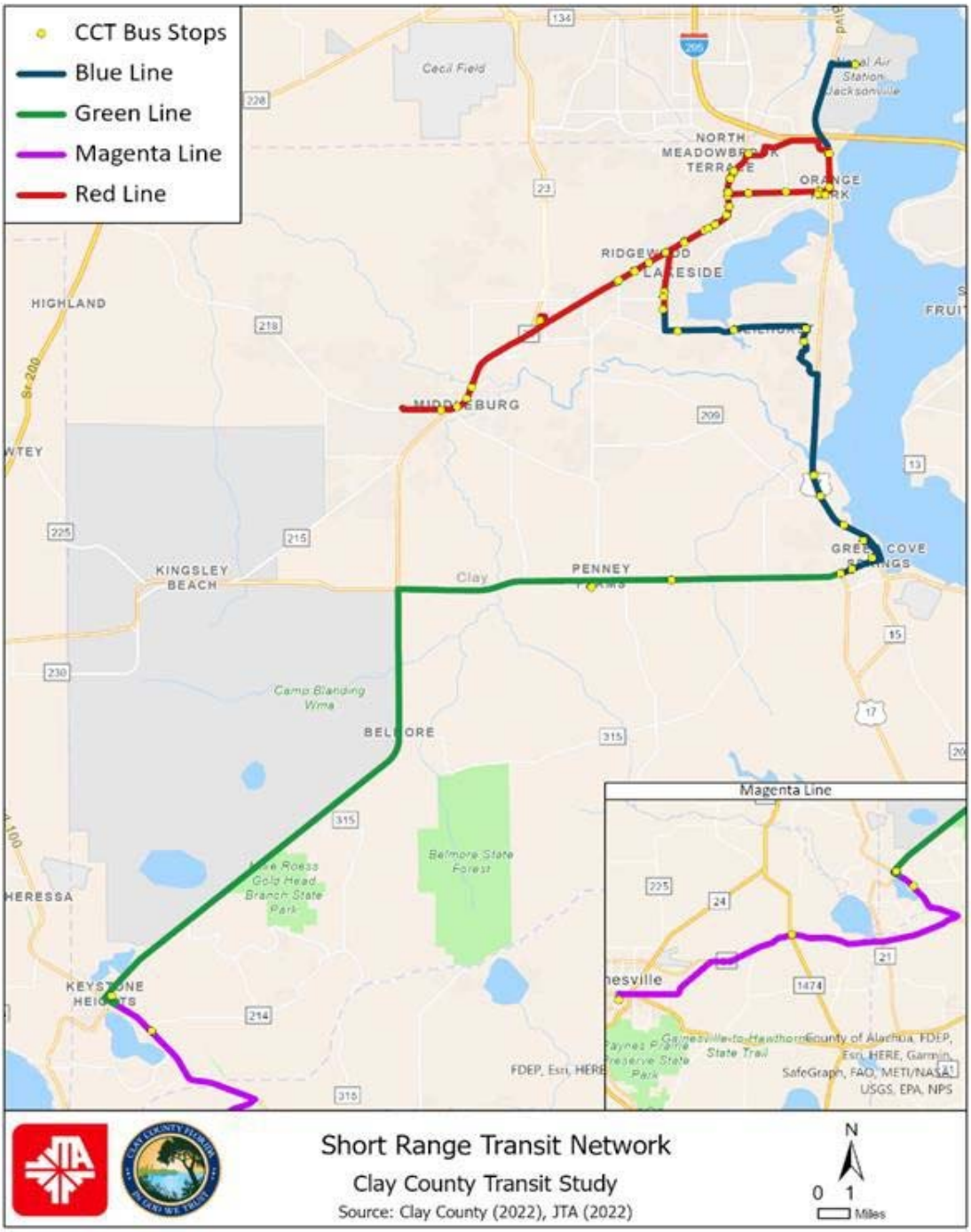
Building on these service framework strategies, the short-range and mid-range transit service recommendations were developed.

Short-Range Recommendations

Route Recommendations	Service Recommendations
Red Route: Remains the same	Increase service in high transit propensity area, improves route transfer connections and service efficiency
Blue Route: Service begins/ends in Green Cove Springs	Service hours from 6:30 AM - 6:30 PM
Green Route: Service ends in Green Cove Springs	Number of stops: 55
Magenta Route: Alignment remains the same	Annual Operating Cost: $1,983,881

The map on the following page displays the short-range recommendations.

Figure Ex-1. Short-Range Transit Network

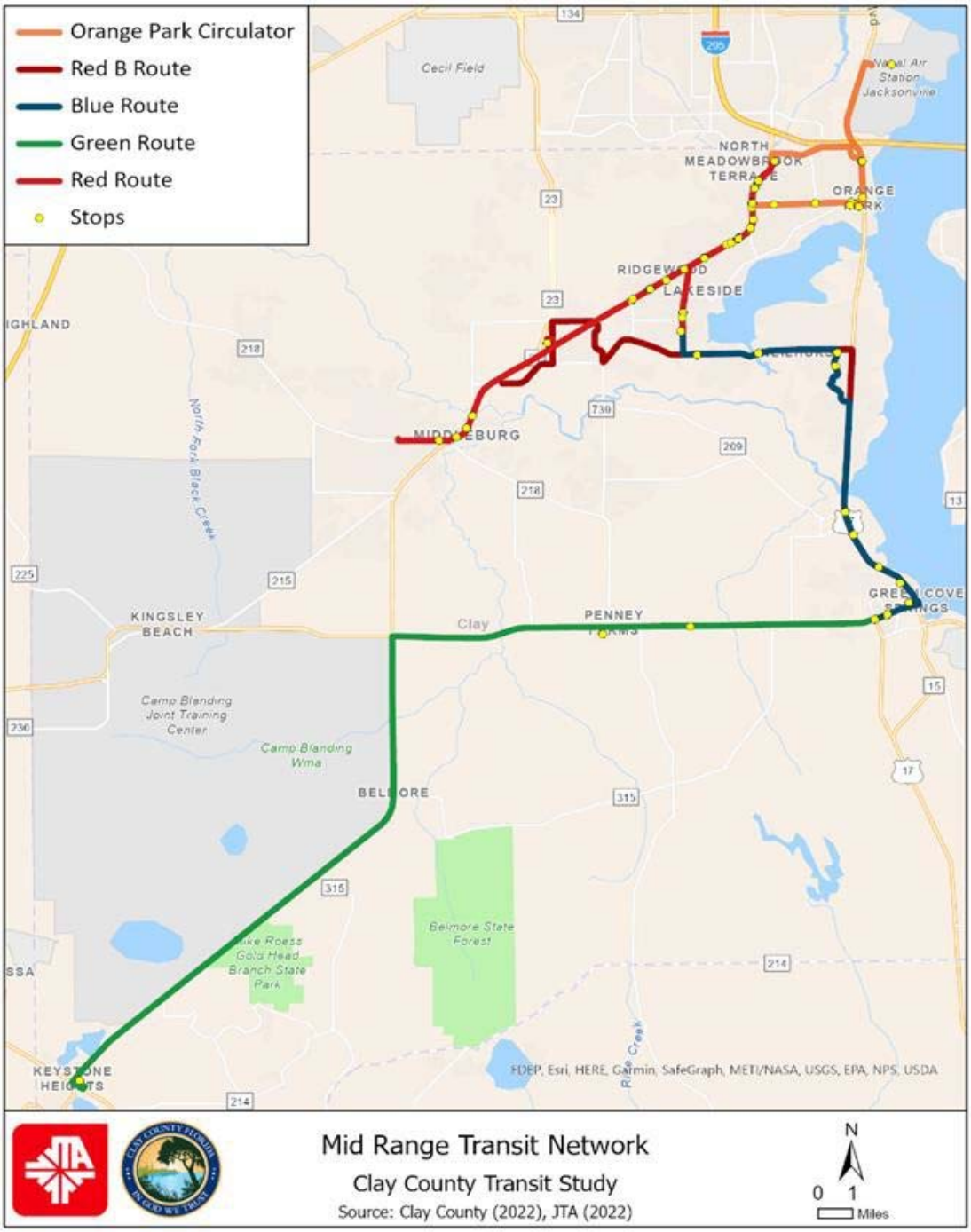


Mid-Range Recommendations

Route Recommendations	Service Recommendations
New Red Route B: Middleburg High School to Green Cove Springs	Two new flex routes
New Orange Route: Orange Park Circulator with two trips to NAS Jax	Service hours from 5:30 AM - 7:30 PM
Existing Red Route: Stop service in Middleburg and Orange Park except for the Orange Park Mall	Number of stops: 101
Existing Green Route: Service ends in Green Cove Springs	Annual Operating Cost: $4,006,234
Existing Blue Route: Orange Park Mall stop	
Existing Magenta Route: On-Demand only	

The map on the following page displays the mid-range recommendations.

Figure Ex-2. Mid-Range Transit Network



On-Demand Recommendations

On-Demand service recommendations are listed below.

- Combine Aging True and TD Services
- Flex routes would provide additional connections to senior centers throughout Clay County
- Develop new contracts with partner organizations
- Marketing campaign for new, combined on-demand service
- New passenger tracking system to improve passenger data privacy and improve efficiency

Short and Mid-Range Estimated Cost

Costs were estimated for 2024 including three scenarios. These three scenarios include route optimization, an option for evening service, and a limited Saturday service option.

Recommendations	2023	2024	Additional Evening Service	Additional Weekend Service	2025	2026	2027
Capital	$ 75,000	$ 1,195,228	$ -	$ -	$ 1,853,928	$ -	$ 264,000
Operating	$ 200,000	$ 2,332,975	$ 201,088	$ 350,415	$ 2,329,361	$ 4,658,983	$ 5,002,373
Federal / State Funding	$ -	$ 2,104,039	$ 47,543	$ 57,728	$ 2,441,192	$ 1,493,694	$ 1,791,685
Local Contribution	$ 275,000	$ 1,424,165	$ 153,545	$ 292,687	$ 1,573,097	$ 3,020,657	$ 3,327,995

Chapter 2. Introduction

Clay County is in Northeast Florida, located southwest of the City of Jacksonville (Duval County), west of the St. Johns River and St. Johns County, north of Putnam County and east of Bradford and Baker Counties. Clay County is urbanizing as part of the larger Jacksonville Urbanized Area. A sizable portion of northeast Clay County, representing over 80 percent of Clay County's population, is part of the Jacksonville Urbanized Area. Urban areas are defined by the U.S. Census Bureau as being more densely developed than other areas, consisting of residential, commercial, and other non-residential land uses. As shown on Figure 1, four incorporated communities are within Clay County: City of Green Cove Springs, the county's seat of government; City of Keystone Heights; Town of Orange Park; and Town of Penney Farms.

The JTA is an independent public authority that provides mass transportation services in Northeast Florida, including Clay County. JTA's vision is a thriving and connected Northeast Florida powered by seamless mobility solutions for all and its mission is to enhance Northeast Florida's economy, environment, and quality of life for all by providing safe, reliable, innovative, sustainable, and dignified mobility solutions and facilities.

JTA became the Community Transportation Coordinator for Clay County on January 1, 2019, and launched Clay Community Transportation (CCT) flex route services on March 4, 2019. CCT services currently consist of four bus routes connecting Fleming Island, Gainesville, Green Cove Springs, Keystone Heights, Naval Air Station Jacksonville, Middleburg, Orange Park and Penney Farms. JTA also provides an express route (Clay Express Select) and a BRT route, the First Coast Flyer Orange Line, between Clay County and Jacksonville.

In addition to bus routes, JTA provides paratransit services for eligible Transportation Disadvantaged (TD) community members. These services are offered to seniors, persons with disabilities, low income and others with limited transportation options. To enhance transportation services in Clay County, the county coordinates with Aging True, providing additional paratransit service. Finally, Ride Solutions, a public transit system based in Putnam County, provides public bus routes through Clay County.

JTA has only been operating transportation services in Clay County for a brief time, most of which has been during the COVID-19 pandemic which had a significant impact on the service and ridership of all transit providers. As JTA, along with other providers, transition to a new normal post-COVID 19, a need exists to establish baseline performance data and evaluate the system pre- and post-COVID.

Additionally, Clay County currently has the third largest and densest population within Northeast Florida and both the county and larger region's populations are growing rapidly. The plan affords the opportunity to ensure the county's transportation infrastructure both meets existing needs and accommodates future growth.

This growth, combined with a lack of access to opportunity and affordability and a growing concern about the impacts of climate change, has demonstrated a regional demand and need for public transit. Development of the Transit Study will not only help improve community transportation in Clay County but will help position JTA to meet its commitment to connecting people seamlessly throughout the Northeast Florida region.

To address these changing conditions and growth, and to ensure the maximum efficiency of the transit service, this study was undertaken to develop an understanding of the development patterns and growth in the county and update the current plan to address these changing conditions and transit needs. Public engagement and community feedback was a significant element of the effort. The plan develops a system-wide transit vision; included a Comprehensive Operational Analysis (COA) examining service delivery and operations, schedules, and a detailed financial analysis; the development of a service framework focused on modes, service levels and types

of service, established service standards, and a financial analysis. The result of the planning process is a ten-year plan that is built on the system-wide vision and an operational plan that incorporates a short-, mid, and long-range operations action plan with detailed service parameters and costs.

Figure 1. Clay County Study Area

Chapter 3. Summary of Existing Conditions

This section summarizes the existing conditions identified during the plan development. The full Existing Conditions documentation is found in the Existing Conditions Technical Memorandum.

Population

Clay County's population is the third largest and densest within Northeast Florida, and the fourth fastest growing county in the region[1]. The county's population has increased 14% between 2010 and 2020. During this period, Clay County gained over 27,380 residents. The greatest share of population increase is in both unincorporated and urbanized areas of the county. For example, 86% of the residents gained live in the urbanized portions of Clay County including the greater Orange Park area, Middleburg, Lake Asbury, and portions of Green Cove Springs. Ninety-five percent (95%) of the residents gained live in unincorporated communities.

Population characteristics and density are important indicators of potential transit use because most trips (transit and non-transit alike) begin at home. The greatest concentration of residents is located within northeast Clay County and within Green Cove Springs. The data source for population density is U.S. Census Bureau, 2020 Decennial Census, Redistricting Data (PL 94-171) Table P2.

The socioeconomic data is evaluated to determine an indication of people who would benefit from access to transit. Using the U.S. Census Bureau, American Community Survey (ACS), 2020 5-year data (2016- 2020), the following populations were included in the analysis.

- Zero vehicle households
- Seniors (65 years old or above)
- Minority and Hispanic/Latino
- Low income (households below poverty level)
- Limited English Proficiency
- Supplemental Security Income
- Median Household Income

Like total population, the greatest percentages of minority and Hispanic/Latino population, Social Security Income (SSI) and Limited English Proficiency populations are located within northeast Clay County. Alternatively, the greatest percentages of senior population, zero vehicle households, and low income households are located throughout the county.

Overall population estimates and percentages for various demographic and economic characteristics within Clay County display the following:

- The overall racial composition of the county's residents is like the racial composition for the State of Florida
- Clay County has much lower percentages of residents who speak a language other than English at home (11%) and who do not speak English very well (almost 4%), compared to the State of Florida (at 29.4% and 11.8%, respectively)
- Clay County's median household income ($68,657) is over $10,000 higher than median household income for the State of Florida ($57,703)

[1] FDOT Forecasting and Trends Office, FDOT District by County Population Estimates, April 1, 2019, January 2021; 2020 populations based on 2020 Decennial Census, Redistricting Data (PL 94-171)

- Clay County has lower percentages of households below poverty level (8.7%) than the State of Florida (12.9%)
- The percentage of Clay County residents who are civilian veterans (17%) is higher than the State of Florida (at 8%)

Employment

The greatest density of jobs is located within northeast Clay County in the greater Orange Park area; the intersection of US 17 and County Road (CR) 220; and in Green Cove Springs. Major employers contributing to the highest job densities include (but are not limited to) the Orange Park Mall (Blanding Boulevard and Well Road) and Orange Park Medical Center (Blanding Boulevard and Kingsley Avenue).

Major Trip Attractors

Clay County is predominantly characterized by low-density suburban development patterns. The greatest concentration of people and jobs is located within northeast Clay County. The densest residential areas in Clay County are Orange Park, areas between Orange Park and Blanding Boulevard such as Bellair-Meadowbrook Terrace and Lakeside, Oakleaf Plantation, and Middleburg. By 2035, population and employment density are expected to increase along major travel corridors, such as Blanding Boulevard, US 17 and the First Coast Expressway. A significant percent increase in growth is forecasted in areas along the First Coast Expressway, and in the Lake Asbury and Branan Field Master Plan areas.

Trip generators are land uses from which trips originate, such as residential areas, while trip attractors are land uses which serve as the destinations of trips. Types of attractors include shopping areas, employment centers, medical offices, educational facilities, governmental offices and recreational areas. Existing CCT routes serve facilities such as HUD assisted multi-family properties, income based and senior housing (potential trip generators), medical facilities, educational facilities and senior centers (trip attractors) within Clay County. Major trip attractors for a larger area also includes portions of Jacksonville and Gainesville. The major trip attractors include shopping malls, hospitals, major veterans' facilities, medical offices, major colleges/universities, senior centers, city/town hall offices, military bases and major transportation facilities such as the Black Creek Park-N-Ride station in Clay County, Jacksonville Regional Transportation Center (JRTC) at LaVilla in downtown Jacksonville, Jacksonville International Airport and Jacksonville Amtrak Station.

Commuting Characteristics

Most working residents commute alone to work. Almost 79% of Clay County working residents drive alone, less than 1% use public transportation, and 9% carpool. Notably, almost 9% work from home, higher than average working residents in Florida and the U.S, at 8% and 7%, respectively. Almost 70% of households have two or more vehicles available in Clay County, while 3.5% of households have no vehicle available. Although 3.5% is a small percentage, several areas throughout the county have percentages of zero vehicle households that are higher than the county average.

Of 91,613 total working residents in Clay County, 74% (representing over 67,390 workers) travel to jobs located outside of Clay County. The remaining 26% are employed within Clay County. Almost 50% of the total working residents travel to Jacksonville to work. Specifically, in terms of places (i.e., cities, census designated places, etc.), 45% (41,265 people) work in Jacksonville, followed by 7% (6,554 people) who work in the City of Green Cove Springs[2].

Existing Transit Service

JTA and Clay County partner to provide four flex bus routes in Clay County (Blue, Green, Red, and Magenta Lines) that travel and stop along the county's major corridors, providing public transit service to multiple activity centers. Service on the CCT system is offered from 6 AM to 7 PM Monday through Friday. Flex service allows for passenger pick-ups (route deviations) as time is available in the schedule for locations that are within ¾-mile from the bus routes.

- The Blue Line travels along several major corridors within Clay County, connecting Penney Farms and Green Cove Springs (in the south) with major destinations in Fleming Island, Orange Park and NAS Jacksonville (in the northeast). Blue Line service operates 5:45 AM to 7:15 PM weekdays at a range of one- to four-hour frequencies (depending on the bus stop) and offers twelve one-way trips a day.
- The Green Line connects Keystone Heights (in the southeast) with Penney Farms, Green Cove Springs, Fleming Island and major activity centers along CR 220 and College Drive, including the Middleburg VA Clinic and the St. Johns River State College. This route operates 9:00 AM to 4:30 PM Monday through Friday, at three-hour frequencies, offering six one-way trips a day (three round trips a day).
- The Red Line links Orange Park and Middleburg along Blanding Boulevard and College Drive. It runs 5:50 AM to 7:05 PM weekdays, at two- to five-hour frequencies, offering eleven one-way trips a day (five to six round trips a day).
- The Magenta Line provides transportation between Keystone Heights (in southwest Clay County), the Gainesville Regional Transit System's (RTS) bus station and major destinations in downtown Gainesville such as the Malcom Randall VA Medical Center. This route operates 8:00 AM to 5:00 PM Monday through Friday, offering two round trips a day spaced seven hours apart.

The regular CCT fare for one person is $1.00 for a one-way trip. A reduced fare of $0.50 is available for children (age 6 and under), seniors (age 60 and older), passengers with disabilities and Veterans. The flex service fee is $1.00 per scheduled pick-up and per person.

As the Community Transportation Coordinator for Clay County, JTA has a contract with MV Transportation, Inc. to provide paratransit services to TD Clay County residents. According to the Clay County TD Service Plan (TDSP), "People served by the program include those who because of a physical or mental disability, income status, or age are unable to transport themselves or to purchase transportation and are, therefore, dependent upon others to obtain access to health care, employment, education, shopping, social activities, or other life-sustaining activities, or children who are handicapped or high-risk or at-risk as defined in Section 411.202, Florida Statutes."

[2] U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics (Beginning of Quarter Employment, 2nd Quarter of 2002-2019)

Clay Express Select, Route 811: The Clay Express Select offers commuters an executive-style, affordable ride between the Black Creek
Park-n-Ride station (in Clay County) and the JRTC at LaVilla in downtown Jacksonville.

The service is offered from 6:00 AM to 7:00 PM Monday through Friday and leaves from multiple locations, as follows:

- Black Creek Park-N-Ride station near the corner of CR220/Doctors Inlet and Sleepy Hollow Road, at the bus shelter, or
- Any of the other Clay Express Select stops along US 17/Park Avenue (in Orange Park) and US 17/Roosevelt Boulevard (in Jacksonville).

Clay Express Select

First Coast Flyer Orange Line, Route 105: The First Coast Flyer Orange Line is a 13-mile BRT route that links Clay County's Orange Park Mall to downtown Jacksonville at the JRTC. The premium bus service runs daily every 30 minutes and includes bus-only lanes along parts of Blanding Boulevard, traffic signal priority at busy intersections, enhanced bus shelters, real-time passenger information, onboard Wi-Fi and other amenities. In addition to the Orange Park Mall, neighborhoods and destinations along the First Coast Flyer Orange Line include Brooklyn, Historic Five Points, Riverside, Avondale and Florida State College at Jacksonville Kent Campus. Intersections with stops along the route include 103rd Street and Collins Road.

Ride Solutions: Ride Solutions coordinates two bus routes that make stops within Clay County: the Orange Park route and the Palatka-Jacksonville Greyhound route. Both routes begin and end at the Palatka train station in Putnam County. The Orange Park route travels between Palatka and the Orange Park Mall along US 17 and major roadways in the Orange Park area, with two roundtrips per weekday (one trip in the morning and one in the afternoon). The Palatka-Jacksonville Greyhound route, a partnership with Greyhound, makes two roundtrips daily between Palatka and downtown Jacksonville, one in the morning and one in the afternoon, along US 17. The bus fare is $1.00 for the Orange Park route and $2.00 or two agency tickets for the Palatka-Jacksonville Greyhound route. In addition to Ride Solutions, transportation network companies and taxi services provide rides to or from Clay County. According to the Clay County TDSP, taxi services in Clay County include Aabac Taxi, Clay Taxi, Orange Park Taxi, and Westside Taxi.

Land Use

Historically, the northeast quadrant of Clay County has developed as a suburban bedroom community to Jacksonville, with the balance of the county remaining primarily rural. Northeast Clay County is closest to the major roadway network and employment centers in the City of Jacksonville. The historical development pattern, aside from the older incorporated areas, has been from northeast Clay County to the south along the major transportation corridors of U.S. Highway 17/Park Avenue, State Road 21/Blanding Boulevard, and State Road 23 Branan Field Road. As the county's residential population grew, employment and shopping land uses were located primarily as commercial nodes around the major roadway intersections or along the major roadway corridors. The existing land use and urban design pattern is largely low density, single use auto-dependent development that hinders the efficient provision of transit service.

The existing land use design pattern varies by geographic area of the county, but the greatest mix of land uses and higher density and intensity of land uses is in the northeast corner of the county in the Orange Park, Branan Field/Oakleaf, Lakeside and Fleming Island areas. The density and intensity decrease with distance moving south and west.

There are a few major developments planned for approximately 2,400 residential homes and significant non-residential development in the Branan Field area. Much of the non-residential development will be in Challenger Center and within a Lake Asbury Activity Center future land use surrounding the First Coast Expressway and Blanding Boulevard interchange. The Lake Asbury and Green Cove Springs areas are expected to experience the most growth and development over the next 10 to 20 years as indicated by the number of developments under construction or expected to be under construction in the next 5 years. There are approximately 20,000 residential homes currently planned or under construction in the proposed developments in the Lake Asbury and Green Cove Springs area. A significant amount of non- residential and higher density residential development is anticipated in the three (3) future activity centers at future interchanges along the First Coast Expressway. A recent trend in the provision of housing is that higher density, multi-family uses are increasing as a percentage of the overall amount of new residential development in Clay County. Single family detached housing is also being developed at higher densities due to smaller lots. This is a positive trend that could foster a more transit-friendly operating environment.

There is currently a lack of infrastructure and amenities to support first mile/last mile connectivity. This is largely left to basic sidewalk connections along heavily traveled roadways. The Mobility Plan includes three (3) planned transit mobility hubs as a key tool towards network connectivity goals. Transit mobility hubs are infrastructure designed to support and facilitate multimodal transportation to address first mile/last mile connectivity. The final form of the transit mobility hubs will be largely context-sensitive, but they should contain flexible design to respond to evolving needs and technologies. The transit mobility hubs are planned for three mobility districts: (i) the Orange Park, Lakeside and Fleming Island District; (ii) the Branan Field and Oakleaf District; and (iii) the Lake Asbury and Green Cove Springs District. A total of $15 million has been set aside in the Mobility Plan for construction of these three (3) hubs.

The mobility hub in the Branan Field and Oakleaf District is anticipated to service the community transit connector route to be implemented by JTA. The mobility hub can provide logistics support and function as a key terminal for the service. The mobility hub would operate as a community destination and connect the transit system with first/last mile services. The mobility hub in the Lake Asbury and Green Cove Springs District would provide shared mobility services and provide a terminal for future transit services. The mobility hub in the Orange Park, Lakeside and Fleming Island District would support the anticipated infill and intensification and provide a common location for accessing JTA transit services and future shared mobility services. First and Last Mile solutions will be based here to complement the growth in active trips on the pedestrian and biking network.

Technology

CCT uses two types of advanced public transportation systems – mobile data terminals (MDT) and computer–aided dispatch software. CCT currently has MDTs on fleet vehicles. This technology has four commons functions, including:

- Automated Vehicle Location (AVL)
- Communication
- Data entry and information management
- Paratransit trip management

The MDTs on CCT vehicles are utilized for paratransit trip management. CCT can manage manifests and trip itineraries via these devices and monitor vehicle location to provide estimated vehicle arrival and departure times to Aging True and TD passengers.

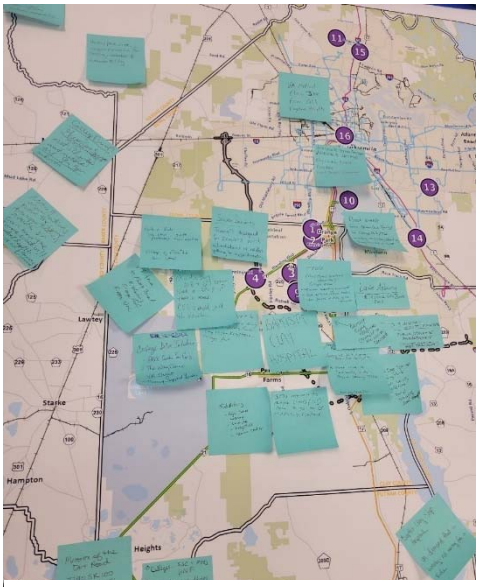
CCT does not utilize fare collecting equipment on their fleet vehicles and operates as a cash fare system. TD trips are currently booked through Trapeze, a third-party software used for service scheduling and dispatching.

Chapter 4. Summary of Public Engagement

The development of the Transit Study incorporated an extensive public and stakeholder outreach and engagement effort. Six public meetings were held with the option of attending either in person or virtually. These meetings were held in each Clay County Commission district, with an additional meeting held in Keystone Heights. The meeting dates and the Commission districts are shown below; all meetings were held from 6:00 – 8:00 PM.

Clay County Transit Study Public Meeting

- District 1: November 30, 2022 at the Fleming Island Library
- District 2: December 14, 2022 at the Plantation Oaks Athletic Center
- District 3: December 5, 2022 at the Orange Park Library
- District 4: December 8, 2022 at the Middleburg Library
- District 4: January 11, 2023 at Keystone Heights Pavilion
- District 5: December 15, 2022 in the Tax Collector Meeting Room, Clay County Administration Building



Clay County Transit Study Public Meeting

An additional public meeting was held on December 8, 2022 with the non-profit groups working on the College Drive Initiative, as well as with the Clay SafetyNet Alliance on January 5, 2023.

Surveys were also a key part of the outreach effort. An online survey was deployed in mid-November 2022 and was active through January 13, 2023. An on-board survey was taken from October 18-20, 2022, and in person surveys were administered at three community events. In addition, a TD telephone survey was taken from January 23 – 26, 2023. Common themes and needs from the surveys and the public outreach efforts include:

- Improved marketing and education regarding the transit system
- Expanded service hours, including weekends and nights
- Increased service frequency
- Improved access to medical facilities
- Senior access to transit
- First and last mile transit service such as JTA's ReadiRide service
- Expanded service to new population and employment centers

The Public Involvement Plan developed specifically for this study and the survey results are found in the Appendix. Meeting summaries are also found in the Appendix (under separate cover).

Chapter 5. Comprehensive Operational Analysis

CCT operates four flex routes, carrying over 22,000 riders each year around the county. They also provide more than 15,000 trips annually to persons who are eligible for the paratransit service under the American with Disabilities (ADA) federal regulations, and approximately 2,996 trips to those who qualify for the TD services. Additionally, the portion of the Clay Express Select service that operates within Clay County provides approximately 2,380 trips annually.

The analysis process included extensive data collection and analysis. The agency does not currently utilize Automated Passenger Counters (APCs) to collect ridership data and as a result ridership data was gathered from National Transit Database (NTD) aggregated raw datasets and monthly invoices submitted by a third-party operator. A survey was also conducted and combined with ridership data available as part of a market assessment which provided essential data for evaluating ridership patterns including origins, destinations, where transfers would be essential, route productivity, and undeserved areas where service is desired.

A key function of a COA is strategic service planning, however, there are other considerations just as important to structure transit service to meet the needs of a community. The recommendations resulting from this analysis are proposed as a starting point for JTA and Clay County's continued planning processes, which should include sufficient opportunity for review and comment by passengers and the public. The level of service desire and the ability to invest the funds necessary to provide that level of service is another factor to consider when implementing COA recommendations. Additionally, a community's commitment to a base level of service, regardless of route productivity or cost that it considers to be essential "the lifeline" service to its residents should be balanced with the market driven analysis recommendations.

All COA deductions and recommendations are based upon the actual data and statistics reviewed. The COA process and this report address the following:

- Market Assessment Overview
- Service Performance Evaluation (*Ridership Analysis Resulting in Route Profiles*)
- Key Performance Indicators
- Clay County Fare Review
- Review of Current Service Structure
- Service Standards
- Financial Overview and Cost Estimates

Background

Like many transit systems across the country, Clay County has contracted out the operation of their transit services to provide more effective and efficient service to its riders. A funding agreement was established between the Clay County and JTA to continue to provide transportation services to residents of Clay County to include all the flex routes (Red Line, Blue Line, Magenta Line, and Green Line), paratransit, and Express Select. The contract describes funding of all service types by mode as well as costs associated with maintenance for both JTA and Clay County. Vehicles and bus operators are to be provided by JTA in sufficient number to provide all services with spares that allow for all transit operating occurrences. Additionally, JTA contracts with a third-party operator, MV Transportation, to provide the services for CCT on their behalf.

Market Assessment

The existing market assessment as detailed in the existing conditions report includes an analysis of the study area's demographics and employment data from the U.S. Census, American Community Survey (ACS), Longitudinal Employer Household Dynamics, (LEHD) as well as a rider survey administered in Fall 2022. The rider survey assessed the rider's use of the system and determined origins and destinations utilizing the services in Clay County. The market assessment provides a detailed snapshot of the current and future mobility needs of Clay County residents and visitors.

The market assessment in the COA analyzes the current and future mobility needs of Clay County residents and visitors along the existing transit network. This will include:

- Analysis of the existing demographics as well as overall trends
- Assessment of travel needs based on the various market segments within the current population as identified in the existing conditions report
- Assessment of major destinations
- Analysis of the future projected growth within the county, including the comparison to current population and how these patterns will impact the use of transit

Population Overview

According to the Florida Department of Transportation's (FDOT) Transit Boardings Estimation and Simulation Tool (TBEST), which is an established transit planning software that allow agencies to conduct modeling, market analysis and network accessibility and which incorporates socio-economic data for all transit agencies operating in the state of Florida, the existing population of Clay County, Florida is 218,245. The base year 2021 model outputs indicate that only 6.20% or 13,525 have direct access the existing flex route transit services offered. See percentage population breakdown by route in the table below:

Table 1: TBEST Population along Existing Transit Alignments

Route Name	Total Population	Percentage of Transit Population
Red	8,664	64.06%
Blue	10,288	76.07%
Magenta	194	1.43%
Green	1,183	8.75%
Totals	**13,525**	**6.20%**

Employment Overview

The base year TBEST model outputs also provide employment data surrounding the existing flex route transit network. Clay County has approximately 10,076 total jobs within access of the transit service currently being provided. According to the 2020 U.S. Census data, a total of 45,134 jobs exist within Clay County, the majority of which is currently located in areas serviced by the Blue Route. The Blue Route primarily serves the Green Cove Springs and Orange Park areas. The table below provides an overview of the existing employment by route.

Table 2: TBEST Employment along Existing Transit Alignments

Route Name	Total Employment	Percentage of Transit Population
Red	6,331	63%
Blue	8,444	84%
Magenta	37	0%
Green	498	5%
Totals	**10,076**	**22.32%**

Population Density

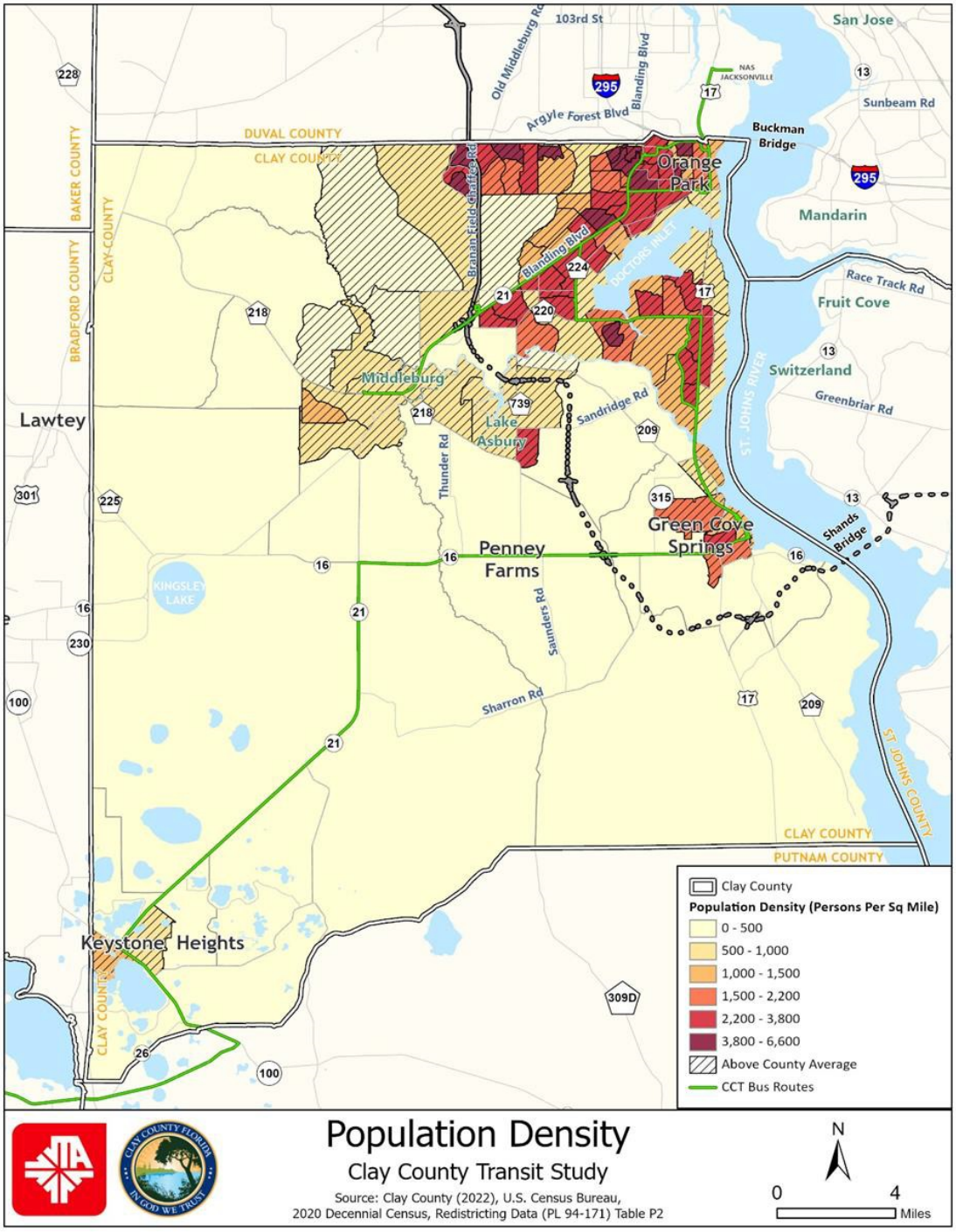
Clay County covers 604.61 square miles as of the 2020 U.S. Census, with a population per square mile of 361. The geographical location of the county and type of wetlands often determine the type of land use that may occur which is a key factor in the type of transit services that can be provided. Industry standards suggest that approximately 3,000 people per square mile makes sense to operate some level of infrequent local bus service. The table below outlines the various densities across the current transit service areas. Residential densities in the county are low to moderate with Bellair-Meadowbrook Terrace, covering 4.10 square mile, and the densest community in the area. Clay County currently provides higher levels of service to the areas of Lakeside, Orange Park, Fleming Island and Bellair-Meadowbrook as high densities present a good environment for transit services. However, population is not evenly distributed across space as people usually cluster in cities, and those residing in rural areas are spread out across a much more sparsely populated landscape.

Table 3: Population per Square Miles for Communities Currently Served by Transit

Communities	Density Pop. per sq. miles	Land Area in Square Miles
Fleming Island	1,840	15.84
Lakeside	2,324.8	13.45
Orange Park	2,498.4	3.64
Bellair- Meadowbrook Terrace	3,529.6	4.10
Middleburg	656.7	19.62
Green Cove Springs	1,299.4	7.53
Penney Farms	562.33	1.46
Keystone Heights	1,326.61	1.09

The map below shows varying densities throughout the county. Residential density is highest in the Orange Park area along Blanding Boulevard and in communities such as Bellair-Meadowbrook Terrace and Lakeside, Fleming Island and Green Cove Springs. Other pockets of moderate density can be found scattered across the county in Middleburg, Keystone Heights, and Oakleaf Plantation. The rest of the county is of low density.

Figure 2: Clay County Population Density



Employment Density

Employment densities in the county are not as concentrated as the residential density. The highest densities are in Orange Park, however, there are two other significant employment areas. These are hospitals and surgery centers/walk-in clinics, and college/university located in Fleming Island and hospitals and senior centers in Green Cove Springs. Clay County currently provides transit service to all three employment areas.

Figure 3: Clay County Employment Density

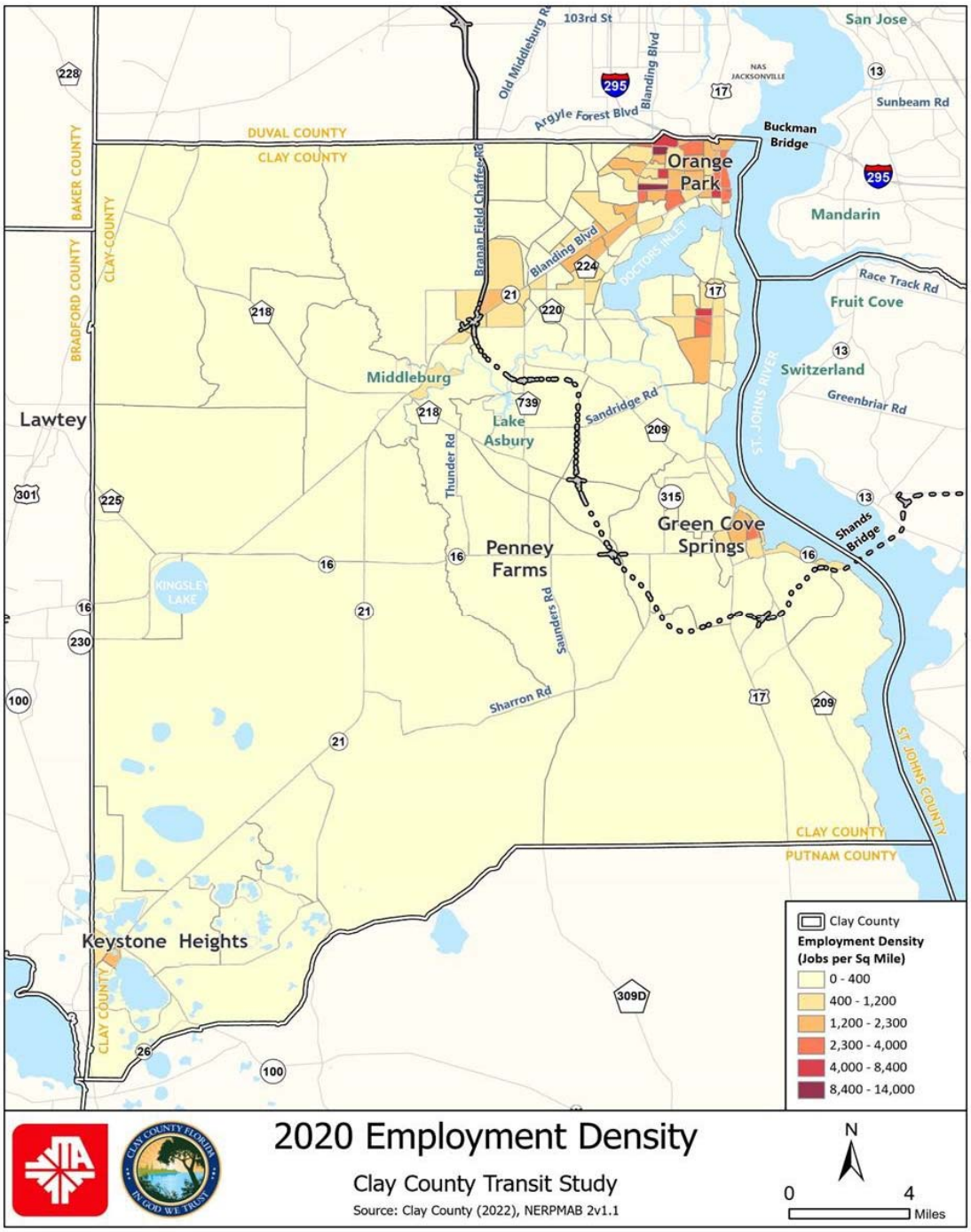
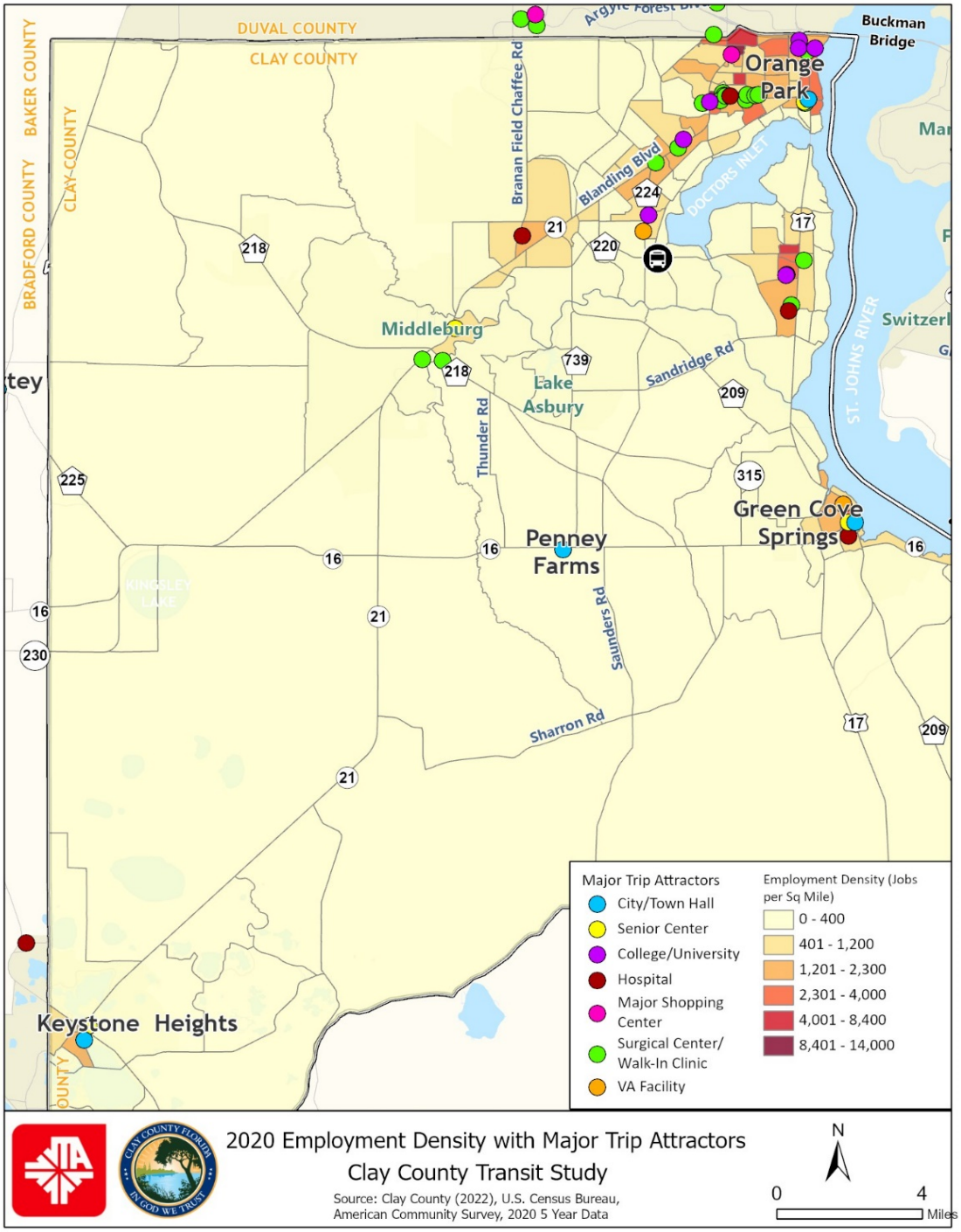


Figure 4: Clay County Employment Density with Major Trip Attractors



Population Characteristics

The demographics, income levels, ethnicity and age of Clay County is not as diverse as neighboring counties in Florida. Residents in Clay County have a median age of 39.8 and a median income of $68,657. Large sections of the county are lightly populated with most residents living in and around the northeast region as stated above.

Population Characteristics: Ethnicity

Clay County is comprised of over 77% white residents, which is the largest group of the county's population. The second largest ethnic group identified is Black or African American making up 11% of the County's population and 16% of the population that has access to the existing transit services being offered. Hispanic or Latino make up a little over 10% of the county's population and 14% of the population is in and around the existing service.

Table 4: Ethnicity of Clay County Residents

	Estimate	Clay County	Florida
Hispanic or Latino			
Hispanic or Latino of any race	21,945	10.2%	25.8%
Non-Hispanic or Latino	193,349	89.8%	74.2%
Race			
White	166,175	77.2%	71.6%
Black or African American	23,786	11.0%	15.9%
American Indian & Alaska Native	236	0.1%	0.3%
Asian	5,934	2.8%	2.8%
Native Hawaiian and Other Pacific Islander	82	0.0%	0.1%
Other	5,573	2.6%	3.3%
Identified by Two or More	13,508	6.3%	6.0%

Source: 2020 American Community Survey (ACS), 5-Year Estimate Data Profiles

Population Characteristics: Age

Clay County has a median age of 39.8 years; slightly lower than the statewide average of 42.2; 23.3% of the county residents are 18 years old or younger while 15.7% are 65 years old or older. In Florida, and in Clay County, the proportion of older adults relative to younger populations is projected to increase over the next 20 years[3][4]. Public transportation can provide the senior population with access to services and activities. There are several factors in understanding public transit usage by older adults, including distance to reach a transit service, frequency, and availability of other modes of travel. The variety of services offered in Clay County (flex route services with deviations, transportation disadvantage service, and complementary ADA paratransit) allows for the senior population to fully utilize transit.

[3] Florida State Plan on Aging 2021-2025, Department of Elder Affairs, State of Florida, August 5, 2021, page 6
[4] Population Projections by Age, Sex, Race, and Hispanic Origin for Florida and Its Counties, 2025-2050, with Estimates for 2021, Bureau of Economic and Business Research (BEBR) University of Florida, October 31, 2022

Table 5: Age of Clay County Residents

		Clay County	Florida
Age			
Less than 18 years (youth)	50,261	23.3%	19.9%
Less than 20 years	55,339	25.7%	22.1%
20-34 years	38,933	18.1%	19.0%
35-54 years	57,535	26.7%	25.0%
55-64 years	29,593	13.7%	13.4%
65 years and older (senior)	33,894	15.7%	20.5%
Median Age (Years)	**39.8**		**42.2**

Source: 2020 American Community Survey (ACS), 5-Year Estimate Data Profiles

Population Characteristics: Income

The median income of Clay County residents is $68,657, which is higher than the state's average of $57,703. Over 33% of all transit riders earn below $20,000 a year, however, only 8.7% of the county population earn below the poverty level[5] in the last 12 months per the 2020 American Community Survey (ACS), 5-Year Estimate Data Profiles.

Table 6: Income levels of Clay County Residents

	Clay County	Florida
Income and Poverty		
Median household income ($)	**68,657**	57,703
% Households below poverty level in the past 12 months	8.7%	12.9%
% Households with Supplemental Security Income (SSI)	4.2%	5.0%
% Households with No Vehicles Available	3.5%	6.1%

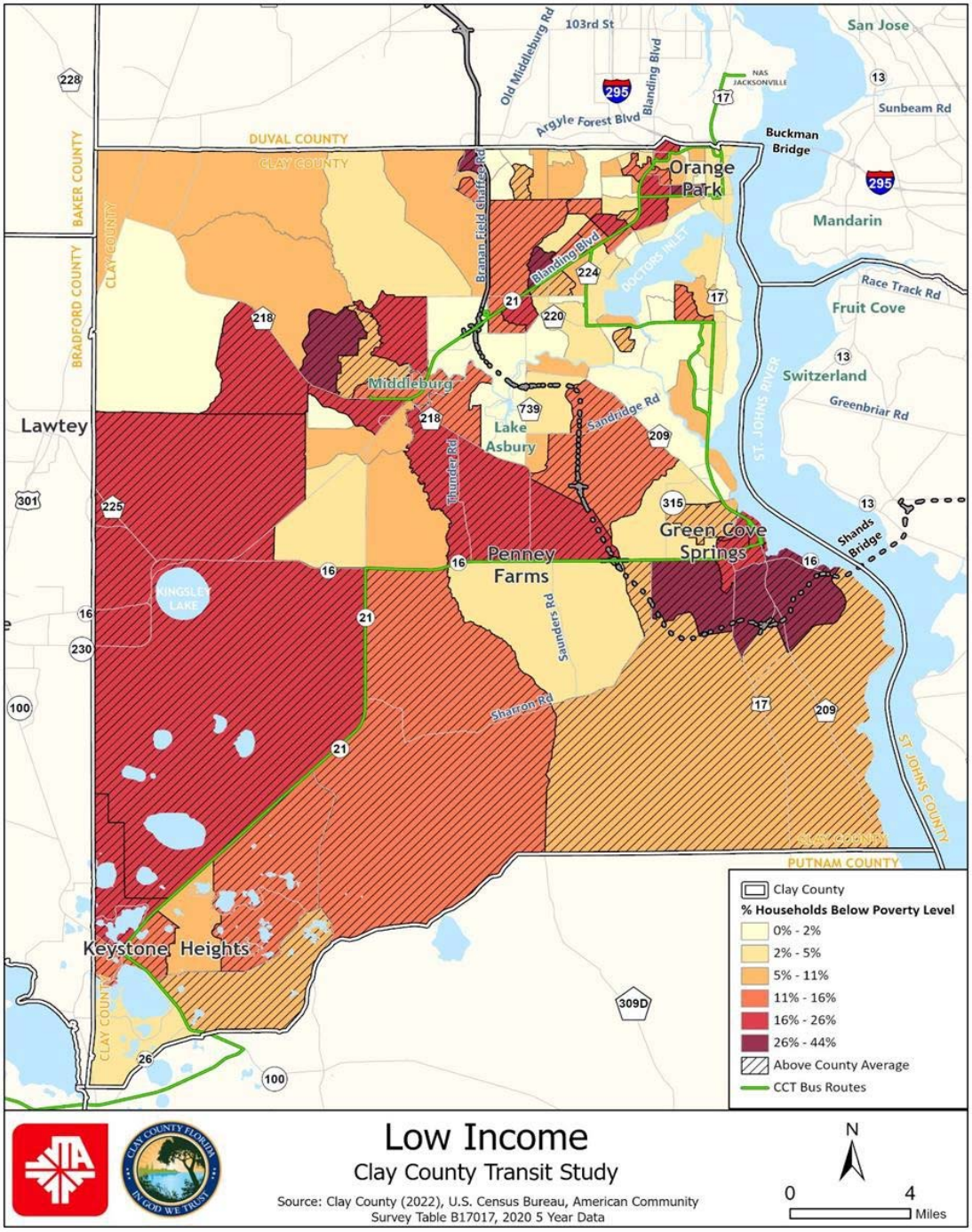
Source: 2020 American Community Survey (ACS), 5-Year Estimate Data Profiles

Persons with low incomes tend to not have vehicles available and must rely on alternative means such as, walking, biking, or using public transit to travel. However, only 3.5% of the county households do not have access to a vehicle. Areas of high concentrations of residents with low incomes can be seen in the figure below[6] and include portions of Orange Park, and Green Cove Springs. However, Clay County offers an economy fare for qualified persons with low income at a deep discount.

[5]The U.S. Census Bureau ACS uses a set dollar value of thresholds that vary by family size and composition to determine who is in poverty. The poverty thresholds are the same for all parts of the country; they are not adjusted for regional, state or local variations in the cost of living.

[6] The figure illustrates low income areas using ACS poverty data

Figure 5: Clay County Percentage of Low Income



Population Characteristics: Transit Propensity and Vehicle Availability

Transit propensity is the likelihood of an individual to use transit for basic mobility. Nationally, many transit riders do not have vehicles available[7] and ride transit services out of necessity. Although the ACS data indicates that most Clay County households have vehicles available, areas of the county have varied propensity for transit use as shown in Figure 7.

Future Development

The existing conditions report of the Transit Study provides a detailed overview of land use and transit. The Clay County comprehensive plan provides future projection of growth within the region that will support transit providers develop plans for future service. The map below shows projected residential and employment growth as indicated by the anticipated land use. Most of the residential growth is expected in and around the Middleburg, Green Cove Springs, and Asbury Lake areas. Most of the employment growth is projected to occur in new areas in and around First Coast Expressway, close to Oak Leaf Plantation and Asbury Lake, outside the current employment hubs and major trip attractors. Additional new areas of concentrated development may also occur along South Oakridge Avenue, south of Green Cove Springs. This isshown on the future development map.

[7] Public Transit in America 2017, National Center for Transit Research Archive (2000-2020), USF CUTR, February 9, 2018, page 11

Figure 6: Clay County Residents Likely to Use Transit

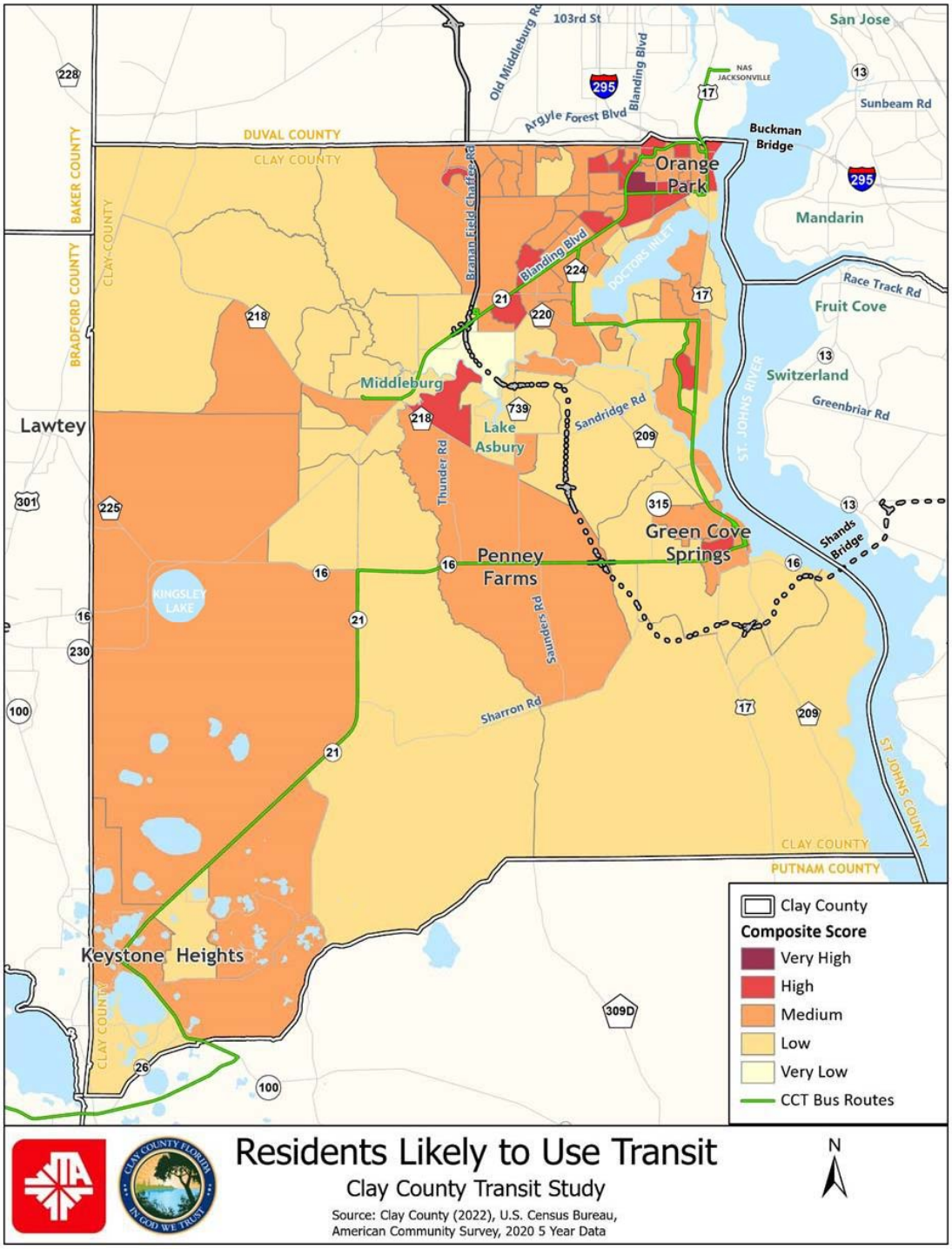


Figure 7: Clay County Future Land Use Map

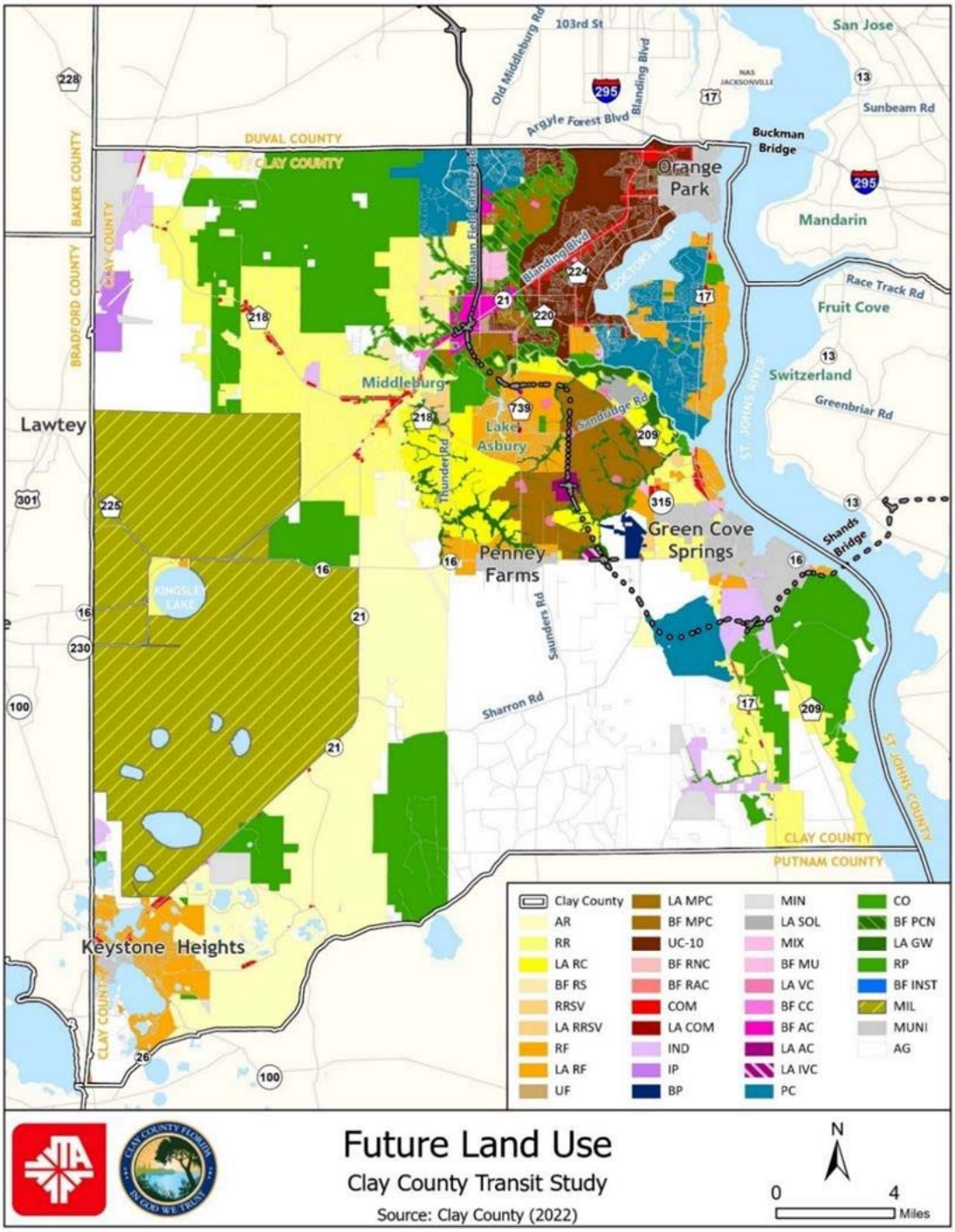
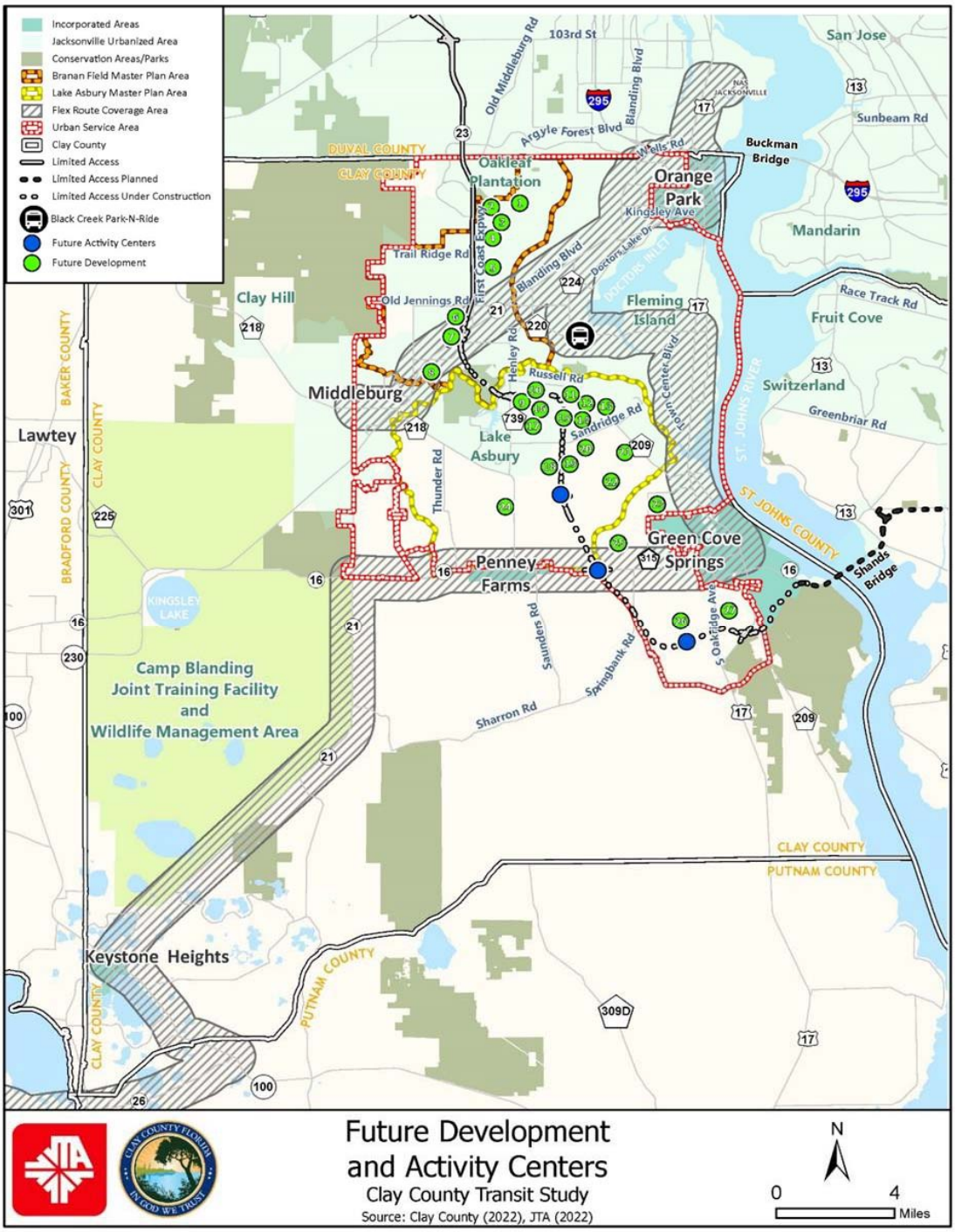


Figure 8: Clay County Future Development



Clay County Performance Indicator Peer Review

A detailed peer and trend review was conducted as part of the Transit Study existing conditions analysis. Key performance indicators were compared with those of four other transit systems. Comparison of Clay County's performance indicators, with these similarly sized peers from the state of Florida, shows that Clay County is not as cost-effective as its peer, with operating cost per passenger trip at approximately 21% above the cost of its peers. Fare revenue per passenger is 7% below what peer agencies are charging resulting in the farebox recovery ratio of the system performing 22.3% below its peers. These peer agencies were selected based on comparable service size, service area populations, and density. These include transit systems for Brooksville, FL; Fort Walton Beach, FL; St. Augustine, FL; and Tavares, FL.

Service Characteristics

The following section compares the various service characteristics of the peer agencies to provide guidance for the performance indicator comparison.

Table 7: Service Area Population for Peer Agencies

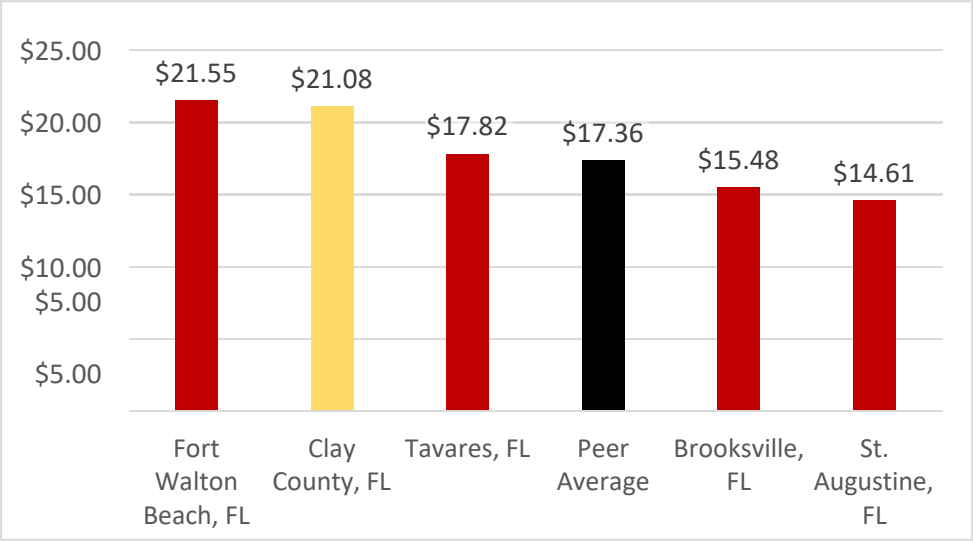
Agency	Location	Service Area Population	Density
CCT	Clay County	221,440	367
The Bus	Brooksville	119,384	1,341
Emerald Coast Rider	Fort Walton Beach	196,512	1,638
Sunshine Bus	St. Augustine	273,425	456
Lake Xpress	Tavares	97,497	1,373
Peer Average		171,705	1,202

Clay County's service area is higher than the average (171,705) of the peer agencies while population density is lower than the peer average (1,202). Clay County has the second largest service area population of its peers but does not have a significantly more population density.

Operating Cost per Trip

Clay County's operating performance is average for most if its peers in terms of boarding and productivity. The Key Performance Indicator reviewed as part of the trend and peer analysis shows that Clay County has a somewhat effective and productive system when looking at national averages however, the system can improve in keeping costs down when compared to peer agencies. The target of the fare analysis will be to increase revenue and attempt to find any efficiency that has not been targeted by the agency.

Figure 9: Peer Comparison - Operating Cost per Passenger Trip



Clay County Fare Review

All CCT lines cost a standard fee of $1.00 to ride except for the on-demand subscription-based Aging True service which operates fare free. Riders who are age 6 and under, age 60 and older, living with a disability or a military veteran ride at a reduced fare of $0.50. The agency also offers scheduled pick up for riders who live within¾ miles off a flex route at a deviation cost of $1 per rider. Clay County does not currently provide the option to purchase day or monthly passes and they do not offer transfers to other routes, however, the JTA recently relaunched the MyJTA app which now allows riders to book all CCT lines of service directly from the app.

Table 8: Current Clay County Fare Structure

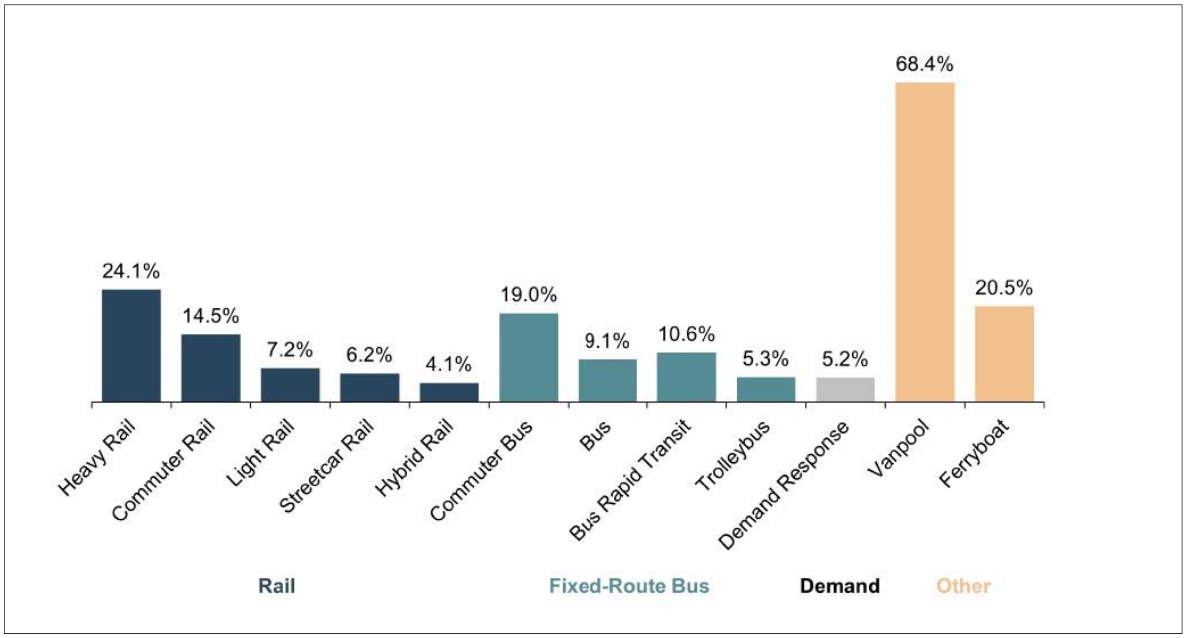
Fares	Standard Fare	Reduced Fare	Deviation Fee
Cash Fare	$1.00	$0.50	$1.00

Passenger fares are not set based on the cost of each trip. However, for every dollar spent on operating costs per trip a percentage is recovered through fares if the transit agencies are not providing fare free service. Typically, demand response services have low farebox recovery ratios due to a lower average passenger per hour when compared to other modes. The low ratios are also in part as result of ADA regulations that prohibit ADA fares from being more than twice the cost of regular transit fare. However, Clay County TD service has relatively high farebox recovery ratio across all fiscal years and higher than the national average of 5.2% for fiscal year (FY) 2021 showing a recovery rate of 6.78%. Flex services on the other hand recovers a much lower percentage of trip operating costs through passenger fares as shown in the table below. The industry standard for mode bus farebox recovery is on average approximately 9.1% as of 2021 where flex route services show a recovery ratio of3.11%.

Table 9. Farebox Recovery Ratio

	FareBox Recovery Ratio			
CCT Transit Services	**2019**	**2020**	**2021**	**2022**
Flex Routes	1.41%	3.63%	3.11%	3.39%
• Red	1.18%	3.31%	2.81%	2.93%
• Blue	2.42%	4.19%	4.24%	5.17%
• Green			0.22%	0.47%
• Magenta	0.15%	1.79%	1.66%	1.80%
Transportation Disadvantage	6.25%	7.71%	6.78%	5.94%

Figure 10: National Transit Summaries and Trends 2021 – Fares as a Portion of Operating Expenses.



While reviewing the existing fare structure, special attention was also paid to the discounts. The economy base fare for qualified riders is a public service offered by the County to provide mobility for transit dependent riders. Using industry standards to price fares will provide Clay County a long-term revenue projection to better address demand of the existing riders and associated future growth. The table below represents a comparison between Clay County's current fare structure and its peers.

Table 10. Peer Agency Fare Structure Comparison

Transit Agency	Flex Route			Demand Response
	Full Fare (One-way Trip)	Discounted Fare	Route Deviation	Full Fare (One-way Trip)
Brooksville, FL	$ 1.25	$ 0.60	N/A	$ 2.50
Fort Walton Beach, FL	$ 2.00	$ 1.00	$ 1.00	N/A
St. Augustine, FL	$ 2.00	$ 1.00	$ 4.00	N/A
Tavares, FL	$ 1.00	$ 0.50	N/A	$ 2.00
Clay County	$ 1.00	$ 0.50	$ 1.00	$ 3.00

Focusing on the base fare is a straightforward way to raise or lower all fares. However, it may not necessarily reflect current usage, nor will it solve inherent problems with the current structure. The solution is not to simply increase fares. By raising the base fare $0.25, Clay County can bring in additional revenue. Because of the way discounts are provided, the net result would be marginally higher revenue, and lower ridership. Without addressing discounts and usage of the current fare structure, a $0.25 or any other increase would only generate additional fare revenue per year.

Clay County can use any number of techniques to adjust fares and increase revenue. However, before considering any new fare strategy, the agency should review the basic structure of the fare system in addition to how those fares are utilized. After correcting the structure and pricing fares properly, the County can decide to raise and or lower fares as needed.

Current Transit Service

Service Performance Evaluation

A service delivery assessment was conducted where the performance and productivity was reviewed and evaluated for each of Clay County's four flex routes, the Aging True Service, Clay Express Select service, and TD service, as well as how the system compares to its peers. The service assessment's findings identify current transit service accomplishments and highlight opportunities to improve existing services. The data for the service assessment was collected between FY 2019 and 2022. The service assessment resulted in route profiles, which provide both an operational and a financial summary.

Service performance evaluation is essential to the transit planning process to ensure agency investments are practical. Evaluations are used to ensure that all services are fulfilling their roles in the transit network. Performance should be measured before each service change, to assess if the changes improve performance over time, and to allow sufficient time for additional changes to be implemented if necessary.

Performance standards help ensure that CCT services are useful to riders as well as cost-effective for the agency. Clay County is currently utilizing Trapeze software for system monitoring for flex route services; however, the county's TD and Aging True service performance are not currently being monitored using technology. These modes are monitored primarily through their third part operator contract with MV Transportation and provided in aggregated formats as reference to support invoices submitted for monthly payment.

Additionally, the Federal Transit Administration (FTA) through the NTD provides an annual publication summarizing performance measures trends based on data reported by transit agencies across the United States. The NTD has become the sole source of standardized and comprehensive data for use by all constituencies of the U.S transit industry and serves as the baseline for comparison on average service supplied and consumed for the various modes of public transportation.

Key Performance Indicators

To accurately measure and compare service performance of the CCT system, service effectiveness (productivity) and financial effectiveness (cost efficiency) must be evaluated. The following key performance indicators were reviewed:

- System Speed
- Passenger Revenue Per Service Mile
- Passenger Revenue Per Service Hour
- Boarding Per Hour
- Operating Expense per Vehicle Revenue Mile (VRM)
- Operating Expense per Vehicle Revenue Hour (VRH)
- Cost per Boarding
- Unlinked Passenger Trip (UPT) per VRM
- UPT per VRH

Most of the data collected for this analysis was made available by the JTA and provided in aggregated formats, reported for individual service types or transit modes. However, some data was not available. This attributed to the limitation of the service performance evaluation and calculations that could be performed for the CCT System.

Flex Services Overview

Flex service forms the bulk of the CCT operation. As discussed in previous chapters, the CCT flex service consists of four routes (Red, Blue, Green, and Magenta) that operate along designated route alignments with set schedules. As of FY 2022, flex routes make up over 54% of total passenger trips, and 51% of the total revenue hours. Revenue miles for the entire system could not be calculated as mileage for TD and Aging True services are not reported by the third-party operator. The existing conditions report of the Transit Study provides an overview of the flex route service span, structure, frequency, ridership, and investment.

Service Span

Clay County operates all flex route services five days a week. All routes begin service by 5:45 am and operate until at least 7:15 pm, allowing for passenger pick-ups (route deviations) as time is available in the schedule for locations that are as far as ¾ of a mile from the bus routes.

Service Structure

The current CCT structure is not based upon a typical hub system where routes radiate from a primary hub but is a point-to-point system.

Service Frequency

Clay County operates flex route services at various levels of frequency throughout the service day. For example, the Blue and Red Routes provide over ten trips per day, while the Magenta Route provides four trips per day. The table below provides an overview of the current frequency for each flex route.

Table 11: Service Frequency of Flex Routes

Route	AM Peak Frequency	Midday Frequency	PM Peak Frequency
Blue	60	85	60
Red	180	60	60
Green	180	180	180
Magenta	180	180	60

Service Investments

The table below details the service investments by the CCT revenue hours and miles for an average weekday. Revenue service represents when passengers can board and ride a vehicle.

Table 12: Clay County Flex Route Weekday Transit Investment

	FY 2019	FY 2020	FY 2021	FY 2022	% Change 2019-22	% Change 2021-22
Weekday Investments						
Revenue Miles	66,865	140,072	176,814	208,805	212.3%	18.1%
Revenue Hours	4,676	8,979	10,075	11,146	138.4%	10.6%

Overall, flex service has been performing below the national averages when key indicators of service productivity and financial effectiveness are reviewed. However, individual routes with a full fiscal year of operating data available indicate that the service is somewhat productive when factors of system size, length of time in operation, and recent public health emergency are considered. Key performance measures for flex services are outlined below and compared to national trends to show cost effectiveness and productivity of the system.

System Ridership Findings

- Passenger boardings are highest during the month of August for most routes
- Riders primarily access transit services by requesting a deviated route pick up
- Blue flex route ridership makes up half of all passengers boardings for the entire system
- Along most routes the service levels do not match the current ridership patterns or demand

Service Quality Findings

- Overall, the reliability of the existing Clay County flex service reliability was not determined as on-time performance data was not available for flex routes. This service does operate on a schedule with deviations as requested along the route.
- Travel speed varies across each route, depending on where in the county the route is operating. Routes that operate in the higher density areas (Blue and Red) operate at a slower average speed than the routes that do not serve the higher density areas (Magenta and Green). The Clay Express Select that operate via highways have the highest average operating speed.
- Capacity issues such as overcrowding were not determined for this system because of limited data. However, overcrowding was not revealed in the survey results as an issue for riders.

Service Performance Findings

- Service Productivity: Overall, the productivity of flex route service has been steadily decreasing over the last four fiscal years as indicated by the passenger boardings per hour data and performing below the national average for passenger boardings per hour. However, the Blue and Red routes are the most productive routes while the Green and Magenta routes have on average less than one passenger boarding per hour.
- Financial Effectiveness: The Clay County fare review conducted as part of the analysis determines that that Clay County has a lower average fare among most of its peers. Increasing route productivity is a key component for financial effectiveness.

Table 13: Key Performance Overview: Clay County Flex Routes

Route	Key Performance Indicators/Measures	Fiscal Year				
Clay County Flex Routes		2019	2020	2021	2022	Percentage Change (2019-2022)
General Indicators	Unlinked Passenger Trips	11,861	19,316	20,061	22,143	87%
	Revenue Miles	66,865	140,072	176,814	208,805	212%
	Revenue Hours	4,676	8.977	10,075	11,146	138%
	Vehicles Operated in Maximum Service (VOMS)	4	6	7	7	75%
Performance Measures	System Speed	14.30	15.60	17.55	18.73	31%
	Passenger Revenue Per service Mile	$0.14	$0.08	$0.70	$0.08	-43%
	Passenger Revenue Per Service Hour	$1.98	$1.30	$1.30	$1.48	-25%
	Boarding Per Hour	2.54	2.15	1.99	1.98	-22%
	Operating expense per VRM	$2.43	$2.24	$2.39	$2.31	212%
	Operating expense per VRH	$34.79	$34.99	$41.97	$43.31	307%
	Cost per Boarding	$13.72	$16.26	$21.08	$21.80	419%
	UPT per VRM	0.17	0.14	0.11	0.10	-41%
	UPT per VRH	2.53	2.15	1.99	1.98	-22%

Service Reliability

Service reliability is an essential part of the rider experience. The FTA sets standards for on-time performance for public transit agencies receiving federal funds. A transit vehicle is considered on time if it arrives no more than one minute early or five minutes late from the scheduled arrival time at each stop along the route. For ADA paratransit service, U.S. Department of Transportation regulation regards as illegal capacity constraints, substantial numbers of:

- Significantly untimely pickups (as well as drop-offs or arrivals)
- Trip denials
- Missed trips (trips missed by the transit agency)
- Trips with excessive lengths

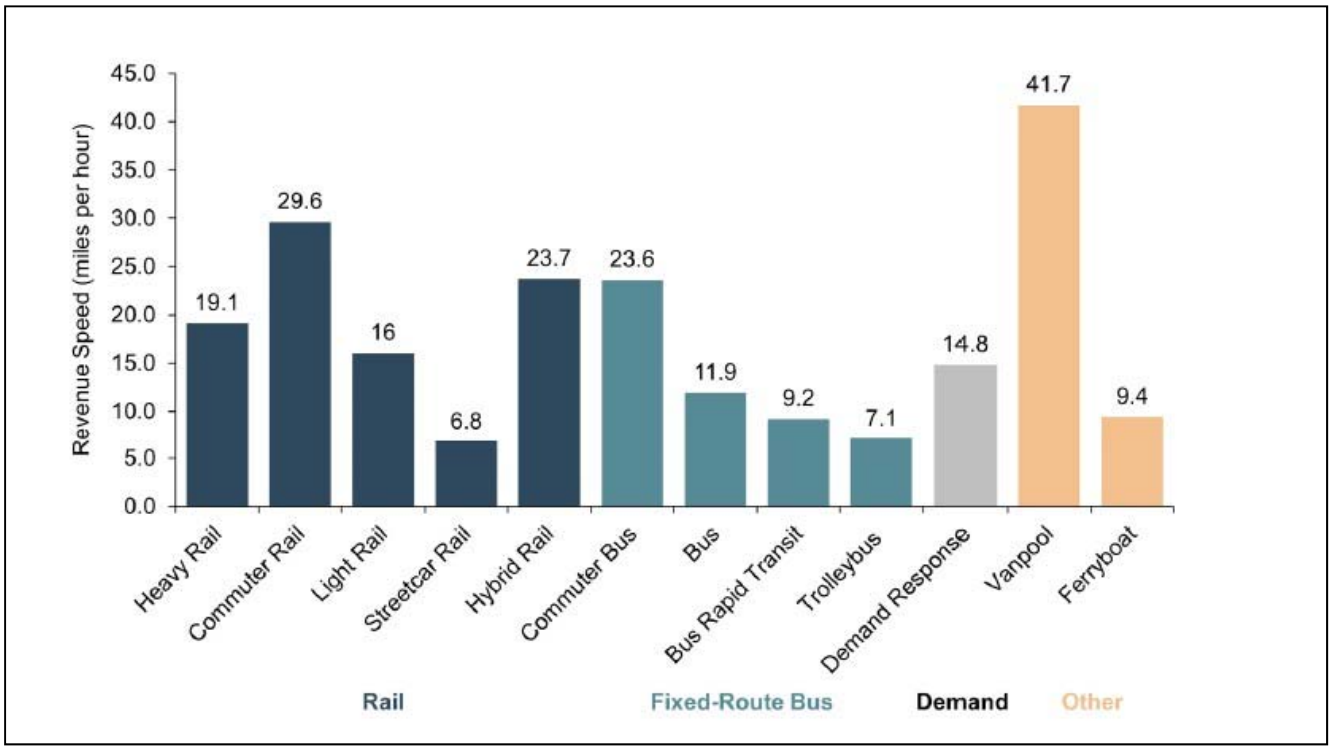
CCT currently does not measure the on-time performance of the flex routes or the TD services. An analysis of how the routes perform and adhere to a set schedule would help the transit agency understand segments along each route that are not performing well and are experiencing significant issues with on-time performance. Additional reasons why it is critical to analyze on-time performance include operational efficiency, safety, and funding.

When transit vehicles arrive on time, riders are more likely to trust the system and have a positive experience. Conversely, when vehicles are consistently late, it can cause frustration and dissatisfaction among riders. Analyzing on-time performance can also aid transit agencies with identifying inefficiencies in their operations. To understand where and why delays are occurring, agencies can make operational changes to improve efficiency and reduce delays. On-time performance also impacts safety. If a vehicle is consistently late, passengers may attempt to board or disembark in unsafe locations, increasing the risk of accidents. On-time performance is often used as a performance metric when applying for funding from government agencies or other funding sources. Transit agencies that consistently meet or exceed on-time performance standards are more likely to be competitive when seeking additional funding and support.

System Speed

Average miles per hour is a good indicator of service reliability and on-time performance. Average Revenue Speed reflects the average speed at which vehicles are traveling while in revenue service carrying passengers. Clay County's transit system speed averages 16.55 mph over the last four fiscal years, which is higher than the current national average of 11.9 mph shown in the figure below. This is due to issues such as the length of existing routes, as well as the service expansion changes from 2019-2020, but primarily pertains to the inconsistency with data collection varying across months and years.

Figure 11: National Transit Summaries and Trends 2021 – Average Speed



Source: [2021 NTD Summaries and Trends]

Service Assessment

Standardized metrics were applied to route level data collected system wide to effectively analyze Clay County's transit service. These metrics evaluate service productivity and financial effectiveness. Service productivity is based on passenger boardings and service levels and is calculated using passenger boardings per revenue hour and passenger boardings per revenue mile. Financial effectiveness is based on the total costs of operating a specific route, after incorporating ridership revenue.

- Farebox Recovery Ratio measures the percentage of operating costs recouped through the farebox. Service is subsidized when the ratio is below 100%, and service is profitable when the ratio is above 100%.
- Subsidy per Boarding measures the operating cost per passenger boarding, after accounting for operating revenue.

It should be noted that flex route services are held to a different standard than the typical fixed route services due to the nature of the routes. Flex routes usually operate less trips in one direction during weekday peak hours due to deviations, while fixed route services have a much more consistent level of service during the weekday peak hours.

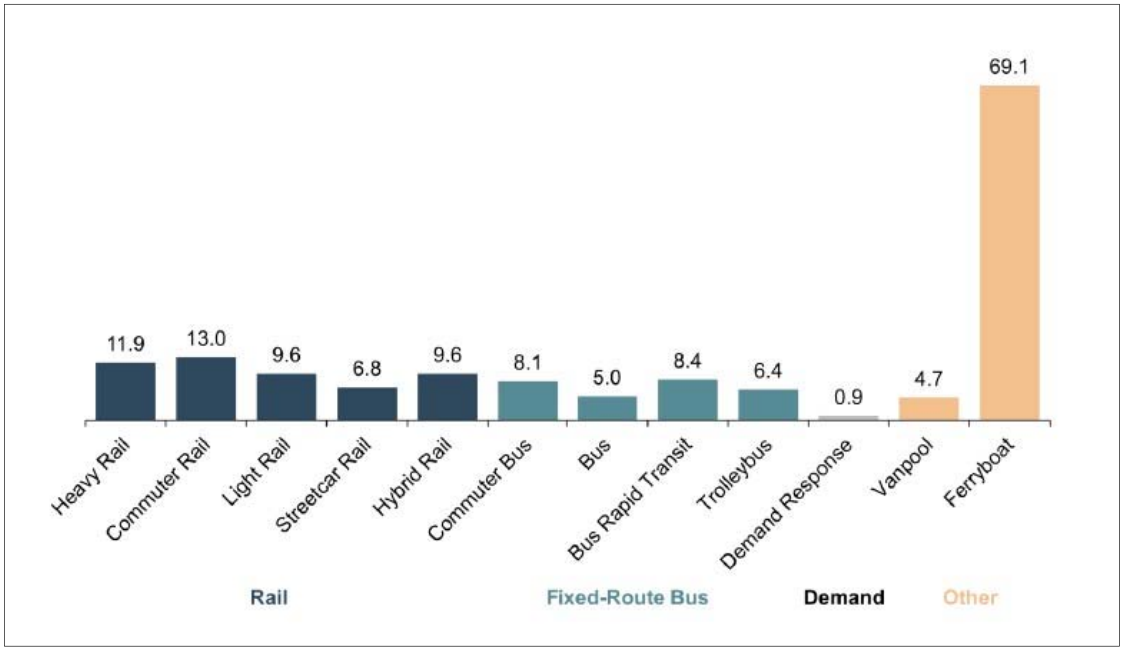
Boardings per Hour

Passengers per hour is a measure of system productivity. The more passengers carried per hour, the higher the farebox revenue and lower the system cost.

Higher passenger boardings per revenue hour will usually have a positive correlation to other key performance metrics such as subsidy per passenger boarding. Routes with high passenger boardings per revenue hour are productive routes as they tend to carry more riders while requiring less investment per passenger than less productive routes.

Passenger Trips per Revenue Hour is also a key indicator of service effectiveness[8] that is influenced by the levels of demand and the supply of service provided. Flex routes on average have approximately 2.61 passenger boardings per revenue hour from FY 2019-FY21. The national average as of FY 2021 was reported at 5.0 passenger boardings per hour.

Figure 12: National Transit Summaries and Trends 2021 - Passenger per Hour



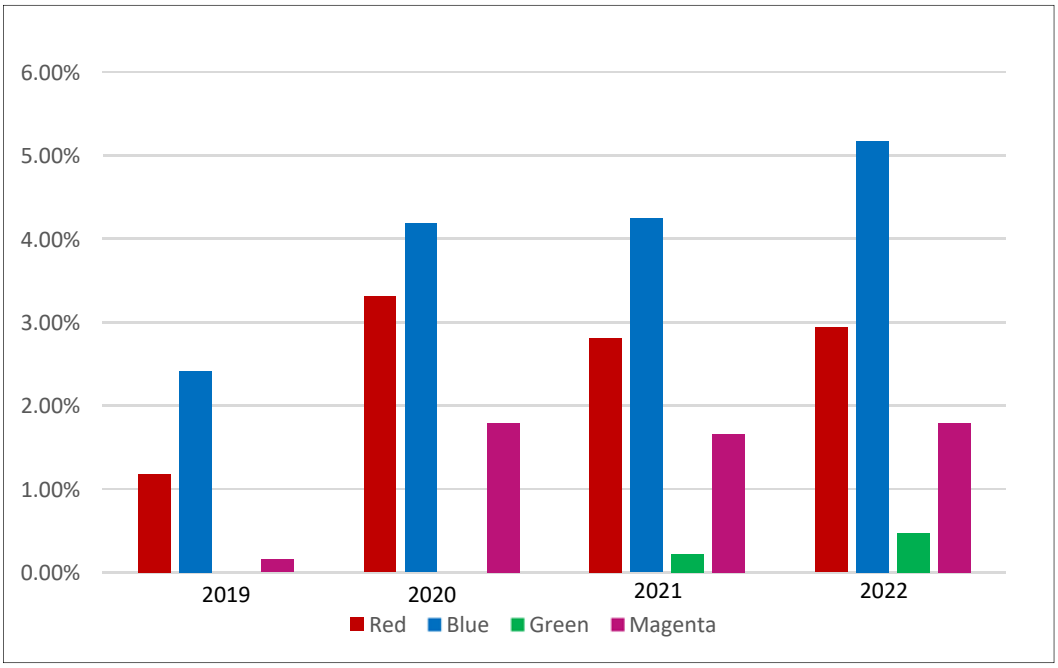
Passenger Boardings per Revenue Mile

Another metric for measuring routes operationally is passenger boardings per revenue mile. Passenger boarding per revenue mile is the number of passengers that board a vehicle for every mile a vehicle is in service. Clay County's FY 2021 average passenger boardings are 0.11 per revenue mile. The Blue Route averages 0.20 passenger boarding per revenue mile which is the highest of all the flex routes. The Green Route has the lowest passenger boarding per revenue mile at 0.004, because of providing service in less dense areas of the county.

Fare box Recovery Ratio

As discussed in the fare structure review, farebox recovery ratio measures the financial effectiveness for Clay County's transit services. It accounts for the total cost of operating the route and revenue generated by paid boardings. With a base fare of $1, Clay County's annual average farebox recovery ratio for FY 2021 is 3.11% percent. The Blue Route has the highest farebox recovery across all four fiscal years, followed by the Red Route, and the Magenta Route. The Green Route has the lowest average farebox recovery ratio at 0.22% percent. Routes with high passenger boardings per revenue hour will have high farebox recovery ratios[9].

Figure 13: Farebox Recovery for Flex Routes (FY 2019 – FY 2022)



Subsidy per Boarding

Subsidy per passenger boarding is the cost to Clay County for each boarding minus the collected fare revenue. Clay County's average subsidy per passenger boarding is $0.50 for flex route services. To note, detailed fare collection information was not available to evaluate the breakdown of full fare revenue and subsidized fare revenue. However, routes with higher passenger boardings per revenue hour and high farebox recovery ratios typically have high subsidy per passenger boardings.

Cost and Revenue per Passenger

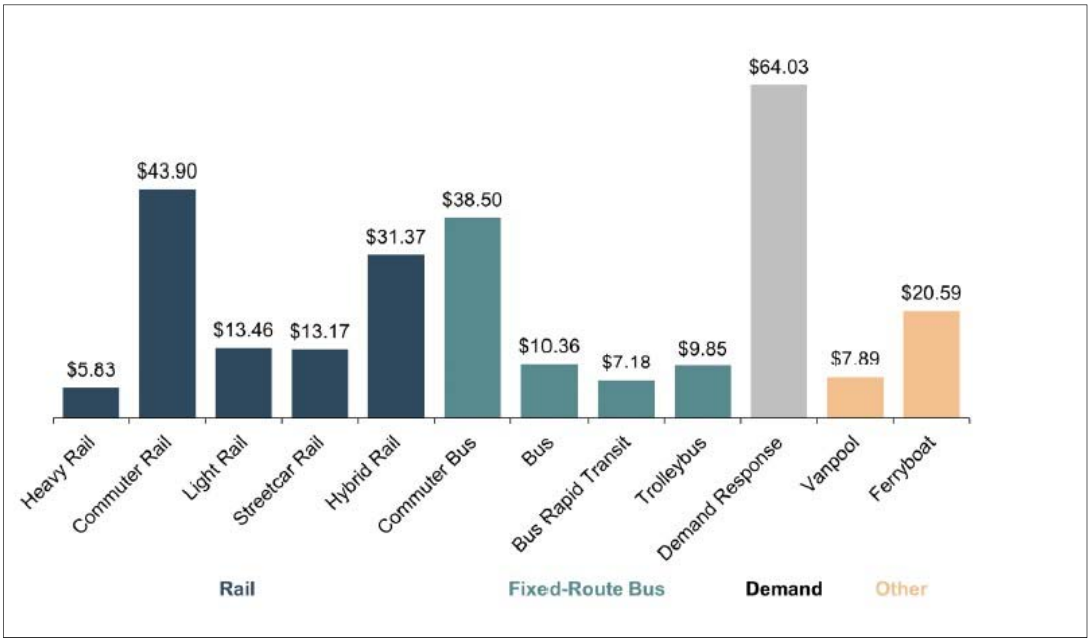
While passengers carried is the measure of productivity and effectiveness, costs and revenue determine system efficiency. Clay County's costs are below the national average cost per hour to operate bus service ($160.33) per the NTD 2021 summaries and trends. On a cost per hour basis, Clay County averaged $38.76 per hour over the last four fiscal years.

[9] National Transit Database – National Summaries and Trends 2021

Cost per Boarding

Cost per boarding is a metric for assessing both efficiency and productivity. This is a good measure of how well a system is managed and how effective the service is. Larger systems with high productivity may have exorbitant costs, but when combined with their total ridership, the costs are very much in line or often even lower than smaller systems. For Clay County, when combined with productivity, the total cost per passenger of $15.83 is 41% higher than the 2021 national average operating cost per Unlinked Passenger Trip (UPT) for bus mode ($10. 36). Increasing route productivity will be a key element of improving the overall financial effectiveness for the transit system.

Figure 14: National Transit Summaries and Trends 2021 - Operating Expenses per UPT by Mode



Route Level Assessment

The tables below provide a detailed overview of the key performance indicators for each of Clay County's flex routes. Route deviations are available on the flex routes.

Table 14: Key Performance Overview: Flex Blue

Rout	Key Performance Indicators/Measures	Fiscal Year				
Clay County Flex - Blue		2019	2020	2021	2022	Percentage Change (2019-2022)
General Indicators	Unlinked Passenger Trips	2,461	13,305	14,119	15,244	519%
	Revenue Miles	39,268	67,907	69,125	64,122	63%
	Revenue Hours	767	4943.95	5,022	5,027	555%
	Operating Expense	$65,328.10	$178,841.33	$207,591.07	$218,028.87	234%
	Fare Collected	1,579	7485.5	8,812	11,272	614%
	Vehicles Operated in Maximum Service (VOM)	4	6	7	7	75%
Performance Measures	System Speed	51.18	13.74	13.77	12.76	-75%
	Passenger Revenue Per service Mile	$0.04	$0.11	$0.13	$0.18	337%
	Passenger Revenue Per Service Hour	$2.06	$1.51	$1.75	$2.24	9%
	Boarding Per Hour	3.21	2.69	2.81	3.03	-5%
	Operating expense per VRM	1.66	2.63	3.00	3.40	104%
	Operating expense per VRH	$85.15	$36.17	$41.34	$43.37	-49%
	Cost per Boarding	$26.55	$13.44	$14.70	$14.30	-46%
	UPT per VRM	0.06	0.20	0.20	0.24	279%

Table 15: Key Performance Overview: Flex Red

Route	Key Performance Indicators/Measures	Fiscal Year				
Clay County Flex-Red		2019	2020	2021	2022	Percentage Change (2019-2022)
General Indicators	Unlinked Passenger Trips	949	5,317	5,079	5,177	446%
	Revenue Miles	23,711	43,143	43,525	42,884	81%
	Revenue Hours	468	3041.25	3,007	3,009	543%
	Operating Expense	$ 54,520.64	$ 98,062.71	$ 124,261.30	$ 130,308.28	139%
	Fare Collected	645	3244	3,497	3,823	493%
	Vehicles Operated in Maximum Service	4	6	7	7	75%
Performance Measures	System Speed	50.69	14.19	14.47	14.25	-72%
	Passenger Revenue Per service Mile	$0.03	$0.08	$0.08	$0.09	228%
	Passenger Revenue Per Service Hour	$1.38	$1.07	$1.16	$1.27	-8%
	Boarding Per Hour	2.03	1.75	1.69	1.72	-15%
	Operating expense per VRM	2.30	2.27	2.85	3.04	32%
	Operating expense per VRH	$116.56	$32.24	$41.32	$43.31	-63%
	Cost per Boarding	$57.45	$18.44	$24.47	$25.17	-56%
	UPT per VRM	0.04	0.12	0.12	0.12	202%

Table 16: Key Performance Overview: Flex Magenta

Route	Key Performance	Fiscal Year				
Clay County Flex -Magenta		**2019**	**2020**	**2021**	**2022**	**Percentage Change (2019-2022)**
General Indicators	Unlinked Passenger Trips	55	694	758	965	1655%
	Revenue Miles	4,001	29,809	31,936	30,409	660%
	Revenue Hours	144	1092.5	1,075	1,096	661%
	Operating Expense	$ 42,838.12	$ 37,219.03	$ 44,439.26	$	11%
	Fare Collected	66	666.5	738	851	1199%
	Vehicles Operated in Maximum Service (VOMS)	4	6	7	7	75%
Performance Measures	System Speed	27.78	27.29	29.71	27.74	0%
	Passenger Revenue Per Service Mile	$0.02	$0.02	$0.02	$0.03	71%
	Passenger Revenue Per Service Hour	$0.45	$0.61	$0.69	$0.78	71%
	Boarding Per Hour	0.38	0.64	0.71	0.88	130%
	Operating expense Per VRM	10.71	1.25	1.39	1.56	-85%
	Operating expense Per VRH	$297.49	$34.07	$41.35	$43.24	-85%
	Cost Per Boarding	$778.87	$53.63	$58.63	$49.12	-94%
	UPT Per VRM	0.01	0.02	0.02	0.03	131%

Table 17: Key Performance Overview: Flex Green

Route	Key Performance Indicators/Measures	Fiscal Year				
Clay County Flex -Green		**2019***	**2020***	**2021**	**2022**	**Percentage Change (2021-2022)**
General Indicators	Unlinked Passenger Trips			173	724	318%
	Revenue Miles			31,664	55,034	74%
	Revenue Hours			1,090	2,006	84%
	Operating Expense			$	$ 86,995.09	87%
	Fare Collected			102	409	301%
	Vehicles Operated in Maximum Service (VOM)			7	7	0%
Performance Measures	System Speed			29.05	27.44	-6%
	Passenger Revenue Per service Mile			$0.00	$0.01	131%
	Passenger Revenue Per Service Hour			$0.09	$0.20	118%
	Boarding Per Hour			0.16	0.36	127%
	Operating expense per VRM			1.47	1.58	7%
	Operating expense per VRH			$42.72	$43.37	2%
	Cost per Boarding			$269.16	$120.16	-55%
	UPT per VRM			0.01	0.01	141%

*Columns for years 2019 and 2020 are grayed out because he Clay Community Transportation Green Flex Line was launched on April 1, 2021.

Aging True Service

The Clay County Aging True service is categorized as a demand response[10] mode of service according to definition by FTA and locally referred to as on-demand service. The on-demand service operates on roadways in response to requests to the transit operator from passengers or their agents. Rides are grouped together, when possible, and the transit operator dispatches a vehicle to provide the rides. Vehicles do not operate over a fixed route or on a fixed schedule unless temporarily satisfying a special transit need. Many transit systems operate on-demand service to meet the ADA requirements.[11]

Cost effectiveness

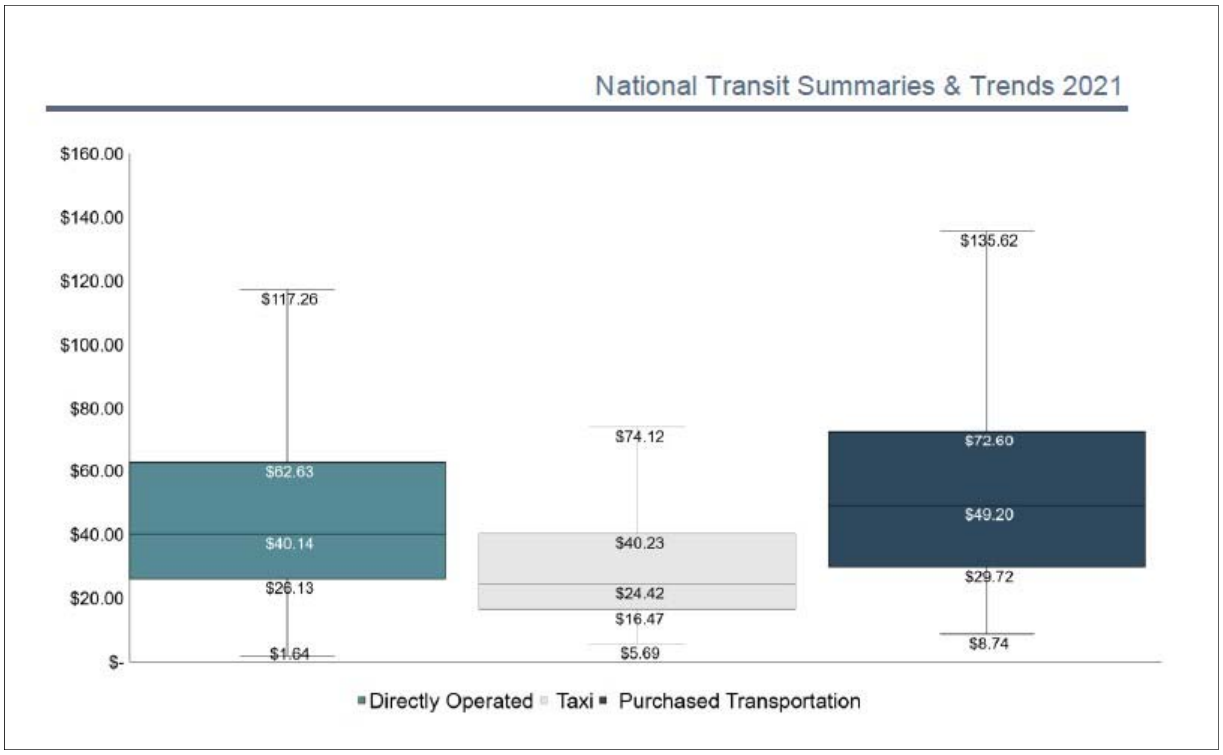
UPT is one way to measure service consumed by the riding public. It gives equal weight to passengers making short and long trips. The average demand response cost per trip across all urban and rural NTD reporters for FY 2021 was $54.66. Clay County's Aging True cost per trip for FY 2021 was below the national average at $34.92 as shown in the table below.

Table 18: Key Performance Measures Overview: Aging True Service

Route	Key Performance Indicators/Measures	Fiscal Year				
Clay County Aging True		**2019**	**2020**	**2021**	**2022**	**Percentage Change (2019-2022)**
General Indicators	Unlinked Passenger Trips	1,649	2,095	161	2,996	82%
	Revenue Hours	1,105	1365.59	2,996	1,778	61%
Performance Measures	Boarding Per Hour	1.49	1.53	0.05	1.68	13%
	Operating expense per VRH	$36.09	$36.08	$42.72	$47.71	32%
	Operating expense per UPT/Cost per Boarding	$24.17	$23.52	$34.92	$28.32	17%
	UPT per VRH	1.49	1.53	0.05	1.68	13%

[10] This report uses the FTA terminology of "demand response" when presenting national statistics for this mode.
[11] *2021 NTD Summaries and Trends*

Figure 15: NTD 2021 Cost per UPT for Demand Response Service Type



Source: [2021 NTD Summaries and Trends]

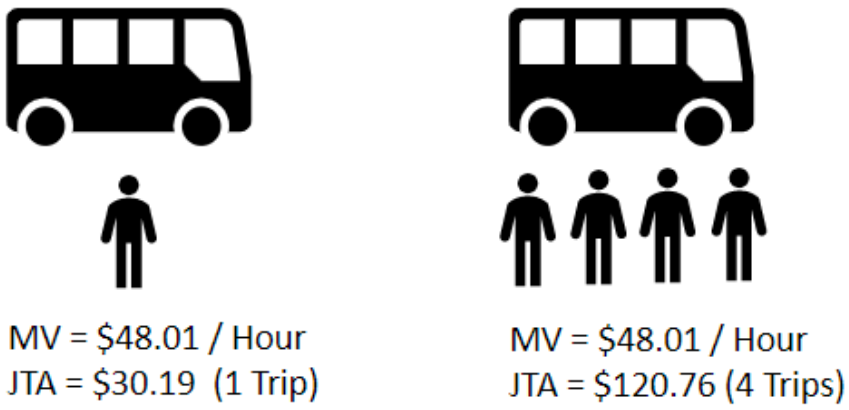
A lower cost per trip indicates that the program is operating efficiently and effectively in delivering its services. It is possible that the program's focus on senior centers and senior day care facilities as primary destinations, as well as the advanced weekly trip commitments, are contributing factors to the program's cost-effectiveness. The Aging True transportation program provides high-quality transportation services to seniors at a cost that is below the industry average for demand response services.

The data indicates that over the past four years, the cost per revenue hour of the Aging True transportation program has increased from $36.09 to $47.71. This increase in cost is significant and suggests that the program is facing rising expenses in delivering its services. However, it is important to note that the program's cost per revenue hour is still below the FTA industry average for demand response services, which ranges from $49 to $72.

As more riders are served per hour, the efficiency of the service grows. The contract between CCT and the third-party operator is based on a standardized rate per hour, regardless of the passengers per trip. The contract between Aging True and CCT/JTA is based on a standardized price per passenger, resulting in a lack of consistency when viewing invoices between the three entities. For Clay County, however, the cost of services paid for by the Aging True organization increases.

An overview of the contracting framework is provided in the graphic below.

Figure 16: The Impact of Third-Party Operator Contractual Agreement on the Aging True Service



Service Effectiveness

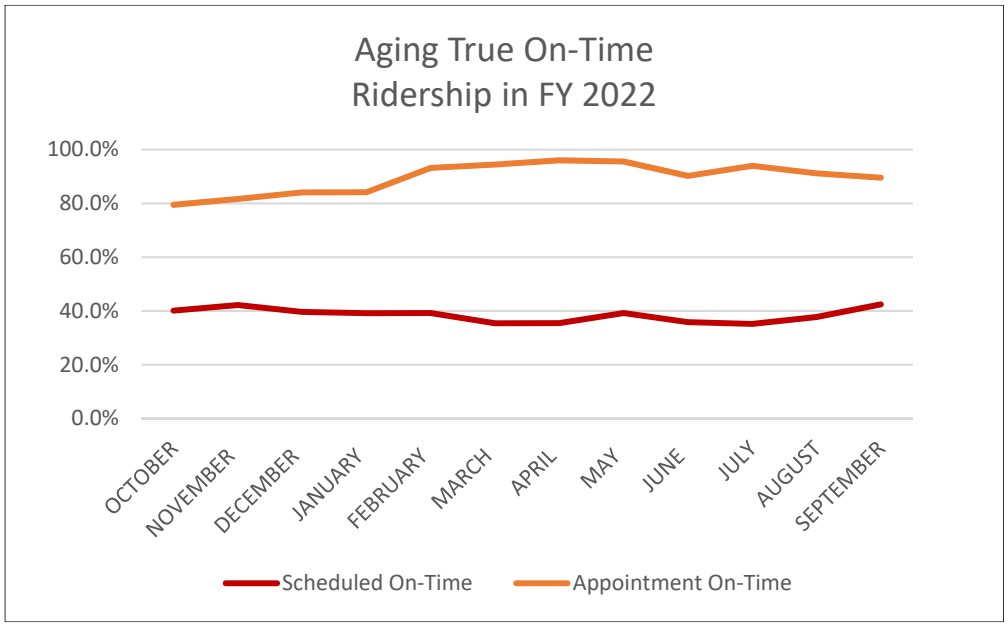
Passengers per Hour (PPH) is one way to assess service effectiveness. This reflects how many passengers per vehicle are riding during a single hour of revenue service. Clay County's boarding per hour for FY 2021 is 0.05, which is significantly lower than the national average for demand response of0.90.

Another way to compare service effectiveness is to examine the average number of passengers on board or the load factor, however, data pertaining to passenger miles travelled and vehicle revenue miles are not available for the Aging True senior services provided.

Service Reliability

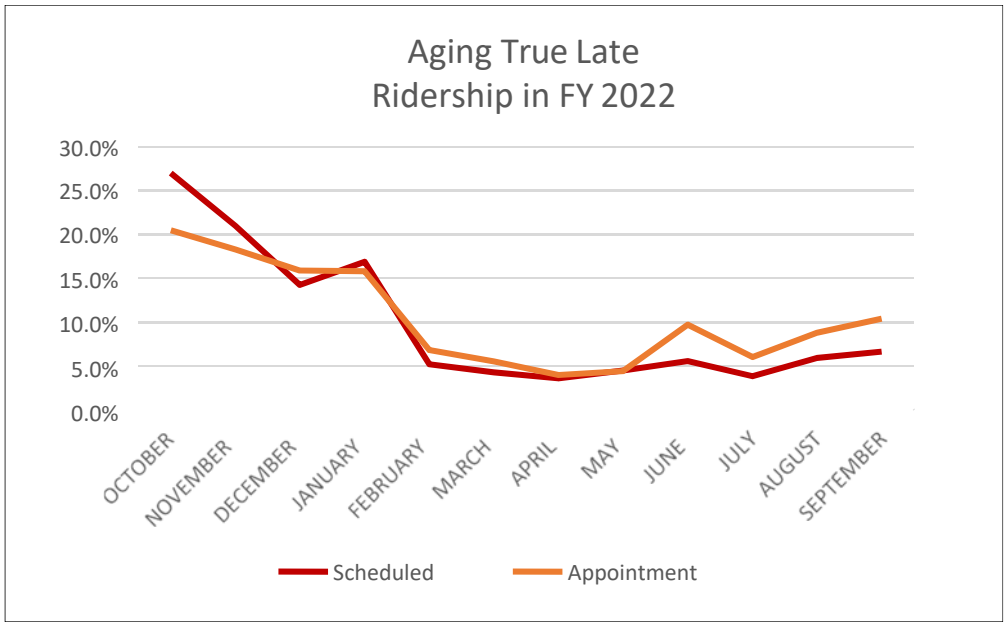
On-time performance data is available for the Aging True service provided by CCT. This data is provided for scheduled, appointment, and will call trips. Over the past fiscal year, 52.6% of scheduled trips were early, while 38.1% of scheduled trips were within the on-time window; 9.3% of scheduled trips were considered late. For appointment trips, trips were only considered late or on-time and 89.9% of appointments trips were considered on-time, with the remaining 10.1% considered late. This appears as if a disparity between the on-time performance of the two trip types exists because of the large difference between the two on-time performance percentages, but because scheduled trips can also be documented as early, it is hard to accurately define. For scheduled and appointment trips, from February through August, the percentage of late trips was below 10%. October 2021 showed late trips as 27.1% of scheduled trips and 20.5% of appointment trips. This is an anomaly and is likely due to extenuating circumstances that affected the Aging True service that month. The FY 2022 numbers are shown below.

Figure 17: FY 2022 Aging True On-Time Performance



Late ridership has shown a significant decrease over the fiscal year, from starting in October 2021 at over 20% for both trip types. A chart displaying that information can be viewed below.

Figure 18: FY 2022 Aging True % Late Performance



TD Service

The key performance indicators available for the TD service are highlighted in the table below.

Table 19: Key Performance Measures Overview: Transportation Disadvantage Service

Route	Key Performance Indicators/Measures	Fiscal Year				
Clay County TD		**2019**	**2020**	**2021**	**2022**	**Percentage Change (2019-2022)**
General Indicators	Unlinked Passenger Trips	14,115	21,354	15,432	15,742	12%
	Revenue Hours	9,009	13862.89	10,780	9,099	1%
Performance Measures	Passenger Revenue Per Service Hour	$2.19	$2.79	$2.80	$2.80	28%
	Boarding Per Hour	1.57	1.54	1.43	1.73	10%
	Operating expense per VRH	$35.00	$36.16	$41.32	$47.14	35%
	Cost per Boarding	$22.34	$23.48	$28.86	$27.25	22%

The TD service provided by Clay County is also considered an on-demand type of service. On average the TD service experienced a steady increase in operating costs over the past four fiscal years.

Cost Effectiveness

When compared to the national average for demand response cost per trip, as referenced in figure 16 above, Clay County's TD service cost per trip for FY 2021 was below the national average at $41.32. This indicates that the service cost is effective.

Service Effectiveness

Clay County's TD boarding per hour for FY 2021 is 1.43 which is significantly higher than the national average for demand response of 0.90. This indicates that the County's TD service is quite effective and performs better than the average demand response type service.

Like the Aging True service, data pertaining to passenger miles travelled and vehicle revenue miles are not available restricting service effectiveness to one key performance metric.

Bus Stop Transfer Analysis

Bus routes that share multiple stops along the same segment provide higher frequency because they can use the same stops and infrastructure, which allows for more efficient use of resources. This means that buses can arrive at each stop more frequently, reducing wait times and providing more convenience for passengers along the segment. This is beneficial for riders as it allows them to plan their trips with more certainty and less wait time, making it more likely they will use public transit over other forms of transportation. Furthermore, higher frequency routes also tend to result in higher ridership, as they are more convenient and reliable.

There are 40 stops along the Blue Route, with 40% of the stops located along the Blanding Boulevard corridor. The Red and Blue Routes share 24 stops, which is 60% of the total stops. The Orange Park Mall, Orange Park Medical Center, and Orange Park Library stops are all timepoints on the Blue and Red Route schedules. Understanding the schedules of the routes and how they interact with each other can better improve the overall service and connections between routes. Factors to be considered when analyzing bus stop transfers include:

- Frequency of transfers: How often are transfers made at the bus stop in question?
- Number of routes: How many bus routes serve the stop?
- Wait times: How long do passengers typically have to wait for their connecting bus?
- Transfer efficiency: How easy is it for passengers to navigate the transfer process?
- Passenger volume: How many passengers use the bus stop on a daily or weekly basis?
- Transfer destinations: What are the most common destinations for passengers transferring at the bus stop?

The Red Route stops at Orange Park Mall seven times daily, and of those times, riders transferring from the Blue to the Red Route would have on average a wait time of 1 hour and 34 minutes, with zero minutes as the shortest wait time and 3 hours and 50 minutes as the highest. For riders who are transferring from the Red to the Blue Route, their wait times are shorter because the Blue Route runs more frequently. That average wait time transferring from the Red Route to the Blue Route is 39 minutes, with an hour and 12 minutes being the longest wait time and zero minutes as the shortest wait time.

The Blue Route is also aligned with corridors served by the Green Route, but the two routes do not share a stop. Red, Green, and Blue routes all follow similar patterns as they service the Middleburg VA Clinic, however there is no Blue Route stop located at that location.

The Blue Route also provides a transfer point to the Black Creek Park-N-Ride station on CR 220, at which riders can transfer to the Clay Express Select service which provides commuter service to downtown Jacksonville at the JRTC at LaVilla. At the Orange Park Mall, transfers are available to JTA Routes 31 and First Coast Flyer Orange Line.

Service Assessment Findings

Clay County flex service routes Green and Magenta should not be compared to the more urban flex routes Red and Blue, since the two set of routes serve different markets with very different rider needs. However, within the CCT network, the passenger boarding statistics highlight the more successful routes. Indicating that the routes serving the portion of the county with higher densities have the highest farebox recovery ratios. Additionally, no transfer opportunities exist within the network, which impacts the potential for growth.

Clay County flex route service productivity is relatively lower than peers primarily because of longer route alignments generating more revenue miles per hour due to the designated land use and environmental nature of the county.

Additionally, Clay County's demand response service costs continue to grow as ridership increases. The main challenge continues to be the nature of the contractual agreement with the third-party operator and the operating agency.

Strategies to attract riders could include improving connections within the current network through transfers where possible as well as with existing transit services offered by JTA. Increasing ridership on flex route service will improve the effectiveness of the services.

Service Standards

Scheduling of Assets and Labor

Service standards are effective in determining the value of a route. Service standards are system-wide policy objectives for bus service that govern minimum service levels, hours of operation, and other goals including the scheduling of assets and labor. These objectives exist to ensure that the agency can provide extensive access to buses while maintaining a cost-effective service. Routes should be measured regularly to guarantee acceptable performance. In the event a route's performance changes significantly, the agency should review causal factors for the changes and consider adjusting service. Service standards are designed to help agencies plan effective routes that are both attractive to riders and cost effective.

Monitoring System

Improvement in system monitoring for the service will position Clay County to better anticipate the needs of capital and operating assets needed to effectively and efficiently provide transit services. This monitoring uses the following metrics:

- Passenger Boardings per Revenue Hour: This measures the number of passenger boardings per every hour of service on the street for flex route services.
- Passenger Boardings per Trip: This measures the number of passenger boardings for every trip for flex route or express services.
- Passenger Boardings per Revenue Mile: This measures the number of passenger boardings per every mile of service on the street.
- Subsidy per Passenger Boarding: This measures the difference between fare revenue collected and the cost of providing the service.

Monitoring the system involves:

- Identifying the average of each metric for each service type (flex, fixed, express, etc.).
- Determining how far each route falls from the system average in terms of standard deviation.
- Combining the results from the three metrics into a single score and the scores are given equal weight.

Clay County should monitor and review service performance regularly. The agency should publish new schedules in its Ride Guide at least twice a year, and any service changes should be timed accordingly. Regular monitoring of system performance allows agencies to assess how new or modified routes are performing, and plan for future changes.

Minimum Threshold

CCT and the other service providers within the region have a goal to operate efficient, cost- effective, and attractive system to the riders and the residents of Clay County. Accordingly, the transit agencies should implement a minimum threshold to support operating service on a route. Establishing minimum thresholds creates a baseline for all transit routes, preventing unproductive services from consuming limited resources that could be better used elsewhere. Below are the recommended minimum thresholds for CCT.

Table 20: Recommended Minimum Threshold for Service Standard

Measure	Flex Route Service	Demand Response Service
Passenger Boarding per Hour	2	1

Clay County should take the following action for any route that does not adhere to the established threshold for its category:

- Routes that score significantly above or below the standard require the most attention from the transit agency.
- Routes that score well below the standard should receive immediate attention and corrective action.
- Routes that score well above the standard also require immediate attention because they may require additional resources.
- Routes within the standard should be monitored for minor tweaks to improve productivity.

The section below details the transit provider action recommended to individual route performance.

Segment Analysis

A segment analysis evaluates a route on the segment level:

- Low Performing Routes: Individual segments of routes that fall within this category might need to be reviewed. The review may highlight segments that are very unproductive, which in turn reduces the entire route's productivity. Identifying these unproductive segments may also identify ways to improve overall route performance. If no one segment is identified, structural changes may be required for the entire length of the route.
- Below Average Performing Routes: Routes in this category may require a similar review to the lowest performing routes, even though the need is less urgent.
- Average Performing Routes: Routes in this category are performing adequately and do not need to be actively monitored.
- Above Average Performing Routes: Routes in this category may need to be reviewed, particularly routes on the higher end. The review may highlight segments along the route that are very productive and may have overcrowding or other issues.
- High Performing Routes: similar to the above average performing routes, a review may be necessary to identify additional investment needs. These routes may have overcrowding issues due to rider demand. A segment analysis may identify portions of the route that may need additional resources.

Marketing

- Low Performing Routes: Routes that fall in this category may benefit from targeted marketing that attracts existing and potential riders to use the service. Limited knowledge of service hours, destinations, and connections may contribute to a route's poor performance. Rider awareness may lead to an improvement.
- Below Average Performing Routes: Like the low performing routes, routes in this category may require additional marketing.

- Average Performing Routes: No action is required for routes in this category.
- Above Average Performing Routes: No action is required for routes in this category.
- High Performing Routes: No action is required for routes in this category.

Rider Outreach

Rider interviews and surveys have proven to be useful tools for service planning. These surveys are useful to identify popular destinations and trip patterns which may attract riders. The surveys and interviews may also identify underserved areas or route design issues, such as frequency and span, which limits a route's potential.

Service Levels

Ridership demand determines the frequency and span of a route. Routes with higher frequencies and longer service spans tend to be the busiest routes, while those with low frequency and shorter service spans are often the least busy. Modifying service levels to match rider demand will satisfy rider needs and maximize an agency's limited resources.

- Low Performing Routes: Routes in this category may need an adjustment in service levels to meet existing demand. This may mean less frequent service or a reduction in service span.
- Below Average Performing Routes: Routes in this category may require adjustments in service levels, particularly routes on the lower end similar to low performing routes.
- Average Performing Routes: No action is required for routes in this category, although minor adjustments may improve productivity, decrease the subsidy per passenger boarding, and increase on time performance.
- Above Average Performing Routes: Routes in this category may require adjustments in service levels to meet existing demand. Certain trips or segments may experience overcrowding that additional investment could reduce, positioning the route for future growth.
- High Performing Routes: Routes in this category may require adjustments in service levels to meet existing demand. Like the previous category, these routes might experience overcrowding that additional investment could reduce.

For certain high performing routes, additional service types may be appropriate to reduce travel time and increase ridership; an express (Red X) route is a good example. This route would supplement existing flex services. With significant ridership growth and adequate capital resources, more express transit could be considered.

Discontinuation

Transit providers should consider eliminating routes in certain situations. Discontinuing a route or segment implies that all other options have been exhausted and the route or segment was unable to raise productivity to an acceptable level. If possible, discontinuing unproductive segments is preferred to discontinuing an entire route, particularly if no other alternative is available for the impacted riders.

When considering segment or route discontinuation, attention should include the determination of "lifeline" or core service levels. The Transportation Research Board (TRB) sponsored by FTA views "Lifeline" service level as the minimum service level found acceptable by the community to provide access to a specific area or during specific hours.[12]

[12] Transportation Research Board

Recommendations

The recommended service plan is a detailed list of recommendations for individual routes and service types based on data collected and analyzed for the analysis. The recommendations from the analyses have been incorporated into the service implementation segment of the Transit Study. These recommendations are for immediate action (within the next year for short-term recommendations), are market driven and do not address funding sources, or governmental acceptance of existing productivity. There are no recommendations made to eliminate any routes. However, recommendations include the discontinuation of route segments that either are duplicated by other routes or have low productivity. The recommendations are made to improve the overall productivity of the transit network for CCT services.

Route Profiles

Blue Route

Route Description

The Blue Route provides service Monday through Friday from 5:45 AM to 7:25 PM at stops in the cities of Orange Park and Green Cove Springs. Unincorporated areas within Clay County that are also serviced by the Blue Route include Middleburg, Hibernia, Lakeside and Fleming Island. The major corridors that are serviced by this route include Blanding Boulevard, US 17, SR 16, CR 220, and College Drive. The route alignment can be viewed in the image below.

The route operates with two vehicles at maximum service, operating in northbound and southbound directions. The route is 42.2 miles long and operates at a frequency of 60 to 120 minutes, with hourly frequency being provided to Orange Park from 2:00pm to 6:00pm. The Blue Route provides hourly service to the Orange Park Mall going northbound, and when the service switches to a loop service providing service to the City of Orange Park after 2pm.

The Blue Route schedule is below. Service starts at 5:45 AM for trips headed northbound, and 8:00 AM for southbound trips. NAS Jax is serviced by two daily trips in the morning and early afternoon. The tables below depict the Blue Flex Route schedules for the northbound and southbound trips.

Figure 19: Blue Route - Current Alignment

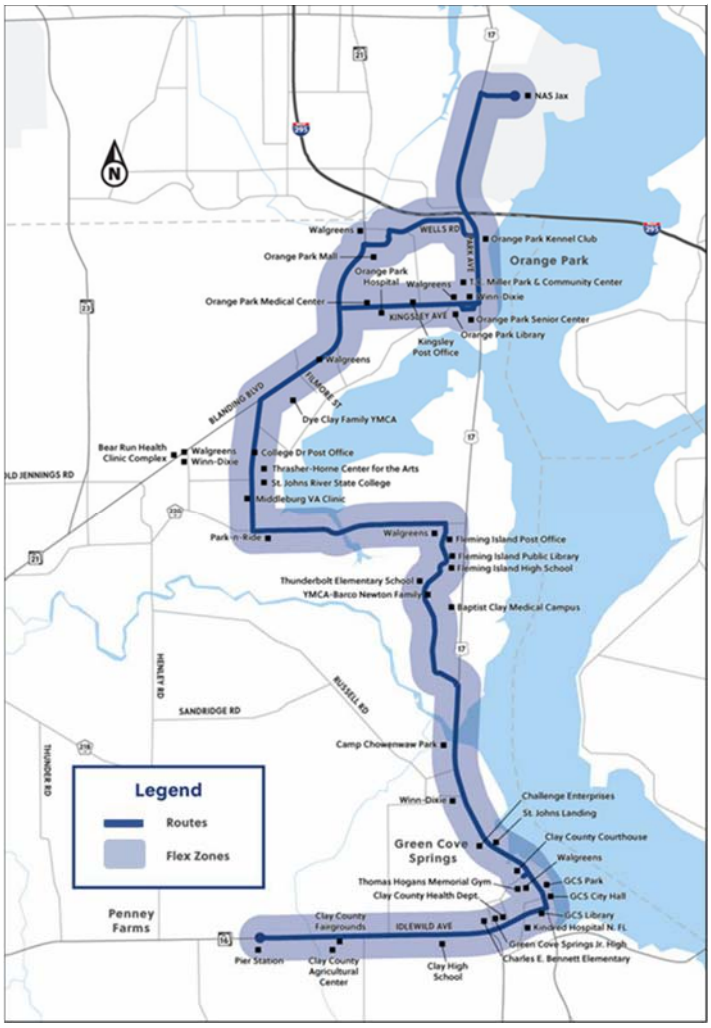


Table 21: Blue Route – Northbound Schedule

	Pier Station	Clay County Health Department	Clay County Courthouse	Challenge Enterprises	St Johns Landing	Fleming Island	Middleburg VA Clinic
Northbound	5:45 AM	5:55 AM	6:00 AM	6:10 AM		6:30 AM	
	7:45 AM	7:55 AM	8:00 AM		8:20 AM	8:30 AM	8:40 AM
		11:00 AM	11:05 AM		11:25 AM	11:35 AM	11:45 AM
		1:00 PM	1:05 PM		1:25 PM	1:35 PM	1:45 PM
Northbound (Continued)	St Johns River State College	Orange Park Mall	Orange Park Kennel Club	Orange Park Library	Orange Park Medical Center	Orange Park Mall	NAS Jax
	6:45 AM	7:05 AM	7:15 AM				7:30 AM
	8:45 AM	9:10 AM		9:35 AM	9:50 AM	10:00 AM	
		10:10 AM		10:35 AM	10:50 AM	11:00 AM	
	11:50 AM	12:10 PM		12:35 PM	12:50 PM	1:00 PM	1:20 PM
		2:10 PM		2:35 PM	2:50 PM	3:00 PM	
		3:10 PM		3:35 PM	3:50 PM	4:00 PM	
		4:10 PM		4:35 PM	4:50 PM	5:00 PM	
		5:10 PM		5:35 PM	5:50 PM	6:00 PM	

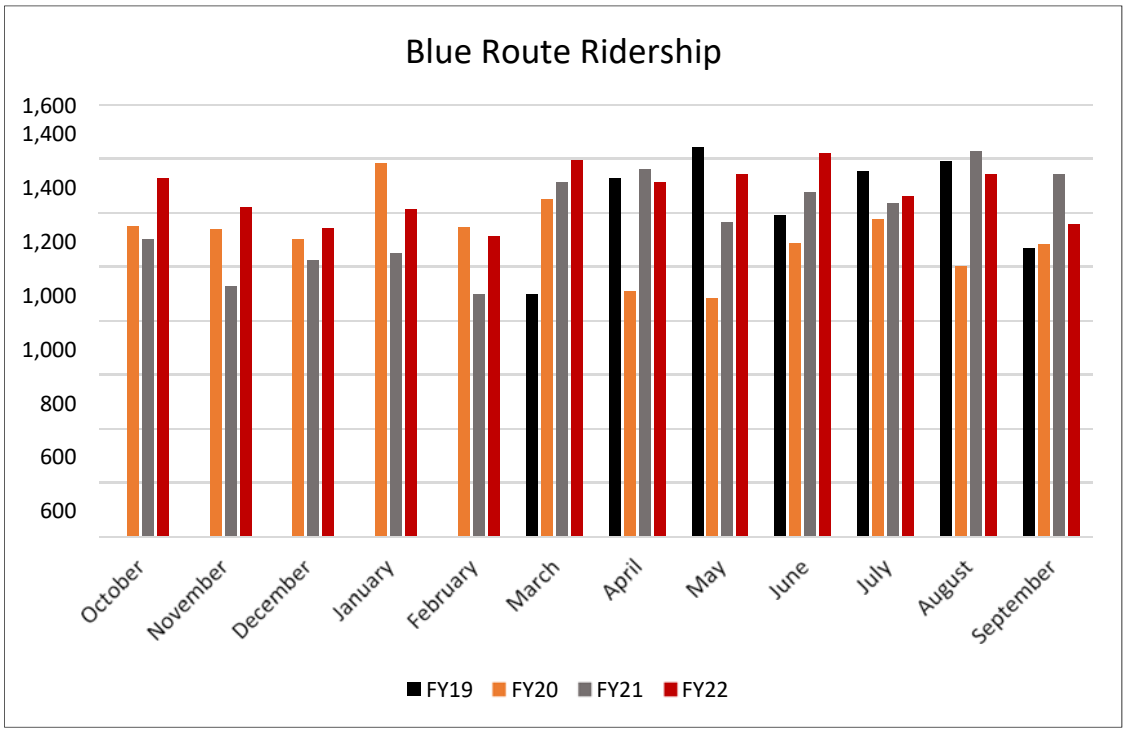
Table 22: Blue Route – Southbound Schedule

	NAS Jax	Orange Park Kennel Club	Orange Park Mall	St Johns River State College	Middleburg VA Clinic
Southbound	8:00 AM		8:25 AM	8:45 AM	8:50 AM
			11:10 AM	11:30 AM	11:35 AM
	1:30 PM	1:50 PM	2:10 PM	2:30 PM	2:35 PM
			6:10 PM	6:30 PM	6:35 PM
Southbound (Continued)	Fleming Island	Challenge Enterprises	Clay County Courthouse	Clay County Health Department	Pier Station
	9:00 AM		9:20 AM	9:30 AM	
	11:45 AM		12:05 PM	12:15 PM	
	2:45 PM	3:00 PM	3:05 PM	3:15 PM	3:30 PM
	6:45 PM		7:05 PM	7:15 PM	

Ridership Trends

The Blue Route is the busiest flex route within Clay County. Historically, ridership peaks during the summer months, but factors affecting service include the Blue Route beginning service in 2019 and operating during the COVID-19 Pandemic. The figure below shows ridership by month for fiscal years 2019 through 2022. Data for CCT flex service was obtained after JTA began operating the service in March 2019.

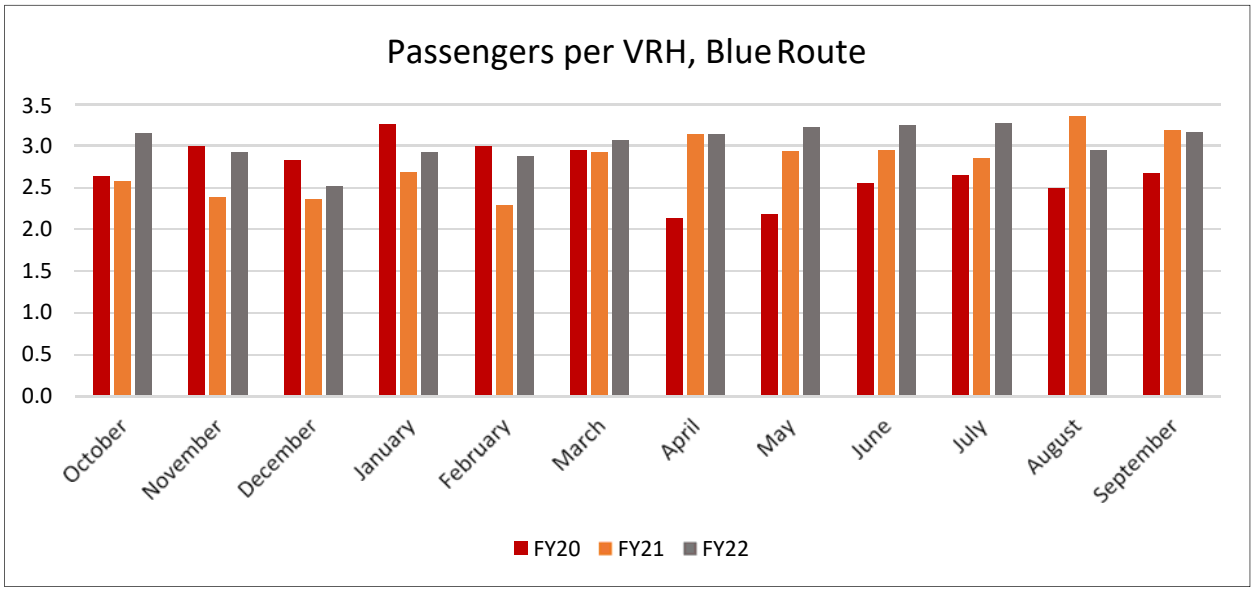
Figure 20: Blue Route - Ridership



Passengers per vehicle revenue hour is an important metric to measure as it helps to determine the efficiency and effectiveness of a bus route. It is calculated by dividing the number of passengers carried by the number of revenue hours the bus is in service. This metric is important because it provides a clear picture of how effectively a bus route is utilizing its resources, specifically the number of buses and the number of hours they are in service. A higher ratio value indicates that more passengers are being carried per revenue hour, which means that the route is operating more efficiently and effectively. This metric can be used to identify routes that may be underutilized and could benefit from increased service, or routes that are overburdened and could benefit from additional buses or service hours.

The Blue Route has on average 2.85 passengers per vehicle revenue hour, averaging across fiscal years 2020 – 2022. Pre-pandemic numbers are higher in FY 2020 prior to March 2020, but the route has rebounded in service provided in the subsequent fiscal years for the months between April and September.

Figure 21: Blue Flex Route: Passengers per VRH



Red Route

Route Description

The Red Route is 27.4-miles long and provides daily weekday service between the hours of 6:00 AM and 7:00 PM. This route provides service to the city of Orange Park, and non-incorporated Middleburg and Lakeside communities. Blanding Boulevard is the longest corridor and the main spine of the route, with 75% of the stops on this route located on this corridor. An important deviation is on College Drive, where the Middleburg VA Clinic is located. Kingsley Avenue in Orange Park is home to numerous trip generators, including Orange Park High School, Orange Park Medical Center, and several shopping centers. The route runs with a maximum of two buses during its service hours, with a frequency of 120 - 240 minutes between bus arrivals at each stop. There are 36 stops along this route, with 25 stops (69%) being transfer points for either the Blue or Green Route.

Figure 22: Red Route - Current Alignment

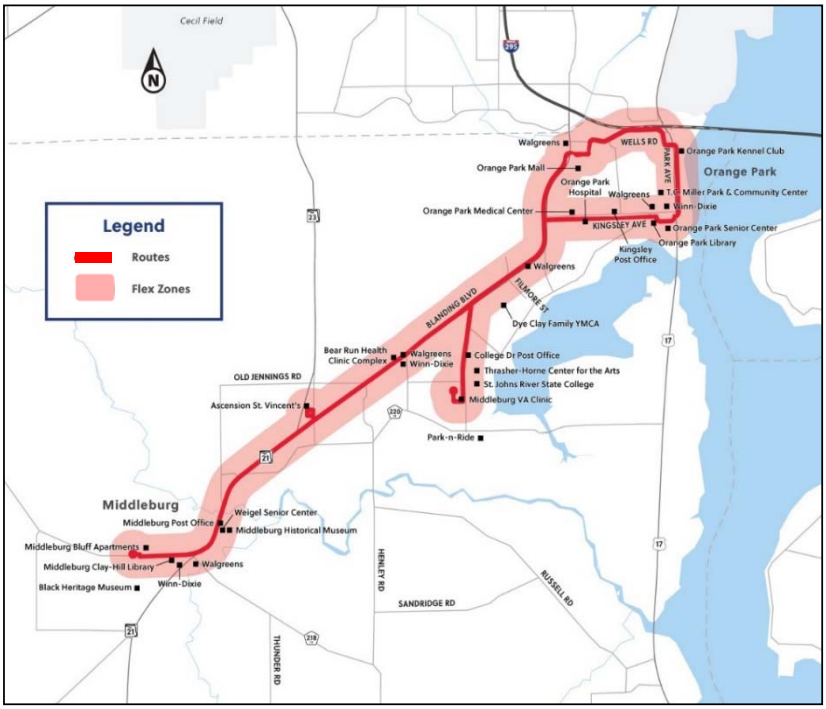


Table 23: Red Route – Northbound Schedule

Northbound	Middleburg Bluff Apartments	Blanding & C.R. 215	Ascension St. Vincent's	Winn-Dixie (Knight Boxx Road)	Middleburg VA Clinic	Blanding & Filmore	Orange Park Mall	Orange Park Library	Orange Park Medical Center	Orange Park Mall
	5:50 AM	5:55 AM		6:15 AM		6:27 AM	7:00 AM			
	8:20 AM	8:25 AM	8:40 AM	8:50 PM	9:00 AM	9:20 AM				
		10:10 AM	10:25 AM	10:35 AM	10:45 AM	11:05 AM	11:25 AM	11:45 AM	11:55 AM	12:05 PM
							1:15 PM	1:35 PM	1:45 PM	1:55 PM
	3:15 PM	3:20 PM	3:35 PM	3:45 PM	3:55 PM	4:15 PM				
	5:10 PM	5:15 PM		5:45 PM		5:45 PM	6:00 PM			

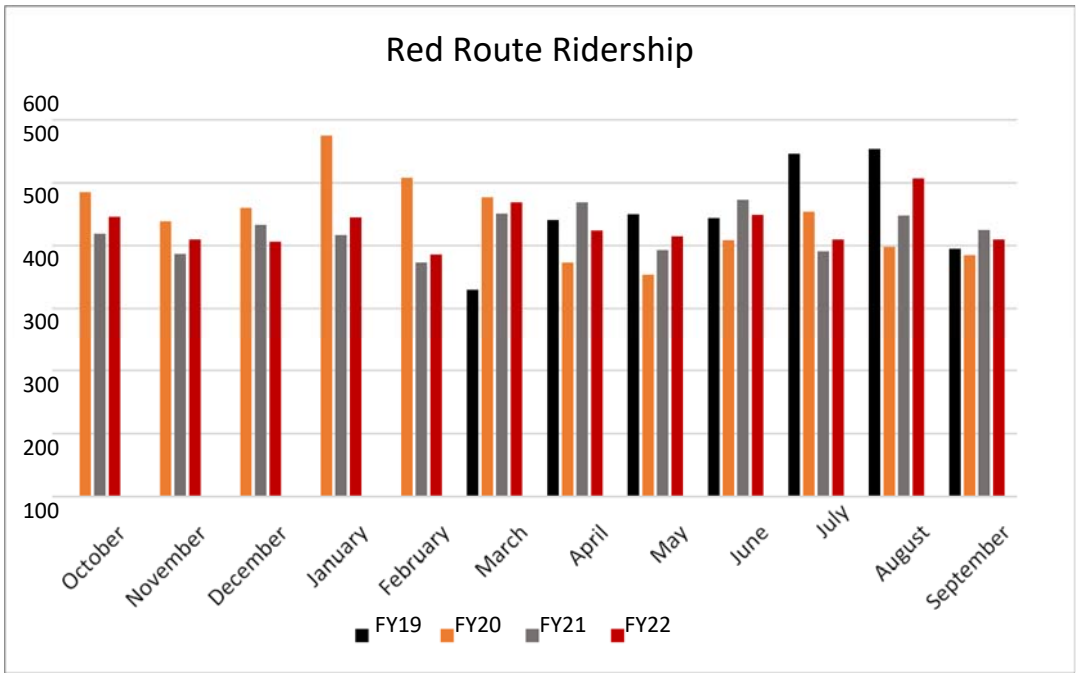
Table 24: Red Route – Southbound Schedule

Southbound	Orange Park Mall	Blanding & Filmore	Middleburg VA Clinic	Winn-Dixie (Knight Boxx Road)	Ascension St. Vincent's	Blanding & C.R. 215	Middleburg Bluff Apartments
	7:10 AM	7:25 AM	7:35 AM	7:47 AM	7:57 AM	8:12 AM	8:20 AM
		9:20 AM	9:30 AM	9:42 AM	9:52 AM	10:07 AM	
	2:00 PM	2:20 PM	2:30 PM	2:45 PM	2:55 PM	3:05 PM	3:15 PM
		4:15 PM	4:30 PM	4:42 PM	4:52 PM	5:05 PM	5:10 PM
	6:10 PM	6:30 PM		6:45 PM		7:05 PM	

Ridership Trends

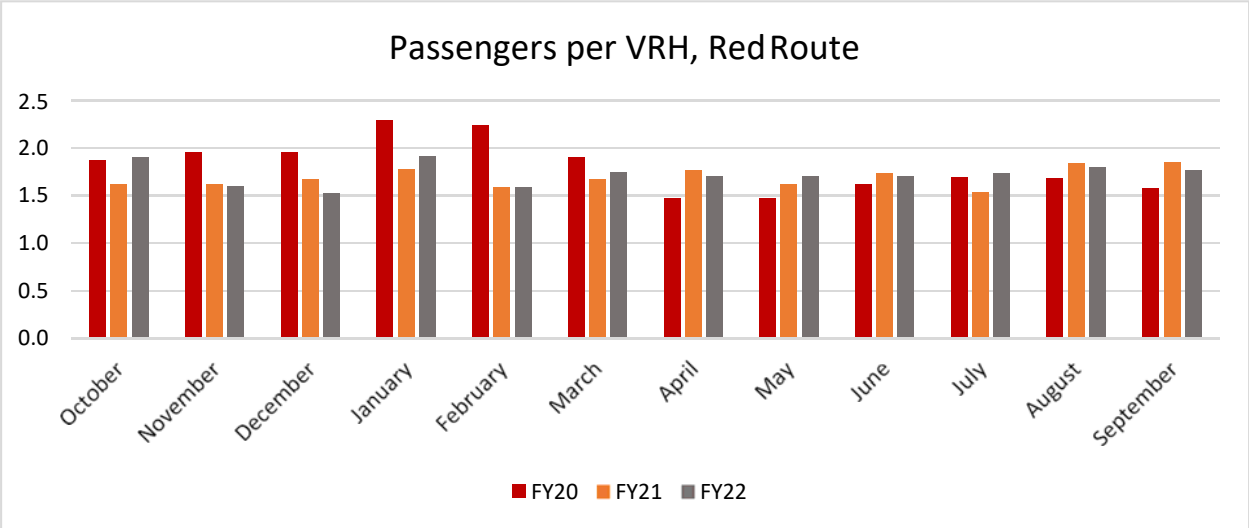
The Red Route is the second busiest route in the system. The ridership over the fiscal year has shown minimal gains in some months, including January, February, March, May, and August. In FY 2020, January through March was some of highest ridership months, which subsequently dipped once the Covid-19 Pandemic began in March 2020. The ridership by month over the previous four fiscal years is shown in the chart below.

Figure 23. Red Route Ridership



This route has shown consistency in the passengers per vehicle revenue mile performance metric. For more than half of the time in multiple fiscal years this performance metric was between 1.5 – 2.0 passengers per vehicle revenue hour, showing the performance consistency of the Red Route.

Figure 24. Red Route Passengers per Vehicle Revenue Hour



Green Route

Route Description

The Green Route is the longest route in the system, operating over 50.48 miles throughout Clay County. The route provides service to the cities of Keystone Heights and Green Cove Springs, and to the communities of Doctors Inlet, Fleming Island, Hibernia, and Penney Farms.

The Green Route is also the newest route in the system, beginning service in April 2021. One vehicle is used to provide six daily trips, split evenly between northbound and southbound trips. The headway for this route is 180 minutes, as viewed in the schedule in the tables below.

Figure 25: Green Line – Current Alignment

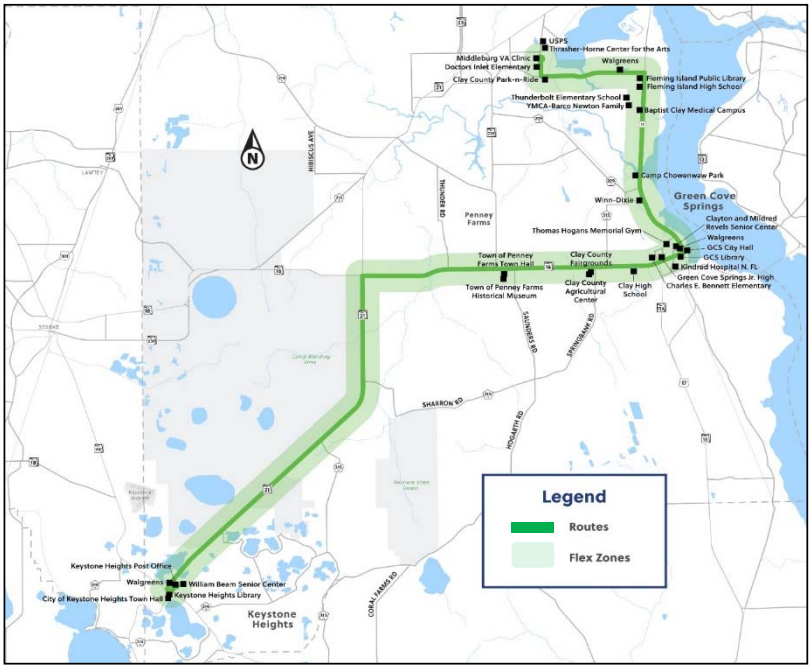


Table 25: Green Route – Northbound Schedule

Northbound	Keystone Heights	Penney Farms	Clayton & Mildred Revels Senior Center	Middleburg VA Clinic
	7:30 AM	8:00 AM	8:18 AM	8:45 AM
	10:30 AM	11:00 AM	11:18 AM	11:45 AM
	1:45 PM	2:15 PM	2:33 PM	3:00 PM

Table 26: Green Route – Southbound Schedule

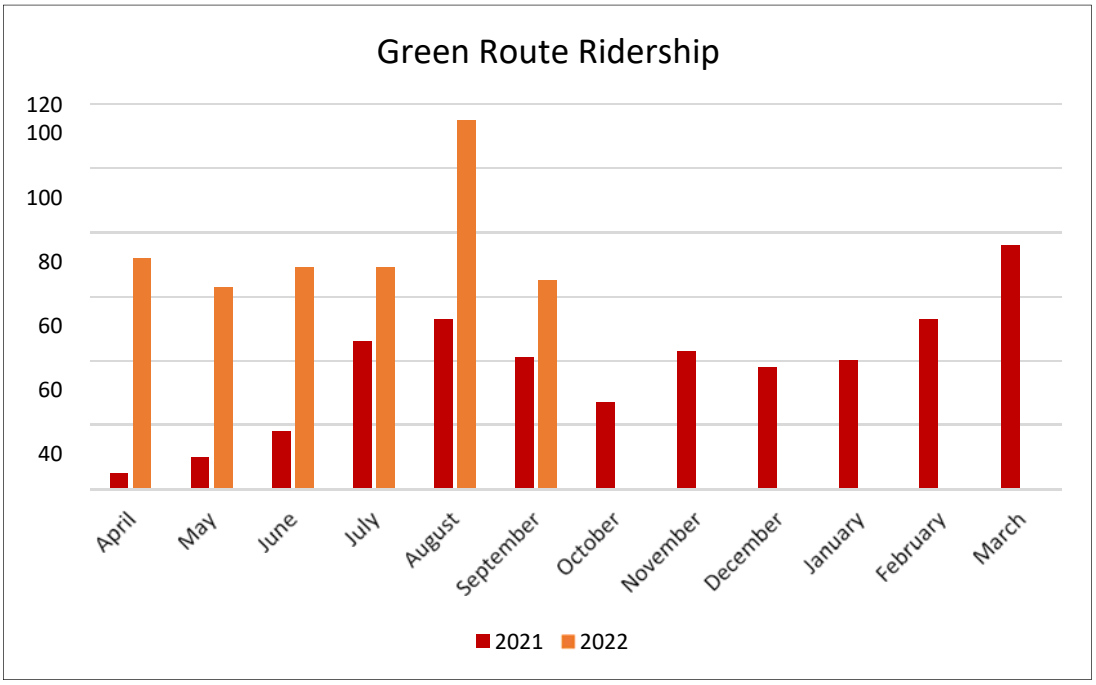
Southbound	Middleburg VA Clinic	Clayton & Mildred Revels Senior Center	Penney Farms	Keystone Heights
	9:00 AM	9:27 AM	9:45 AM	10:15 AM
	12:15 PM	12:42 PM	1:00 PM	1:30 PM
	3:15 PM	3:42 PM	4:00 PM	4:30 PM

This route provides more frequency along the College Drive – CR 220 – US 17 – SR 16, with interlined service with the Blue Route. However, there are no shared stops between the two routes, and the closest distance between stops from both routes is 2,080.21 feet on College Drive with the Blue Route's stop at Circle K and the Green Route stopping at the Middleburg VA Clinic.

Ridership Trends

As the newest route for the CCT, there is only a full fiscal year's (2022) worth of ridership that is available, but ridership at the calendar year level for both 2021 and 2022 were available for analyzing. Ridership was higher for every month in 2022 compared to its counterpart in 2021. In the chart below that is visualized.

Figure 26: Green Route - Ridership



The passengers per vehicle per revenue hour performance metric was not analyzed for this route due to the limited amount of time that this route was in operation. Analyzing the Green Route by this performance metric is not feasible because it does not provide a reliable indication of the route's performance. Because there is limited data available, it can be difficult to establish a baseline for the Green Route's performance.

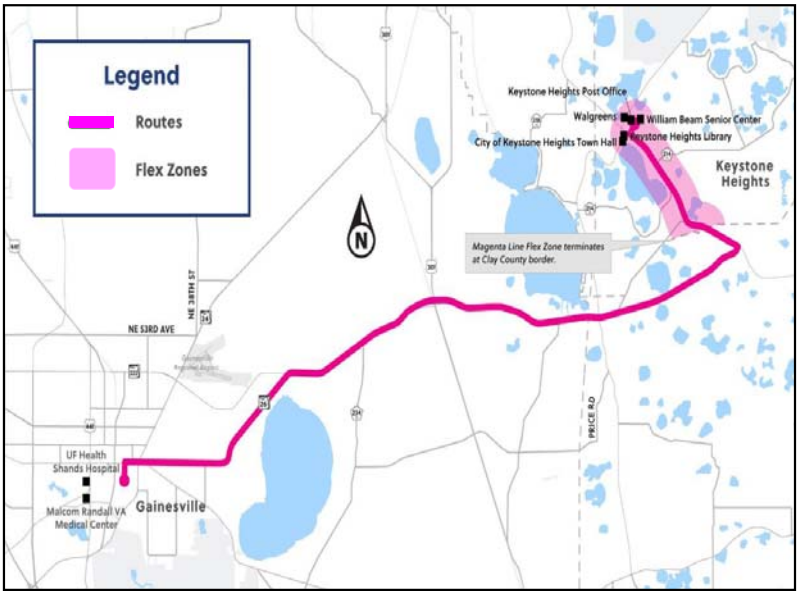
Magenta Route

Route Description

The Magenta Route provides daily trips between Keystone Heights and Gainesville, in Alachua County. This route has a morning and afternoon run in both northbound and southbound directions. The route is 34.18 miles long, with four stops. One vehicle operates in maximum service, with the service hours beginning at 8:00 AM and ending at 5:00 PM, Monday through Friday. Connections are available to the Green Route in Keystone Heights and the following Gainesville Regional Transit System (RTS) routes:

- Route 1 - Rosa Parks Transfer Station to Butler Plaza Transfer Station
- Route 2 - Rosa Parks Transfer Station to NE Walmart Supercenter
- Route 3 - Rosa Parks Transfer Station to N Main Post Office

Figure 27: Magenta Route - Current Alignment



- Route 5 - Rosa Parks Transfer Station to Oaks Mall
- Route 6 - Rosa Parks Transfer Station to N Walmart Supercenter
- Route 7 - Rosa Parks Transfer Station to Eastwood Meadows
- Route 10 - Rosa Parks Transfer Station to Santa Fe
- Route 11 - Rosa Parks Transfer Station to Eastwood Meadows
- Route 12 - Rosa Parks Transfer Station to Butler Plaza Transfer Station
- Route 15 - Rosa Parks Transfer Station to NW 13th Street
- Route 17 - Beaty Towers to Rosa Parks RTS Downtown Station
- Route 26 - Rosa Parks Transfer Station to Airport
- Route 46 - Reitz Union to Rosa Parks Downtown Station
- Route 711 - Rosa Parks Transfer Station to Eastwood Meadows

Table 27: Magenta Route – Southbound Schedule

Southbound	Keystone Heights	Gainesville
	8:00 AM	8:55 AM
	3:00 PM	3:55 PM

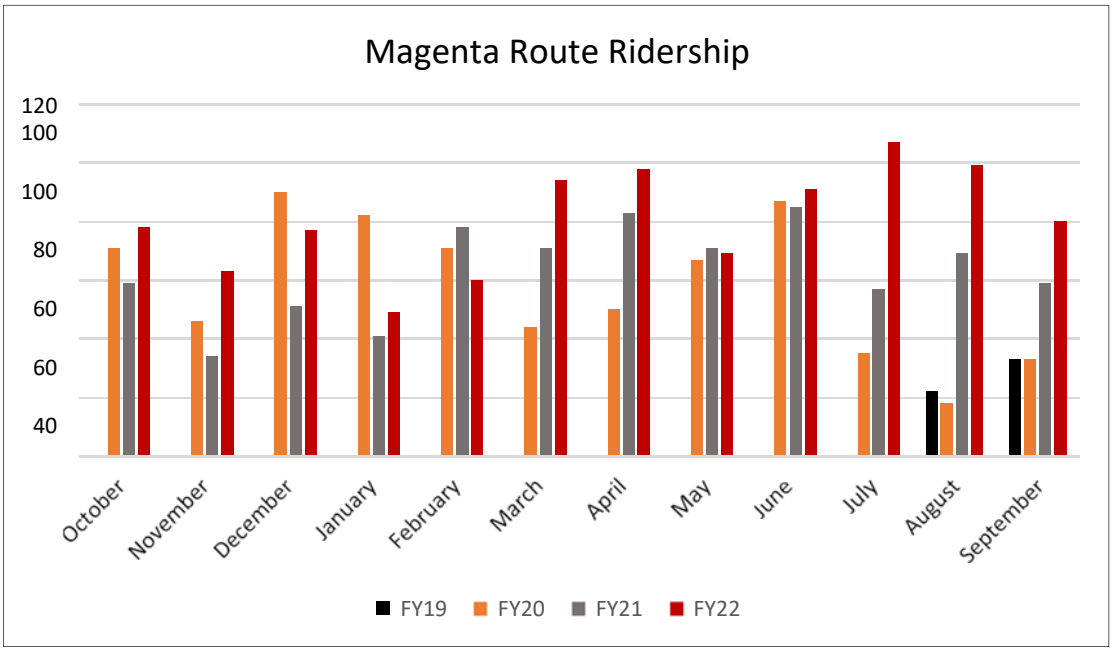
Table 28: Magenta Route – Northbound Schedule

Northbound	Gainesville	Keystone Heights
	9:05 AM	10:00 AM
	4:05 PM	5:00 PM

Ridership Trends

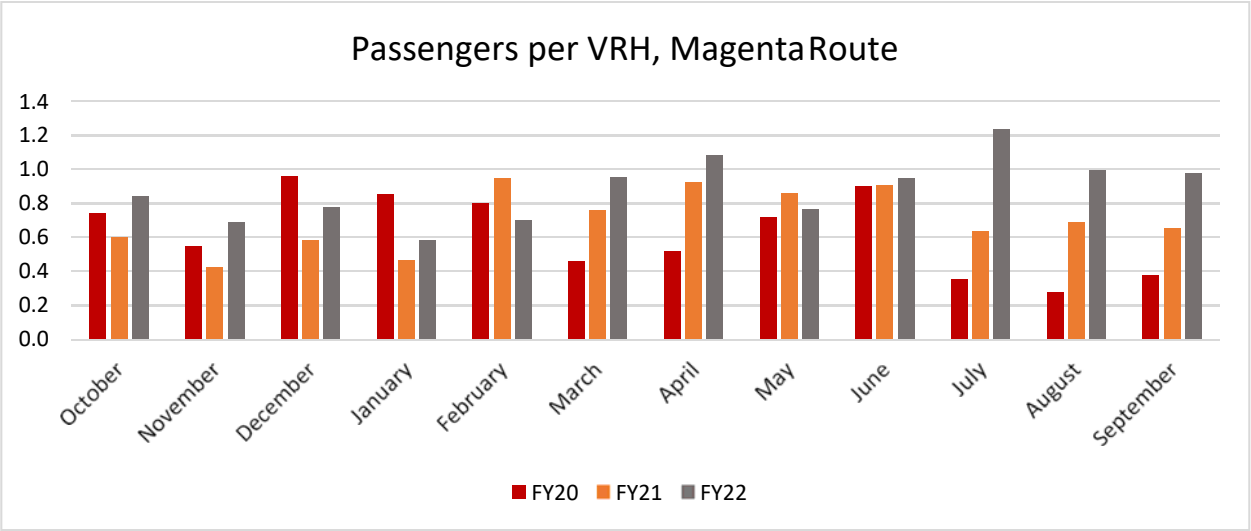
The Magenta Route has the second lowest ridership out of the four Clay County routes. It is important to note that the Magenta Route was not included in the original service implementation but was added later in August 2019. As a result, it is still maturing and has not reached its full potential yet.

Figure 28: Magenta Route - Ridership



The Magenta Route has seen a slower start in terms of ridership compared to the Blue and Red routes. Despite this, the Magenta Route is not designed to meet the same demand as these routes and operates with less frequency. This is reflected in its ridership patterns, which do not follow the same peaks as the Blue and Red routes in August. However, the October peaks of the Magenta Route are more in line with industry standards. A notable difference can be seen in December, when the Magenta Route sees a more prominent spike in ridership compared to the other routes. The Magenta Route has seen a rebound in ridership following the COVID-19 pandemic, although it has not yet reached pre COVID-19 peaks. This trend is consistent with what is being observed in the transit industry.

Figure 29: Magenta Route: Passengers per Vehicle Revenue Hour



Aging True Service

CCT operates an on-demand transportation service to four different senior centers in Clay County, including:

- Clayton and Mildred Revels Senior Center (Green Cove Springs)
- Keystone Heights Senior Center
- Middleburg Senior Center
- Orange Park Senior Center

The Aging True transportation program is a demand response and subscription-based system that requires advanced weekly trip commitments with a minimum of three trips. Users are also required to provide a 24-hour notice of cancellation. The program is designed to cater to the transportation needs of seniors and ensure that they have access to reliable and safe transportation services and to connect to the broader Aging True program, which provides extensive senior services to the aging population of Clay County. The peak service demand is between 10:00 AM and 12:00 PM, and the return trips are scheduled before 5:00 PM.

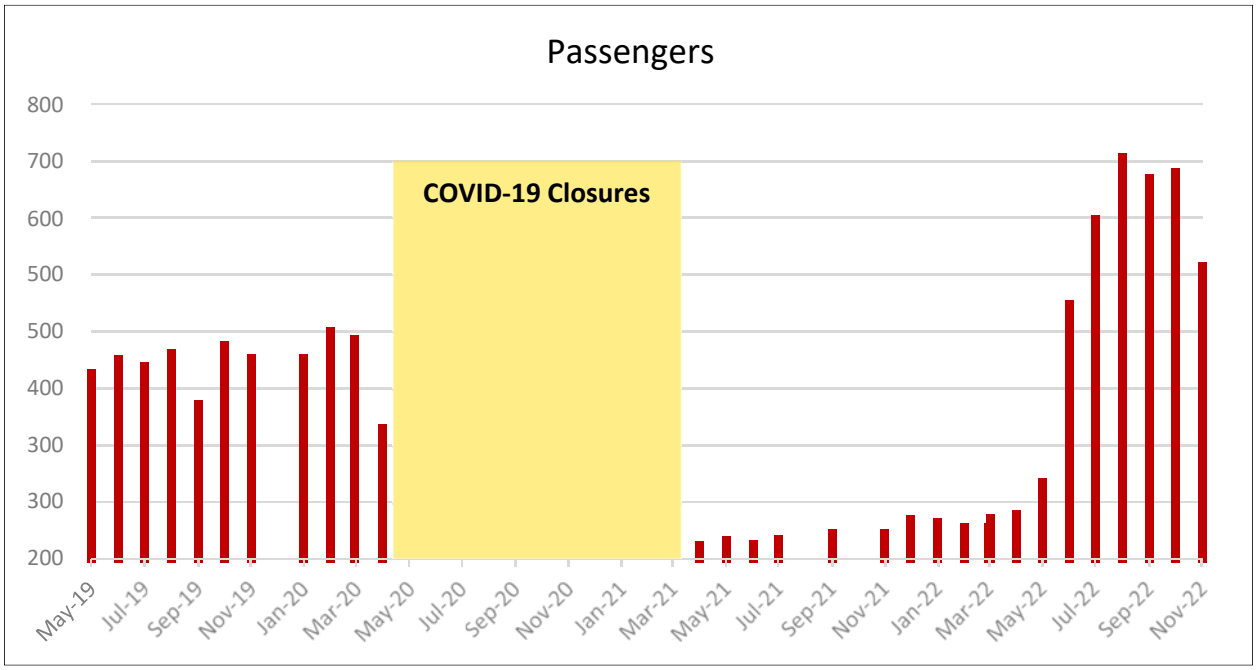
By providing transportation services to seniors, the program aims to enhance the quality of life of seniors by reducing isolation, promoting socialization, and ensuring that seniors can access essential services. Additionally, the program promotes independence and autonomy by providing seniors with the means to move around and access the community's resources.

Ridership Trends

The Aging True service experienced service closures from April 2020 to April 2021 due to the COVID-19 pandemic. In the early post-COVID period, ridership was low, ranging from 24 to 80 trips per month. However, ridership has been growing steadily, with trends shifting in June 2022.

In August 2022, the program experienced peak ridership of 707 trips, indicating that the program is recovering from the impact of the COVID-19 pandemic. It is likely that the shift in trends in June 2022 reflects an increased demand for transportation services as the community emerges from the pandemic and seniors become more comfortable accessing transportation services again. The program's ability to recover from the impact of COVID-19 and achieve peak ridership suggests that it continues to provide a valuable service to seniors in the community.

Figure 30: Ridership for Aging True Service May 2019 - November 2022



TD Service

Clay County operates a TD service, providing 'efficient, cost-effective and quality transportation services for TD persons,' in accordance with the overall mission of Florida's TD program. This service operates six days a week, from Monday through Saturday, providing door-to-door transportation service to non-emergency ambulatory and wheelchair clients within the Clay County service area.

CCT provides different services through this program, including Individual demand response trips and Agency Sponsored trips. For Individual demand response trips, there are subscription/standing order trips and trips reserved by at least two working days prior to an appointment. Those trips cannot be scheduled more than two weeks in advance of an appointment. Agency Sponsored trips are trips that are paid for by a sponsoring agency through an existing contractual agreement with CCT.

There are six eligibility criteria that determine if an individual is eligible to use the TD service:

- Are not allowed to make a self-declaration of their eligibility
- Are 60 years of age or older and must have no other means of transportation available or cannot purchase transportation (HHI guidelines may be used to meet this standard) and no other funding sources can be available to provide them with transportation
- Are eligible if they are: disabled, or their household income is less than 150% of the Federal Poverty Guidelines (HHI) as established by the Department of Housing and Urban Development
- Must use flex route if available, and they have the ability to use
- Must pay an appropriate co-pay per trip as determined by the Local Coordinating Board (LCB)

Ridership Trends

The TD program has been experiencing a decrease in ridership since January 2019. This indicates that fewer people have been using the bus service over time. In each month, the ridership levels have been similar, indicating that the service is experiencing a consistent level of usage. However, this consistent level of ridership is at a lower level than in previous years.

The slight upward trend in ridership in August, September, and October of 2022 may suggest that the service is beginning to recover lost ridership. It is unclear if this trend will continue in the long term. The decreasing ridership does not mean transit riders are gone for good but that they are riding less. If the number of riders decreases, the farebox recovery ratio will decrease as well. This program may need to be reconsidered with additional changes or improvements to remain viable in the future.

The charts below show the ridership trends for the TD program.

Figure 31: Clay County TD Ridership Overview

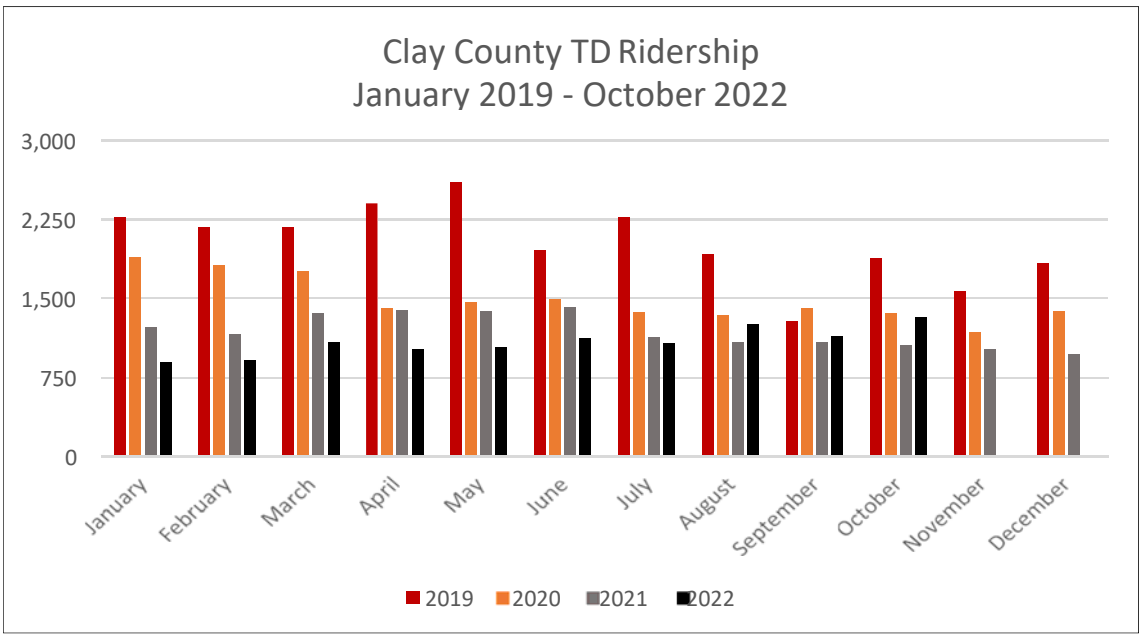
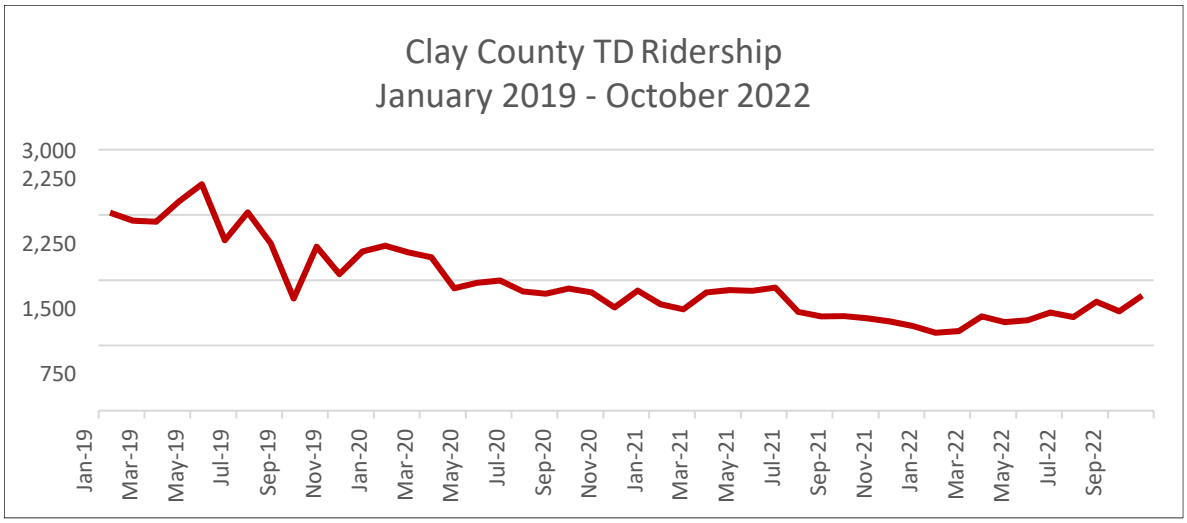


Figure 32: Clay County TD Ridership Overview



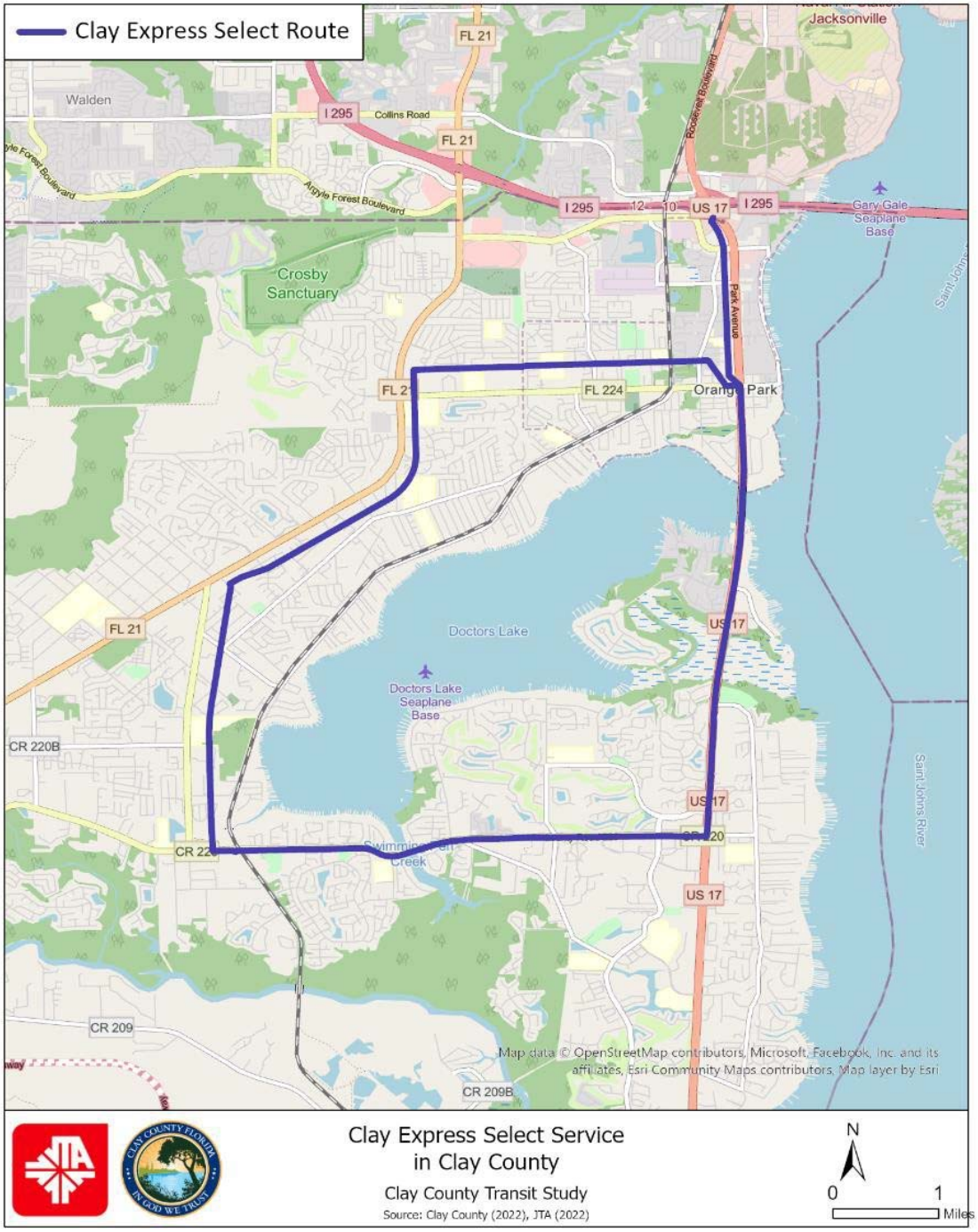
Clay Express Select

Route Description

The Clay Express Select bus service is a commuter service that operates between Clay County and downtown Jacksonville at the JRTC at LaVilla. The service began in January 2022 and has a fleet of vehicles that have been upgraded with technology, including complimentary Wi-Fi and USB charging ports. The vehicles are also equipped with wheelchair access to accommodate passengers with disabilities.

Clay County Express Select

Figure 33: Route Map Showing availability of Clay Express Select Service within Clay County

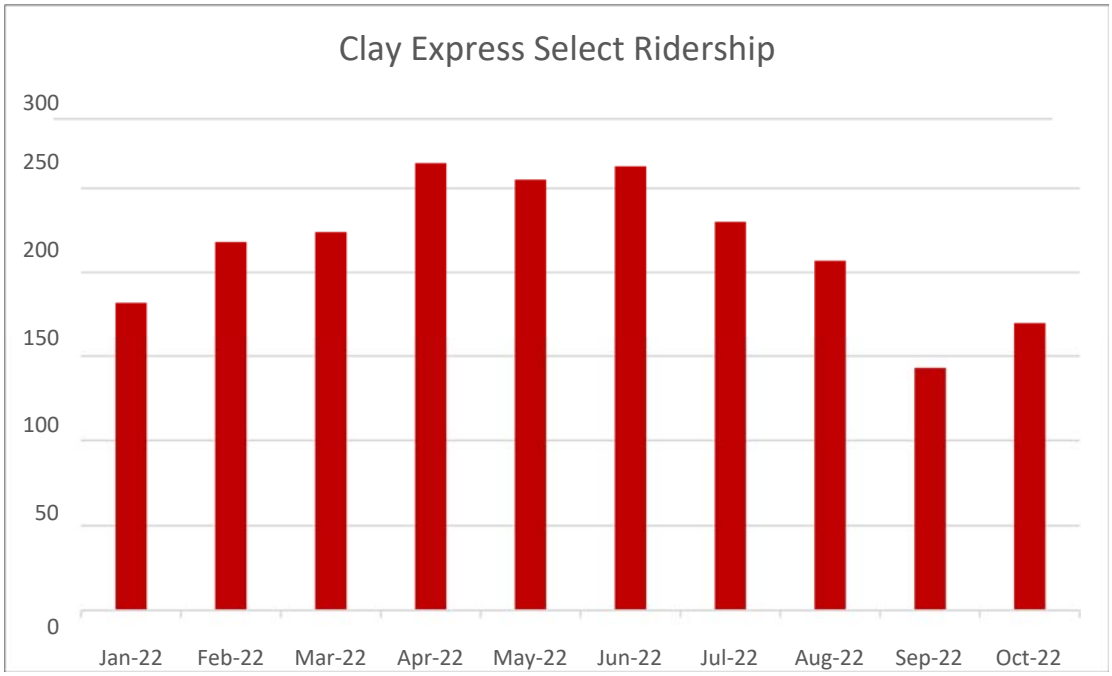


Passengers can board the service at Black Creek Park-N-Ride station or any of the stops along Park Avenue and Roosevelt Boulevard. The fares for the service are $3 for a one-way fare, and there are also options for unlimited rides, including a one-day pass for $5 and a 31-day pass for $90 if purchased through the MyJTA app. The service operates Monday through Friday from 5:20 am to 6:35 pm, making four trips northbound and four trips southbound with two vehicles operating concurrently. There are two morning trips in each direction and two afternoon trips in each direction.

The service also provides transfers to the Blue Route, which may increase its accessibility and convenience for passengers. The ridership for the service has stayed relatively consistent between 140 and 270 trips per month, with the lowest month of ridership being September 2022 with 143 trips and the highest month being April 2022 with 265 trips. The average ridership for the service is 215.7 trips per month.

The Clay Express Select bus service is a somewhat reliable and convenient commuter service, with modern technology and accommodations for passengers with disabilities. Although the ridership numbers have fluctuated slightly, this service has maintained a consistent level of usage, which may indicate that it is meeting the needs of its target audience. The availability of unlimited ride passes and transfer opportunities may also be attractive to frequent commuters. The ridership is displayed in the figure below.

Figure 34: Clay County Portion of Clay Express Select Ridership for 2022



Chapter 6. Service Framework

The overall service framework for short-range (1-5 years), mid-range (5-10 years) and long-range (10 - 20 years) was developed using the Existing Conditions Analysis results, stakeholder and community input, and findings from the Operational Analysis. This service framework reflects on the following system and service characteristics:

- Appropriate modes, based on demand and available resources
- Service level and type distinctions
- General service delivery standards by type
- Budgets and funding sources
- Technology forecast inclusions
- Governance recommendations
- Service levels by corridor/ geography within service area

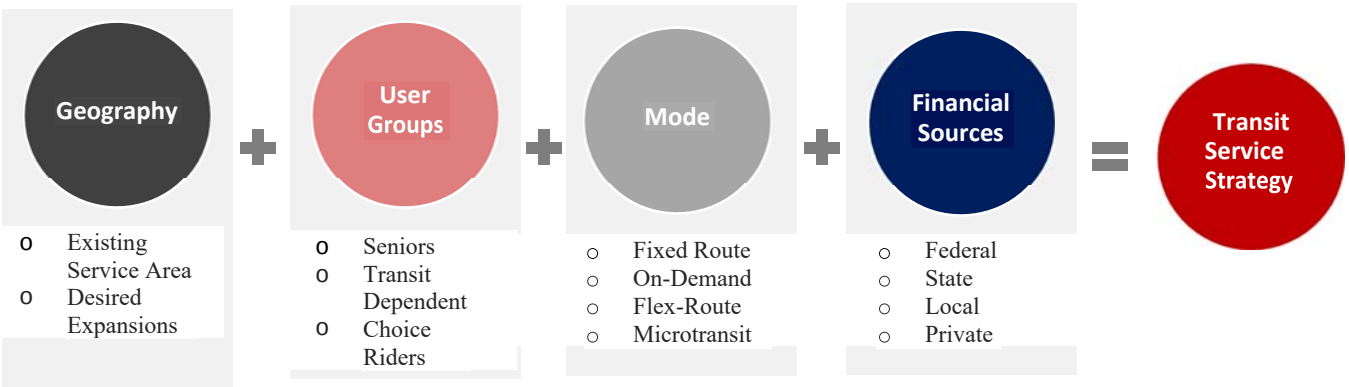
The overarching goals of the Service Framework strategies are:

1. Eliminate and/or enhance underperforming services
2. Expand services to meet existing and future demand
3. Maximize existing infrastructure and partnerships
4. Increase service accessibility
5. Support regional travel demand through strategic investments and partnerships

Analysis and Results

The Service Framework Analysis uses the existing system and service data, technical analysis findings, and community/public feedback as inputs to the Transit Service Strategy model. This model includes identification of geographical service areas, potential and targeted user groups, modes of service most appropriate to meet identified needs, and financial resources available for various service models. Combinations of these service characteristics are paired to create transit service strategies and the Short, Mid-, and Long-Range Service Framework. The following graphic depicts the service strategy development process.

Figure 35: Service Strategy Development Process



Key findings from the Public and Stakeholder Engagement, Existing and Future Conditions, and Operational Analysis are summarized in the following figure and serve as inputs to the service framework model.

Figure 36: Key Study Findings

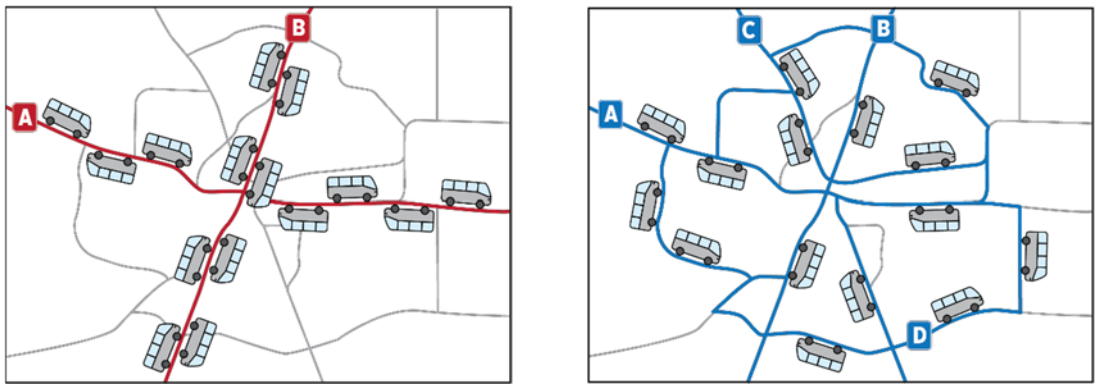
• Improved marketing and education • Expanded service hours • Increased frequency • Improved access to medical facilities • Senior access to transit • First and last mile service such as JTA's ReadiRide service • Expanded service to new population and employment centers	• Trip attractors concentrated in Orange Park, Lakeside, Fleming Island, Green Cove Springs, and Middleburg • Regional travel and connection to JTA service is highly desired • Northeast quadrant of Clay County has highest concentration of transit propensity and future demand • Plans for enhanced regional travel opportunities require upgrades to fare system technology and mobility hub infrastructure	• Ridership and productivity are low for Green and Magenta Routes • Financial analysis shows exceptional diversification of grant sources • Level of service, frequency, directness and stop accessibility does not meet existing or projected demand • Duplication of service is present in both fixed flex routes and demand response programs • Operational efficiency exceeds peer system performance, but service levels are significantly lower

Additional considerations identified by key stakeholders that were foundational to the short and mid- range recommendations includes the following topics:

- Investments in roadway infrastructure will create new travel patterns within the region and impact the transportation travel patterns and surrounding land uses.
    - Clay County Bonded Transportation Program
    - First Coast Expressway
- Maintaining College Drive Initiative/VA Clinic as key destinations for community services.
- Preserving service to Keystone Heights as a community service for vulnerable populations while reflecting on community demand vs insufficient density to support fixed route transit services.
- Continuing to evaluate opportunities for partnerships with Clay SafetyNet Alliance to implement voucher systems for vulnerable populations.
- Promoting and expanding Regional Mobility Hubs in partnership with the JTA.
    - Black Creek Park-N-Ride station – Existing Station
    - Orange Park Mall – Proposed Station
    - Middleburg – Proposed Station

Before detailing the service framework recommendations, it is critical to reflect on the current service model operated in Clay County. CCT's flex service is operating under a "Coverage Service Model," which means the system is designed to provide the greatest geographical coverage within the service area. In contrast, a "Frequency Model" concentrates available resources only within areas that demonstrate the greatest concentration of potential riders, providing faster and more frequent service within a smaller geographic area. The following figure depicts these two service types with the red configuration demonstrating a frequency service model, and the blue configuration demonstrating a coverage model.

Figure 37: Frequency and Coverage Service Models



This service model is the result of a combination of factors including the natural environment, built environment, and system design strategies implemented to provide some coverage to most, versus higher coverage to some. As a result, the system has low frequencies ranging from 1.5 - 3 hours as the buses travel longer distances to accommodate the coverage model. This service is inconsistent with the existing and future transit service demand identified by the Transit Propensity Analysis and confirmed by public and stakeholder engagement. This system model also impacts other characteristics of the Clay County Service Framework, including bus stop spacing, service routing, and service levels bycorridor.

Public and stakeholder engagement played a significant role in the identification of existing and future needs for transit investments. The following

The following table summarizes the findings of the Service Framework analysis that serves as the foundation for development of service scenarios and strategies.

Table 29: Service Framework Analysis Results

Service Framework	Analysis Results
Appropriate Modes	Fixed flex, demand response, regional express, and micro transit pilot modes are warranted.
Service Level and Type	The current service level and type are not sufficient to meet current demand. Additional service for fixed flex, demand response, and micro transit modes is warranted.

Service Framework	Analysis Results
General Service Standards	Service span, frequency, stop spacing and directness all require improvements to meet current and future demand.
Budget and Funding Sources	Current FDOT and FTA funding sources are maximized for services in Clay County. Additional capital and operational funding are needed for operational improvements.
Technology Forecasts	Technology upgrades are warranted for both local and regional transit services.
Governance	The terms of current service contracts are inconsistent and require reevaluation. Regional coordination for service standards is warranted. Transit supportive development policies are needed.

The following exhibits demonstrate a significant concentration of existing and future transit propensity and demand, current transit ridership, and key service destinations all located in the in the Northeast quadrant of Clay County. The Clay County Service Framework will focus on shifting priorities and resources towards serving existing and growing demand within these key areas, while also prioritizing regional service initiatives.

Figure 38 a: Service Framework Map (Major Destinations)

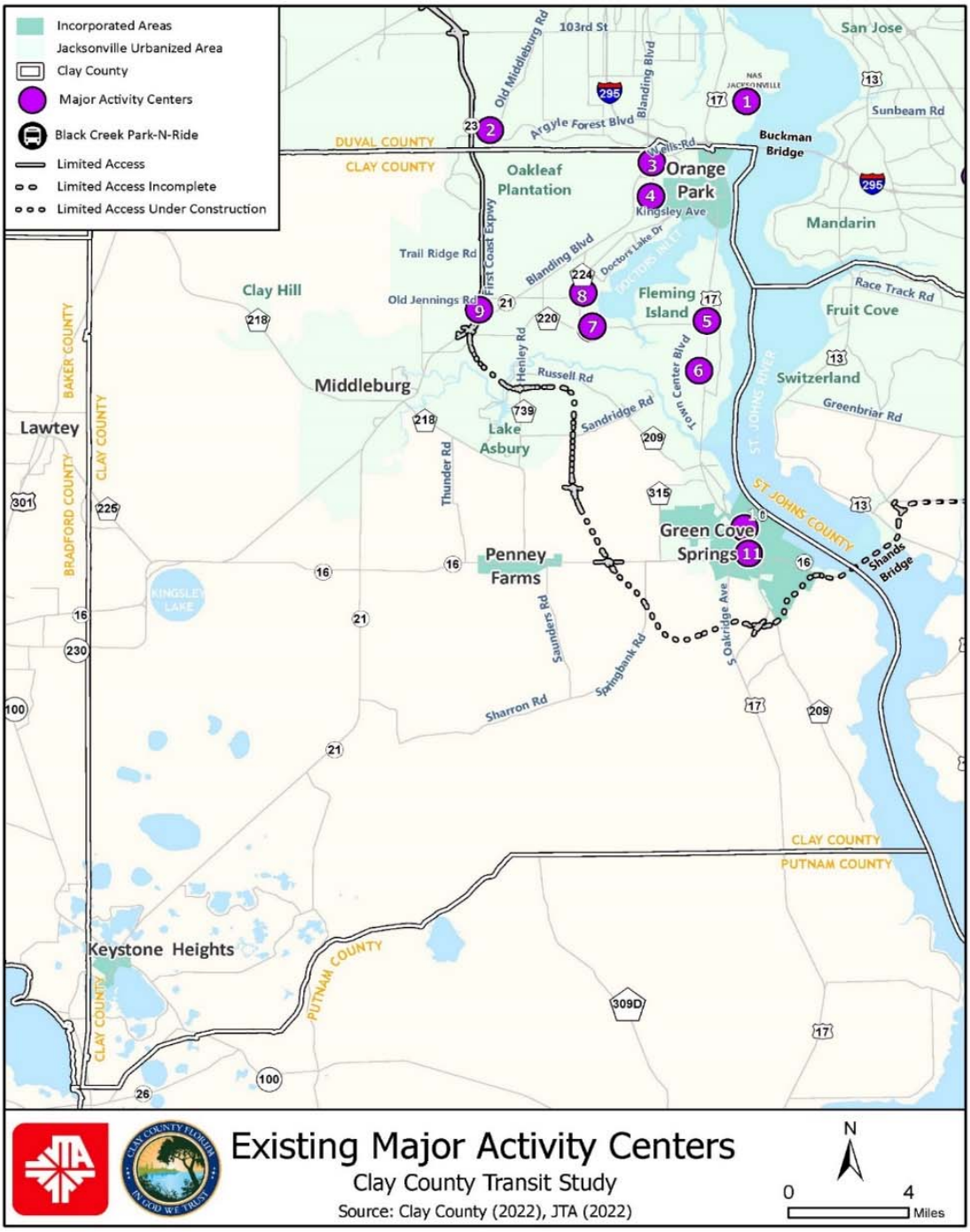


Figure 38 b: Service Framework Map (Ridership)

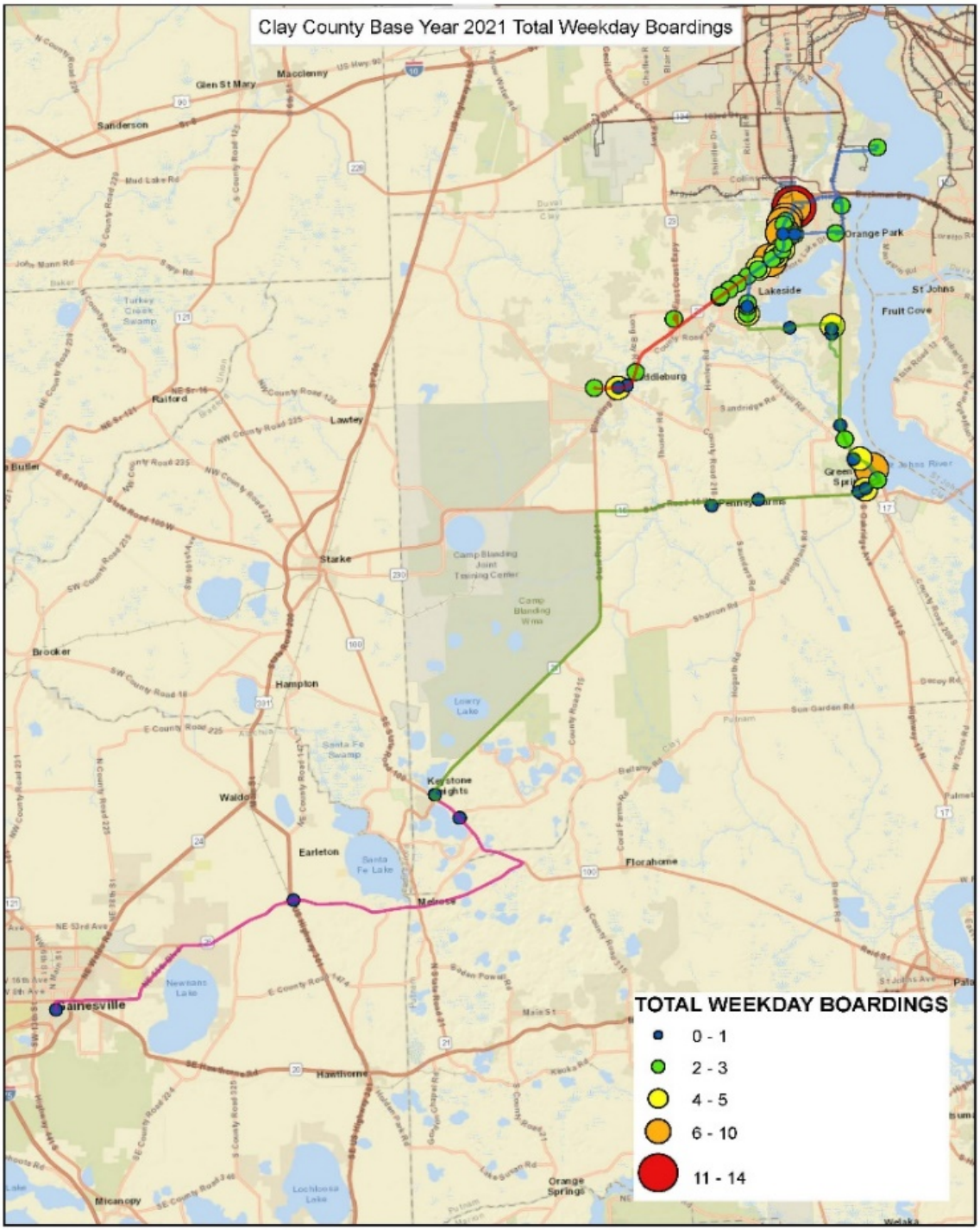
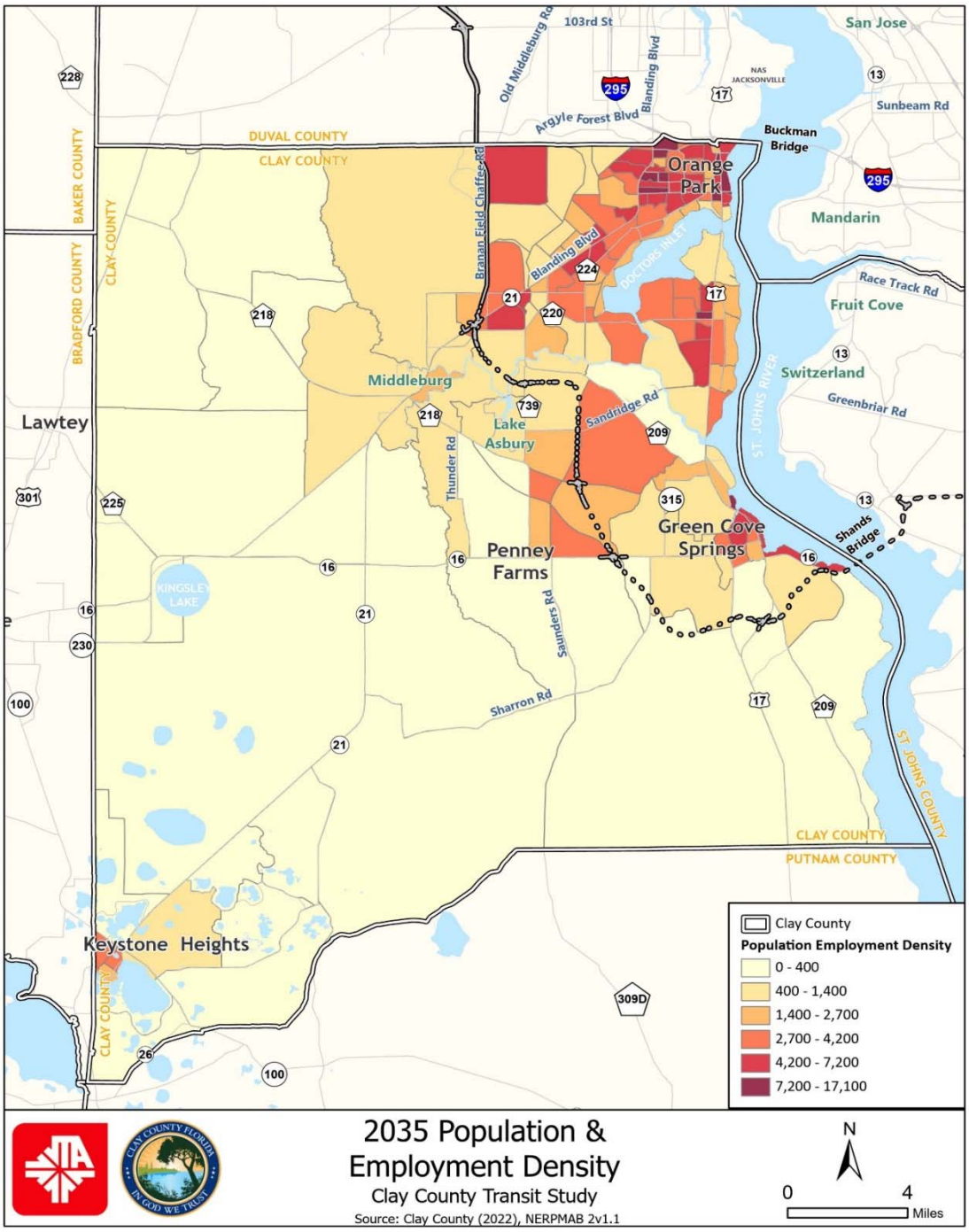


Figure 39 b: Service Framework Maps (Future Propensity/Density)



Industry thresholds for population and employment densities were used to determine what modes of service are most appropriate to serve Clay County's existing and future demand. The following table shows the thresholds by type and highlights those modes most appropriate for the existing and projected population and employment in Clay County including Local Bus, On-Demand Bus, and On-Demand Vanpool for local service, and Bus Raped Transit and Express Bus for regional trips to Central Business District employment in Jacksonville.

Table 30: Transit Mode Feasibility

Mode	Relative Cost	Recommended Density*
Rail (Heavy and Light)	$$$$$	30 – 60 residents per gross acre / 56 jobs per gross acre
Commuter Rail	$$$$$	Linked to CBD employment with sufficient local demand
Bus Rapid Transit	$$$$	17 residents and jobs / gross acre
Express Bus	$$	Ridership linked to CBD employment
Local Bus	$$	4 -5 dwelling units per net acre or 3 jobs per acre
On-Demand Bus	$	None
On-Demand Vanpool	$	None

*Source: * Guerra and Cervero (2011); Pushkarev and Zupan (1977) from Transit-Supportive Densities and Land Uses – A PSRC Guidance Paper (2015); TCRP*

The following sections detail the short-range, mid-range, and long-range service framework for CCT. The service framework forms the basis and foundation for the system network analysis and recommendations.

Short-Range Service Framework

During the operational analysis, several opportunities were identified to improve the financial, governance, and technology characteristics of the system for Clay County. These characteristics will play a key role in the short-term service framework as foundational items to system's efficiency and future service expansions.

Operations and Management

An evaluation is needed of the third-party operator contracts as well as agreements with other local partners to ensure consistency, equity, and decreased variability. Evaluating these existing contracts can lead to cost savings and improved efficiency of service delivery. This can help ensure that transit service remains affordable and accessible to all riders. In addition, CCT should evaluate FTA and FDOT grant sources for appropriateness and applicability to current and proposed services to continue diversifying and maximizing funding opportunities for the system.

Investing in technology is another important aspect of developing the short-term transit network. CCT should consider implementing APCs, an integrated fare collection system, integration with regional trip scheduling software, and real-time passenger information to improve the overall quality of service and provide a more convenient and efficient experience for transit riders. To better understand ridership trends and document service performance, adopting Key Performance Indicators (KPI) for service and system performance updates is recommended. This will provide a means of measuring progress and identifying areas for improvement, and by

making data-driven decisions, CCT will help to enhance the quality of transit service.

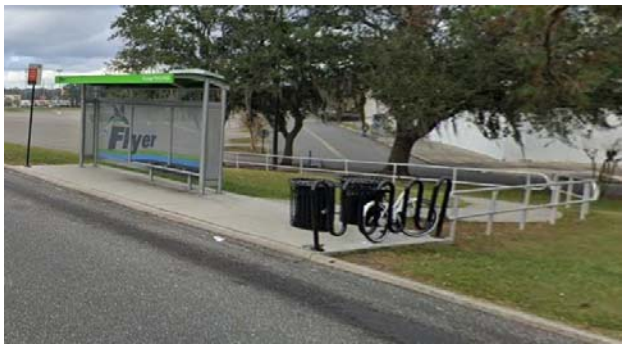
To improve awareness of local and regional transit availability, a public information and marketing campaign should be developed and implemented. The campaign could include offering trip training for transit dependent populations, seniors, and youth. In addition, rolling out a phased service change campaign to educate riders and allow time for driver training is also recommended.

Another key initiative recommended in the short-range operational framework is the development of a Transit Oriented Development (TOD) and Complete Street policy, and integration with local development processes on both the local jurisdiction and county level. TOD involves intense, mixed development around transit nodes. Policies for TOD focus on maximizing the amount of residential, business and recreational spaces within walking distance of public transportation. Additionally, Complete Streets policies focus on safe and accessible streets for all users. Those include people of all ages and abilities, regardless of whether they are travelling as drivers, pedestrians, bicyclists, or public transportation riders[13]

This will help to ensure that the transit system is being developed in a way that is consistent with local planning and development efforts and prioritizes the connectivity of transit, developments, and other modes of transportation, including bicycling and walking. Reviewing the existing Complete Street policy will allow for Clay County to meet new federal legislation guidelines for enacting Complete Street policies and incorporation of CCT into these policies.

Service Scenarios

The Short-Range Transit Network recommendations involve several key improvements to the transit system. One of the major focuses of this phase is to improve service efficiency and reliability, using available resources including rolling stock currently in operations. This will be achieved through minor rerouting to avoid low propensity areas and to reduce service overlap between routes. Additionally, bus stop location improvements will be made to enhance the overall transit experience for riders.



Orange Park Mall Bus Stop

Another key aspect of the short-range recommendations is the combination of the TD and Aging True services. This will combine all the demand response services that CCT currently operates to enable a more effective allocation of resources to improve service delivery. This consolidation of programs can be achieved administratively with minor modifications to existing policies and procedures, and contracts.

[13] USDOT

The following table shows the short-range framework strategies and recommendations.

Table 31: Short-Range Service Framework

Short-Range Service Framework	
The primary focus of the short-range service framework is to maintain cost neutral fixed-flex service while critical capital investments are prioritized, and grant funding is secured for new and expanded services.	
Operations and Management	• Evaluate third-party operator and Intergovernmental agreements to ensure consistency, equity, and decreased variability (true-up) • Coordinate with existing funding partners and identify additional grant sources • Collaborate with local agencies for strategic support of transportation for seniors • Invest in technology: APCs, Integrated Fare Collection System, Integration with Regional Trip Scheduling Software, Real-time Passenger Information • Adopt KPIs for service and system performance updates • Develop and implement public information and marketing campaign to improve awareness of local and regional transit availability • Roll out phased service change campaign • Conduct trip training for transit dependent populations, seniors, and youth • Begin Transit Oriented Development and Complete Street Policy development and integration with local development process
System and Service Network	• Short-Range Transit Network o Minor rerouting to avoid low propensity areas / insufficient road networks, and to eliminate non-productive overlapping services

Short-Range Service Framework	
System and Service Network	o Bus stop location enhancements to improve access to destinations, and to enhance directness of services o Maintain current service hours and days of service, while introducing improved frequency through rerouting of existing services o Combine TD and Aging True Services to eliminate redundancy, enhance operational efficiency, and improve accessibility to seniors • Perform a site selection analysis to identify regional mobility hub location for Orange Park and initiate procurement and development plans • Work collaboratively with JTA to reclassify Black Creek Park-N-Ride station as a Level 2 Mobility Hub and advance plans for enhanced infrastructure investments

Mid-Range Transit Network

One key recommendation for the Mid-Range Transit Network is leveraging the data collected by the Automated Passenger Counters (APCs) procured and installed in the Short-Range to evaluate the appropriateness of mid-term recommendations at the stop/segment level. This will enable a more targeted and data-driven approach to service planning. A comprehensive rerouting initiative aimed at enhancing coverage, improving frequency, and expanding service to provide evening and weekend services will be developed after analyzing the APC data. This will increase access to transit and improve the overall transit experience for riders.

A pilot project for microtransit service is also being recommended to provide more flexible and responsive transit options. A continued public information and marketing campaign will help to raise awareness of transit services and promote transit ridership. Efforts to promote transit-supportive development and improve first/last mile accessibility will continue, including the implementation of a Bus Stop Improvement Program (BSIP) to establish performance-based policies and procedures for selecting stops for improvements and identification of amenities by stop type.

Work will continue to advance the Regional Hub(s) initiative, including identifying grant funding and local match, as well as land procurement. These efforts will help to create a more integrated and efficient transit system, with better connectivity and more convenient access to transit services.

For all the following scenarios, service has been extended to Monday – Saturday for all the flex routes and on-demand services. Weekend service was a priority identified through feedback received during the public engagement process.

The following table shows the mid-range framework strategies and recommendations.

Table 32: Mid-Range Service Framework

Mid-Range Service Framework	
The primary focus of the mid-range service framework is to build on short-term initiatives and expand services to meet demand using upgraded technology and expanded capital and operational resources.	

Operations and Management	• Perform a Comprehensive Operational Analysis (COA)
	  o Incorporate Automated Passenger Counter (APC) data gathered in short term
	  o Reevaluate microtransit service for implementation in North-West and South-West quadrants of Clay County
	  o Evaluate impacts and opportunities created by Bonded Transportation Program
	• Initiate a Bus Stop Improvement Plan (BSIP)
	• Continue collaboration, marketing, and training initiatives
	• Evaluate feasibility of fare increase to support expanded services
	• Continue Transit Oriented Development and Complete Street Policy implementation

System and Service Network	• Mid-Range Transit Network
	  o Addition of new flex routes in areas demonstrating transit supportive propensity with sufficient densities
	  o Extended service hours
	  o Introduction of Saturday service for fixed flex and on-demand
	  o Additional bus stops, and enhancements to existing stops
	  o Transition of underperforming fixed flex routes to on-demand service
	• Continue to advance regional hub initiatives at Black Creek Park-N-Ride station and Orange Park

Long -Range Service Framework

The following table shows the long-range framework strategies and recommendations.

Table 33: Long-Term Service Framework

Long-Range Service Framework	
The primary focus of the long-range service framework is to build on short and mid-range initiatives and continue efforts to expand services to meet demand, including introduction of alternative fuels and Intelligent Transportation Systems (ITS) for congested transit corridors.	
Operations and Management	• Perform COA to analyze comprehensive rerouting recommended by Mid-term COA o Evaluate Microtransit Pilot Program performance • Continue BSIP implementation efforts. • Continue collaboration, marketing, and training initiatives • Continue Transit Oriented Development and Complete Street Policy implementation • Initiate evaluation of Intelligent Transportation Systems (ITS) and Alternative Fuel implementation feasibility and funding procurement
System and Service Network	• Continue to advance regional hub initiatives at Black Creek Park-N-Ride station and Orange Park

Chapter 7. Network Recommendations

Evaluating the current transit network and performing a COA demonstrates opportunities for service improvements. The service scenarios in this Transit Study were developed through analyzing the current CCT system, reviewing operational and performance metrics, and conducting public engagement and stakeholder feedback. These scenarios were separated into a Short-Range Transit Network and a Mid-Range Transit Network. The Short-Range Transit Network recommendations can be implemented in the next 1-3 years, and the Mid-Range Transit Network can be implemented in the next 5-10 years.

Short-Range Transit Networks typically refer to immediate improvements or adjustments made to an existing transit system, including adding or modifying bus routes, adjusting schedules, or improving passenger amenities. These transit networks are important because they allow transit agencies to respond quickly to changing transportation needs and improve the quality of service for transit riders. These improvements are usually cost-effective and can help increase ridership and improve the overall efficiency of the transit system. The changes made for the Short-Range Transit Network are designed to minimize negative impacts to passengers, with more substantial changes being incorporated into the Mid-Range Transit Network. With the completion of the 2020 US Census and the changing of the urbanized area boundary in Clay County, the density within the service area and what portion of the county is considered urban vs. rural has changed. For CCT to improve service and increase ridership, changes must be made to the existing transit network to capitalize on the growth that has occurred in the county.

Mid-Range Transit Networks refer to larger-scale changes to the transit system that may take years to implement, such as building new transit lines or reconfiguring existing ones. These changes may require significant capital investment and planning and are intended to provide more comprehensive and efficient transit services over the long term. Changes made for the Mid-Range Transit Network will incorporate observations and insights made during the implementation of the Short-Range Transit Network recommendations. By evaluating how immediate changes have affected the transit system, the Mid-Range Transit Network can provide better service and adequately take into consideration emerging passenger ridership trends.

For the Short-Range and Mid-Range Transit Networks, nine scenarios were developed in total. Of these scenarios, five were used for the Short-Range Transit Network, and the other four were used for the Mid-Range Transit Network. These scenarios included modified bus routes, the introduction of new bus routes, service schedule modifications, combining service and developing new microtransit service.

The service framework was vital to the development of the transit network scenarios. The service framework was distilled into assumptions that guided the inputs used in the TBEST modeling and route development process. These assumptions were broken into two levels of confidence; high and low, to evaluate the potential impacts of these external factors into the Short-Range and Mid-Range Transit Network. The level of confidence for these assumptions is presented in the following table.

Table 34: Scenario Development Assumptions

Level of Confidence	Assumptions
High	• Revenues: Section 5311 funds based upon federal funding formula allocations • Operation: Based upon typical transit system characteristics • 2020 US Census: Geographic Reduction of Urbanized Area • Gross Costs: Existing JTA/CCT system and estimates from peer agencies
Less Certain	• Net Costs: Existing JTA/CCT system and estimates from peer agencies • Funding: Section 5307 is largely dependent upon funding availability from federal and/or state programs • Ridership: Covid-19 Pandemic effect on estimated future

Short-Range Transit Network

Service Scenarios

The five service scenarios developed for the Short-Range Transit Network incorporated stakeholder feedback, public engagement survey responses, operational analyses and Clay County demographics. Each of these scenarios address system concerns or modifies service to stay in compliance with federal guidelines. Public and stakeholder feedback gathered during the public engagement process included these route-specific comments (bolded includes service or connections currently available between CCT and JTA):

- **Bus / Paratransit Service to Special Education Services in Jacksonville**
- **Connection from Fleming Island to Murray Hill in Jacksonville**
- **Connection to FSCJ in Downtown Jacksonville**
- **Service to Mayo Clinic**
- College Drive Initiative
- Clay County Libraries (Orange Park Public Library, Fleming Island Public Library, Middleburg-Clay Hill Public Library)
- **NAS Jacksonville**

Additional destinations and corridors that were identified in public meetings included the following (bolded includes corridors where CCT currently provides service):

- **Kingsley Avenue**
- **US 17**
- **Blanding Boulevard**
- County High Schools

- Camp Blanding[14]
- Clay County High Schools[15]
- Oakleaf Plantation

Table 35: Potential Short-Range Transit Network Scenarios

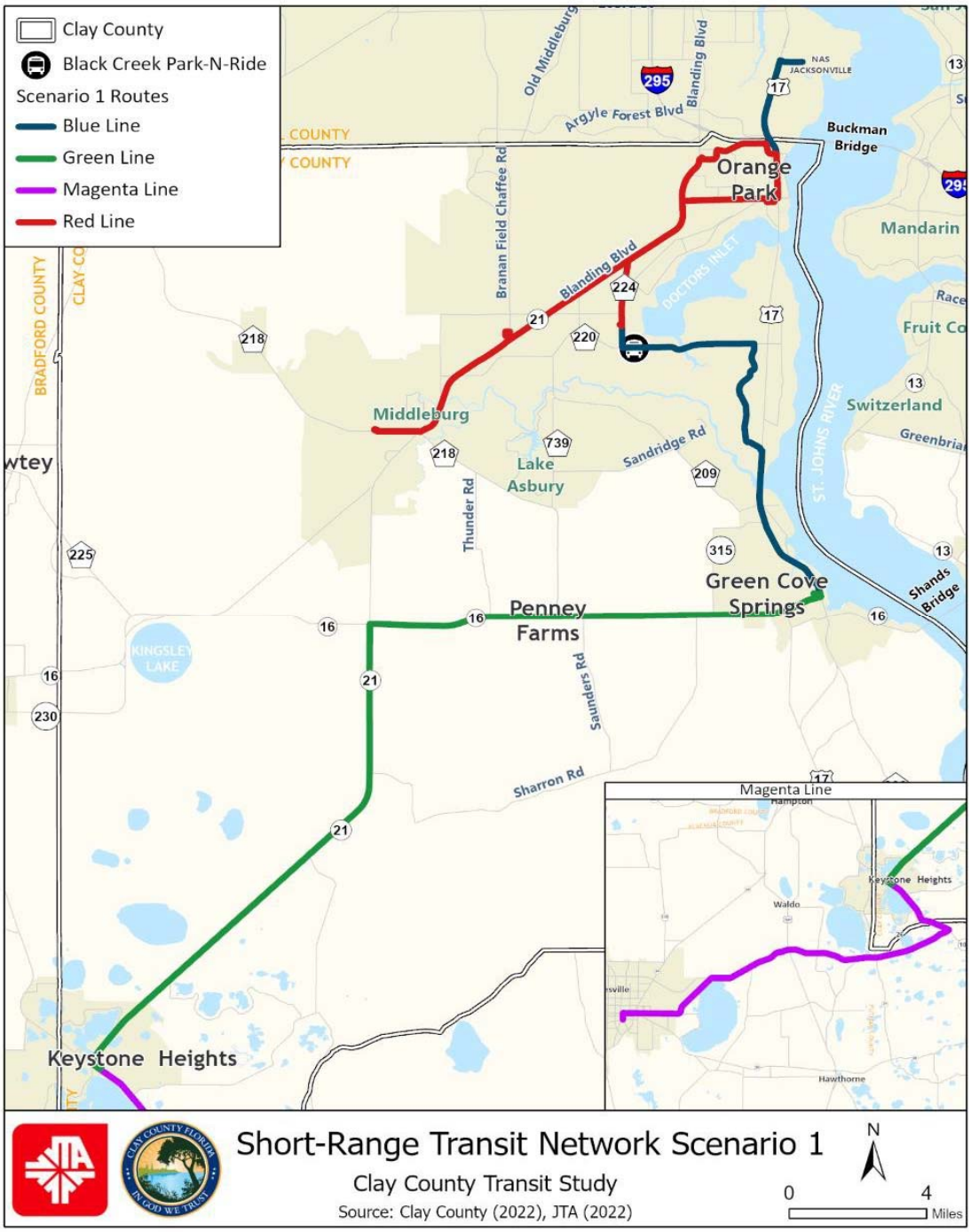
Scenario	Service Specifics	Additional Service Details
1A	Align flex service to service high density transit populations	The Green Route alignment is updated to improve the headway and frequency of its service. The Blue Route alignment and stop located is updated to improve transfers with the Green route in servicing the Middleburg VA clinic. The Magenta Route alignment is unchanged, with service being funded by Section 5311 funds.
1B	Align flex service to service high density transit populations **and** operate an additional hour in the evening	Same as 1A, except service is extended for an hour in the evening, Monday – Friday. The system does not operate on the weekend.
1C	Align flex service to service high density transit populations **and** operate Saturday service	Same as 1A, except service is extended for an hour in the evening, Monday – Friday. Service operates on Saturday, operating from 6:00 am to 7:00 pm.
2	Overlaps between routes would decrease	Red Route services Orange Park Mall, providing connections to the Blue Route and JTA routes. The Blue Route alignment provides better service to medical destinations on Fleming Island.
3	Operation hours would increase	The operating hours for the Red and Blue Routes are from 5:30 AM to 7:30 PM. The Blue Route alignment provides better service to downtown Green Cove Springs.

[14] The Green Route provides service on SR 21 which is in proximity to Camp Blanding, but there are currently no stops nearby.

[15] Orange Park High School is currently receiving service provided by the Red and Blue routes. Middleburg High School, Clay County High School, and Fleming Island High School are located adjacent to existing service, but there are no nearby stops. Keystone Heights High School and Oakleaf High School do not currently receive service

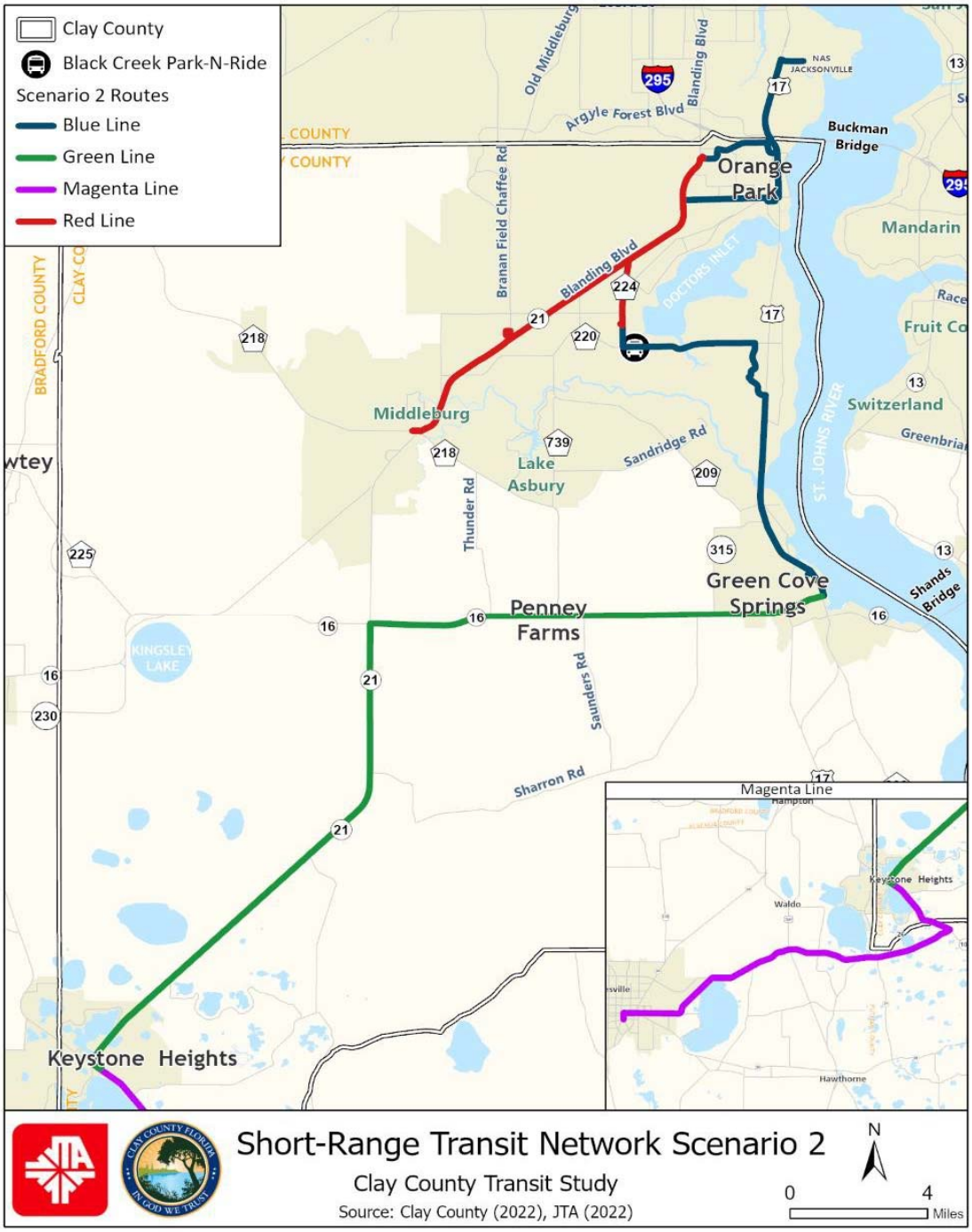
Scenario 1 presents the option to update route alignments to provide better service to the high-density portions of Clay County and improve frequency and headway.

Figure 40: Short-Range Transit Network Scenario 1



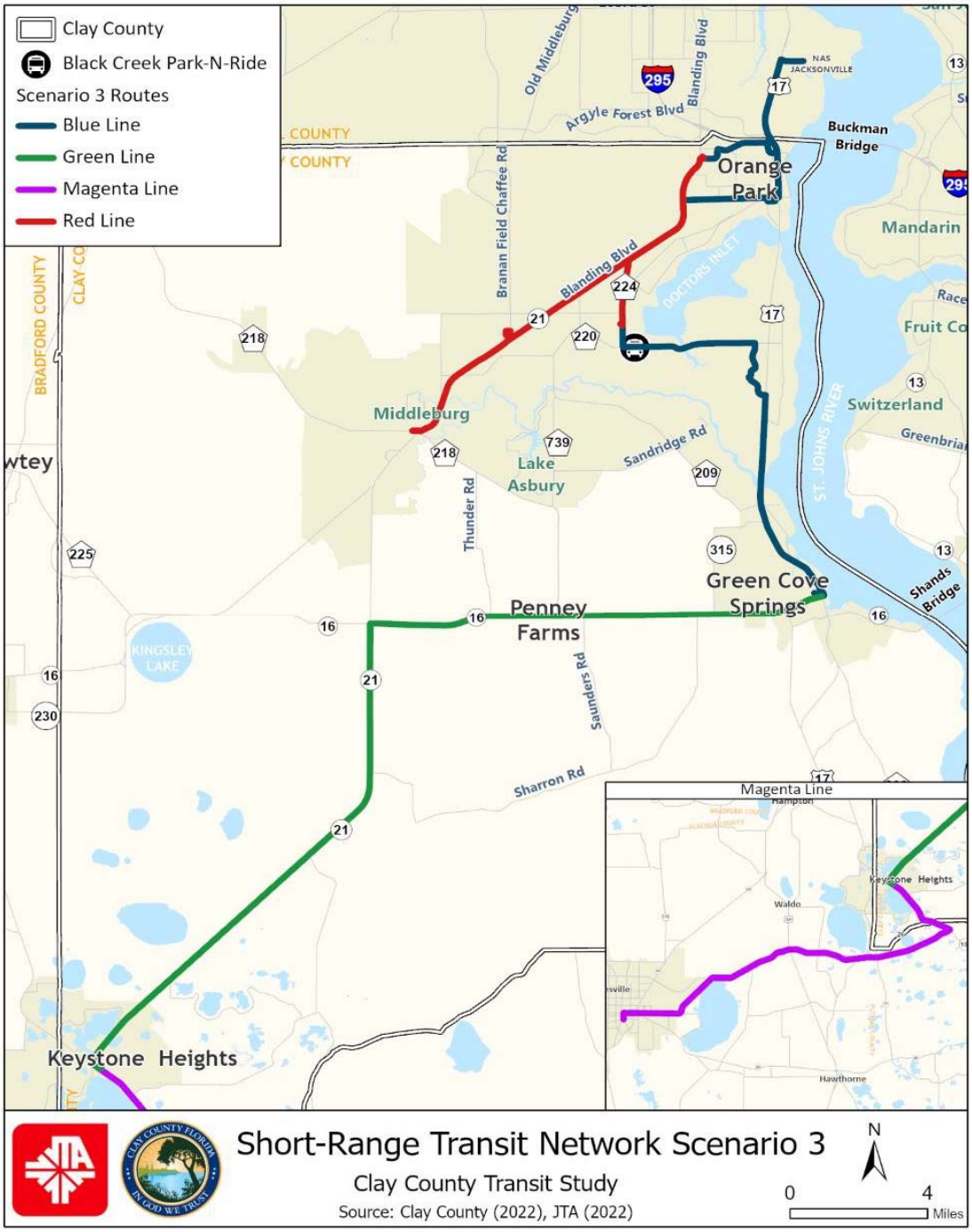
Scenario 2 presents the option to shorten routes to decrease headway and allow for frequency along bus routes. The Red Route would benefit from this, as it provides the same service that the Blue Route is providing in Orange Park. Shortening the Red Route would not affect passengers greatly, as they are still able to catch the Blue Route and transfer to CCT or JTA routes at the Orange Park Mall transfer stop.

Figure 41: Short-Range Transit Network Scenario 2



Scenario 3 increases the hours of operation for the busiest routes in the system. Service begins on the Blue and Red routes as early as 5:30 AM, accommodating requests from the public to increase the hours of operation. Service is extended to 7:30 PM for the Blue and Red routes and allows for later evening service in the highly dense portions of Clay County.

Figure 42: Short-Range Transit Network Scenario 3



Preferred Alternative

The Short-Range Transit Network provides increased transit connectivity along important corridors in Clay County while improving frequency and service hours for the entire fixed-route system. Scenario 1 was chosen as the preferred alternative for the Short-Range Transit Network. The preferred alternative includes three service alternatives that provide different levels of service, with route alignments for all four fixed routes consistent across all three service alternatives.

- Scenario 1A:
  - Service operates Monday – Friday, 5:30 am – 6:30 pm
- Scenario 1B:
  - Service operates Monday – Friday, 5:30 am – 7:30 pm
- Scenario 1C:
  - Service operates Monday – Friday, 5:30 am – 7:30 pm
  - Service operates Saturday, 6:00 am – 7:00 pm

Blue Route

The Blue Route continues to provide service between NAS Jacksonville and Green Cove Springs. This route provides twice daily trips to the Naval Air Station and ends outbound trips on Idlewild Avenue in Green Cove Springs. Transfers to the Green Route are available at the Clayton and Mildred Revels Senior Center in downtown Green Cove Springs. Major corridors on this route includes US 17, CR 220, College Drive, Blanding Blvd, Kingsley Avenue, and Wells Road. The neighborhoods serviced by this route include Bellaire- Meadowbrook Terrace, Orange Park, Lakeside, Fleming Island, and Green Cove Springs.

Service operates every 88 minutes, Monday through Friday, from 6:00 am – 7:00 pm. This route utilizes four vehicles that have an average speed of 15.4 miles per hour. The schedule of the Blue Route includes two daily trips to the Naval Air Station; these runs will have a round trip travel time of 168 minutes, and all other trips provide looped service in Orange Park.

The Blue Route has the second highest passenger trips of the four fixed-route services. The increased service hours and improved transfer opportunities with other fixed routes operated by JTA and CCT ensures that this route will continue to be highly utilized.

Red Route

The Red Route continues to operate from Middleburg to Orange Park, servicing the Lakeside and Bellaire-Meadowbrook Terrace communities. High volume corridors serviced by this route include Blanding Blvd, College Drive, Wells Road, US 17, and Kingsley Avenue. Important destinations along this route include:

- Orange Park Mall
- Ascension/St. Vincent's Hospital
- Middleburg VA clinic
- St. Johns River State College
- Middleburg Senior Center
- Orange Park Senior Center

The Red Route provides service from 6:00 am – 7:00 pm, Monday through Friday. Eleven (11) one-way revenue service trips are anticipated to run with an average headway of 124 minutes. This route utilizes two vehicles that have an average speed of 15.6 miles per hour, with a round trip length of 46.3 miles.The Red Route will be the most utilized route in the system, with an anticipated 7.9 boardings per service trip. This route performs financially very well, as the cost per passenger trip is the lowest out of all the routes in the system.

Figure 43: Short-Range Preferred Alternative Proposed Blue Route Alignment

Figure 44: Short-Range Transit Network Preferred Alternative Red Route Alignment

Green Route

The Green Route provides service between Keystone Heights and Green Cove Springs. This route operates on CRs 21 and 16, servicing the cities of Keystone Heights, Green Cove Springs, and the town of Penney Farms. Transfers are available to the Magenta and Blue routes at the Keystone Heights Senior Center and the Clayton & Mildred Revels Senior Center, respectively. While operating with one vehicle, this route has a 120-minute headway and a 104-minute round trip travel time.

Major attractors along this route corridor include:

- Camp Blanding
- Downtown Keystone Heights
- Mike Roess Gold Head Branch State Park
- Pier Station
- Clay County Animal Services
- Clay County Fairgrounds
- Downtown Green Cove Springs
- Clay County High School

The Green Route provides service from 7:30 am – 4:30 pm, Monday through Friday. This route has an average headway of 120 minutes, with a round trip travel time of 104 minutes. This route utilizes one vehicle that has an average speed of 35.5 miles per hour, with a round trip length of 61.7 miles.

This route continues to connect riders to the Middleburg VA clinic through a connection to the Blue Route, which also increases the available trip attractors and destinations accessed by riders of the Green Route.

Magenta Route

The Magenta Route provides service between Keystone Heights and Gainesville, in nearby Alachua County. Passengers can ride this route directly to downtown Gainesville, and transfer to routes in the Gainesville Regional Transit System. The major corridors this route travels on include State Routes 26 and 100. Lake Geneva and Orange Heights also receive service through two stops located within their communities. This route will provide four daily trips, Monday through Friday from 8:00 am to 5:00 pm. Round trip travel time is 73 minutes, and with one vehicle in service, the headway is 180 minutes.

Figure 45: Short-Range Transit Network Preferred Alternative Proposed Green Route Alignment

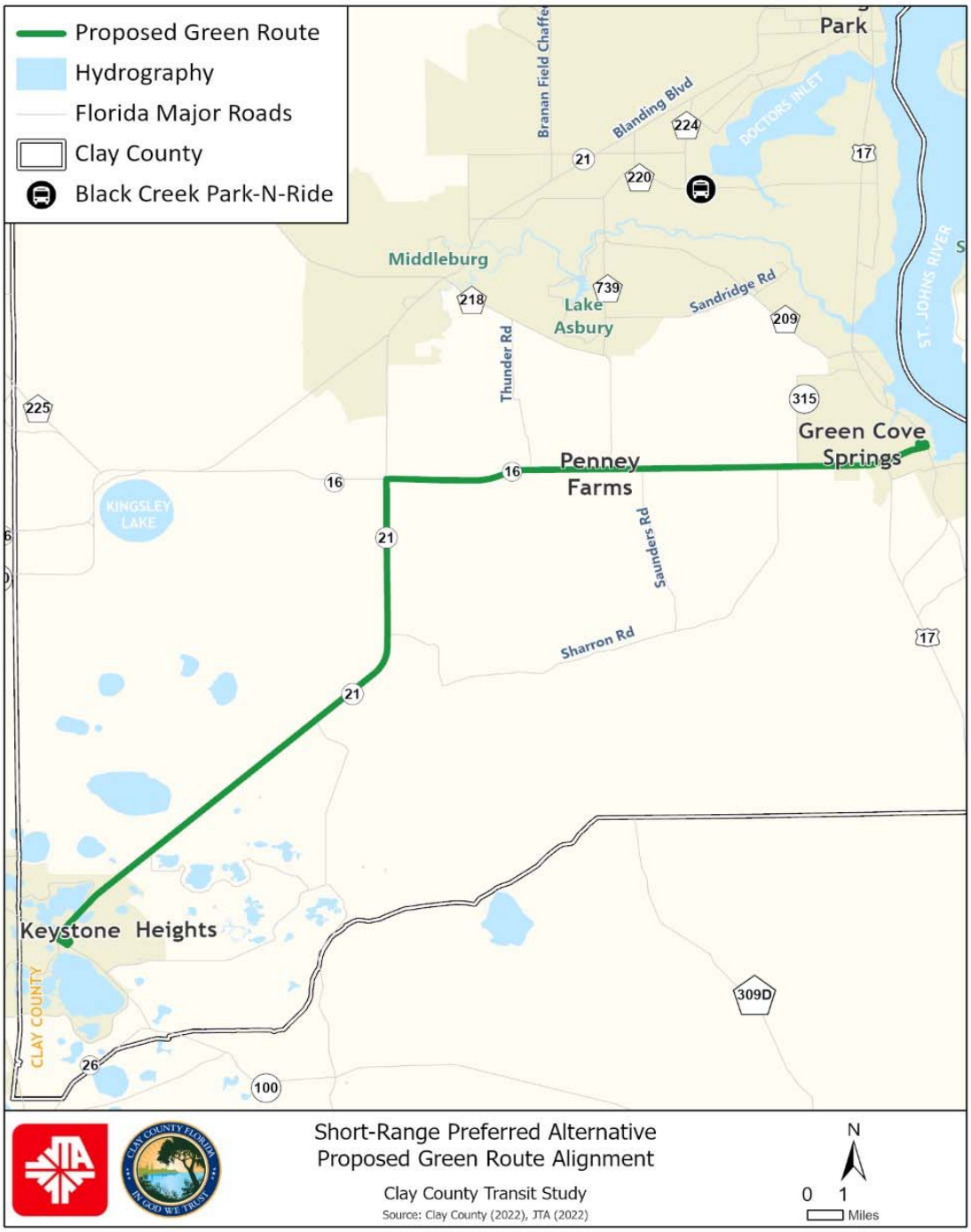
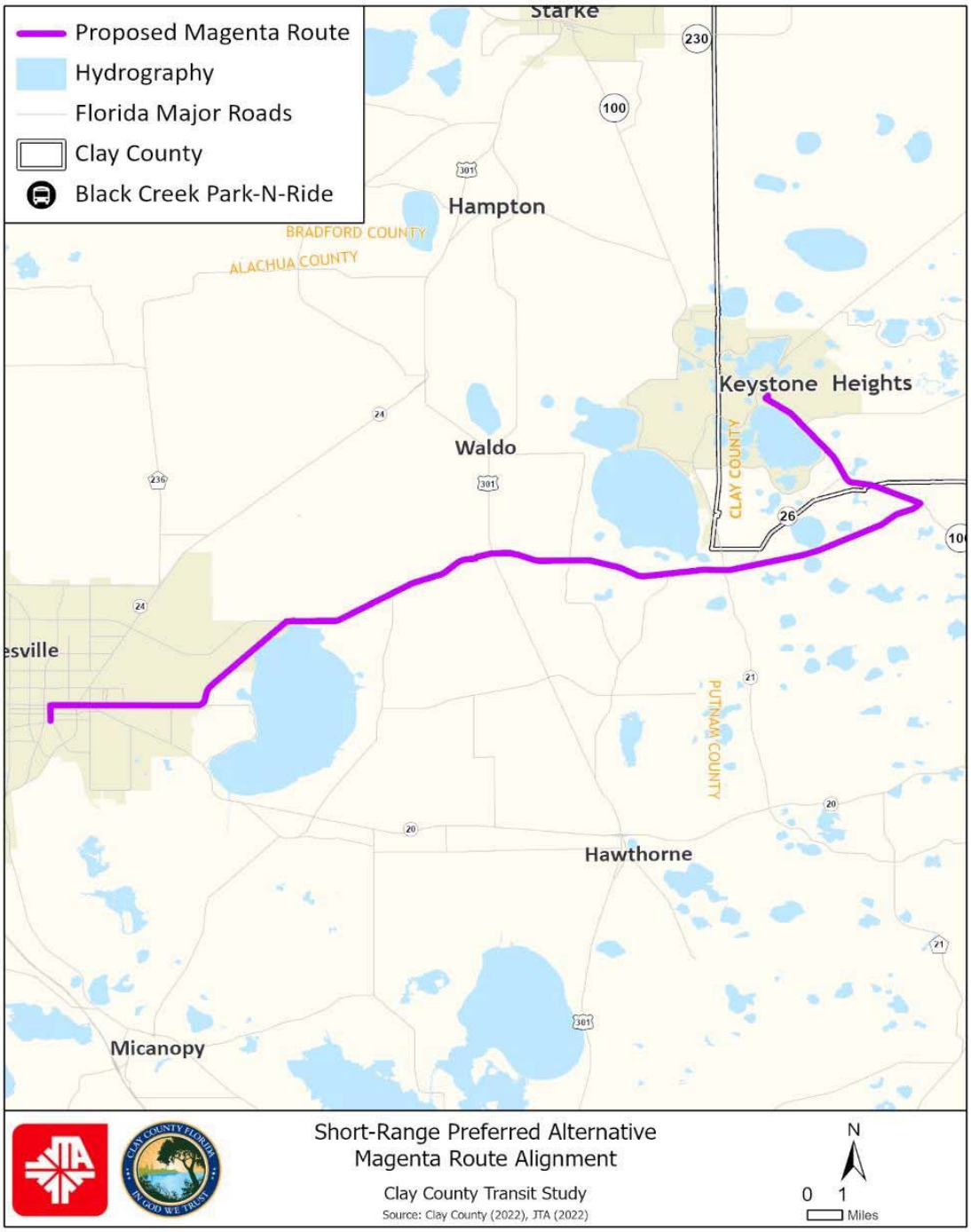


Figure 46: Short-Range Transit Network Preferred Alternative Proposed Magenta Route Alignment



Cost Analysis of Preferred Alternative

Cost analysis is a critical step in the planning and implementation of a transit system. It provides an in- depth understanding of the expenses associated with the system, which can help CCT determine the feasibility of the project and make informed choices about how to proceed. Several reasons why doing a cost analysis is essential for a proposed transit network include:

- Budget planning: This information is critical to securing funding from stakeholders, such as government agencies, and to ensure that there are no financial shortfalls during the implementation phase.
- Cost-effectiveness: This helps ensure that resources are being used efficiently and that the system provides the best possible service for its users.
- Feasibility assessment: If the costs of the proposed transit network exceed the available resources, then the project may not be viable, and CCT can look for alternative options.
- Risk mitigation: CCT can identify potential financial risks and develop plans to mitigate them.
- Transparency: It helps to build trust and credibility with stakeholders, which is important for securing support and funding.

A detailed breakdown of the costs associated with the preferred alternative is included below. It is broken out by several categories, including:

1. Contractor operating cost: This refers to the cost of hiring a contractor to operate the transit system. It includes expenses such as wages and benefits for drivers, fuel, vehicle maintenance, and insurance.
2. Passenger revenues: This includes the revenue generated from passengers who pay to use the flex routes. It is calculated based on the number of passengers and the fare structure (set at $1.00 per ride).
3. Aging True/Transportation Disadvantages revenues: This includes the revenue generated from the combined Aging True/TD paratransit service provided.
4. Net cost of service: This refers to the total cost of operating the transit system after subtracting passenger and Aging True/TD revenues from the total operating cost. This represents the amount of funding needed to operate the system.
5. State funding: This includes funding provided by the state government to support the transit system. Two separate sources of funding come from FDOT, including Transit Corridor funding and Service Development funding.
6. 5311 funds: This refers to funds provided by the FTA through the Section 5311 program to support rural transit systems. These funds can be used for a variety of purposes, including operating expenses and capital investments.
7. Local contribution: This includes funding provided by local governments to support the transit system. It can include a variety of sources, such as sales tax revenue, property tax revenue, and general fund contributions.
8. Clay County: This includes funding provided by the county government to support the transit system. This includes funding from sales tax revenue, property tax revenue, and general fund contributions.

Red and Blue flex routes receive funding from FDOT through the Transit Corridor program. This program provides discretionary funds that can be used to support new services within specific corridors when the services are designed and expected to help reduce or alleviate congestion or other mobility issues within the corridor. The Magenta Route is funded by 5311 funds, and the Green Route is funded through another FDOT program, the Service Development program. This funding program is to be used for projects that involve the use of new technologies; services, routes, or vehicle frequencies, and subject to a specified time of duration lasting no longer

than three (3) years. General Public Passenger Revenues were developed using the fare cost of $1 per trip. That specific information, including the local match which is covered by Clay County, and net cost of services by route and service, are listed in Table 36.

Table 36. Cost of Services

	Passenger Trips	Contractor Operating Cost	General Public Passenger Revenues	Aging True Revenues	Net Cost of Service	State Funding / Transit Corridor	State Funding / Service Development	Federal (5311 Rural Funds)	Local Contribution / Match
Red Line	19,049	$ 322,256.13	$ 19,049.28	N/A	$ 303,206.85	$ 113,052.00	--	--	$ 190,154.85
Blue Line	13,459	$ 505,593.41	$ 13,458.55	N/A	$ 492,134.86	$ 182,000.00	--	--	$ 310,134.86
Aging True + Transportation Disadvantage	15,349	$ 565,156.14	$ 28,024.70	$ 93,332.48	$ 443,798.96	$ 399,419.06	--	--	$ 44,379.90
Magenta Line	68	$ 125,413.00	$ 67.71	N/A	$ 125,345.28	--	--	$ 62,672.64	$ 62,672.64
Green Line	767	$ 169,162.43	$ 767.42	N/A	$ 168,395.01	--	$ 84,197.51	--	$ 84,197.51
Clay County Totals	48,692	$ 1,687,581.11	$ 61,367.67	$ 93,332.48	$ 1,532,880.96	$ 694,471.06	$84,197.51	$ 62,672.64	$ 691,539.75

Mid-Range Transit Network

The Mid-Range Transit Network builds upon the changes made in the Short-Range Transit Network, occurring in the next 3-5 years. Four scenarios were developed and explored as possible recommendations for the Mid-Range Transit Network, with the first scenario being chosen as the Preferred Alternative.

Service Scenarios

Four scenarios developed and explored as possible recommendations for the Mid-Range Transit Network are shown in Table 37.

Table 37: Potential Mid-Range Transit Network Scenarios

Scenario	Service Specifics	Additional Service Details
1	Introduce two new flex routes and consolidate existing routes	Two separate routes are introduced to provide service along major corridors and important urban cores including Red B Route servicing Middleburg to Green Cove Springs and the Orange Park Circulator. The Blue Route alignment is updated to consolidate service in Orange Park. The Magenta route switches to on-demand service only.
2	Switch multiple rural flex routes to On-Demand service only	Green and Magenta routes provide on-demand service only. New routes include Red B Route that provides service from Middleburg to Orange Park along CR 220 and US 17, and the Orange Park Circulator.
3	Introduce microtransit service	A new microtransit service provides service to the Oakleaf Plantation community. Red B route provides service to Green Cove Springs from Middleburg, and the Orange Park Circulator provides looped service in Orange Park.
4	Introduce flex service in Oakleaf Plantation	The Violet Route provides flex service from Oakleaf Plantation to Fleming Island along SR 23 and CR 220.

Scenario 1: Two New Flex Routes

Scenario 1 introduces two new flex routes that will provide service along desired corridors and important urban cores in Clay County, including:

- Baxley Rd
- Henley Rd
- CR 220
- US 17
- College Drive
- Middleburg
- Green Cove Springs
- Orange Park

To increase the frequency and decrease the headway of the Blue Route, the loop service it currently provides is discontinued as well as stopping service to NAS Jacksonville. This reduction in service would be picked up by the new flex route, the Orange Park Circulator. This route was requested by the public who used the service previously before being discontinued in 2019. The Magenta Route would change to on-demand service.

Scenario 2: Change Multiple Rural Flex Routes to On-Demand Service Only

This service switches the Green and Magenta routes from a rural flex service to on-demand service. These are the two flex routes with the lowest ridership and have high route lengths. Switching to on-demand would allow passengers in these communities (Penney Farms, Keystone Heights, and Camp Blanding) to be better serviced by door-to-door service. The Orange Park Circulator is also in this scenario, with the route modifications made to the Blue Route present in this scenario. A true crosstown bus route does not exist currently, and the proposed Red B2 would do that by providing service from Middleburg to Orange Park along CR 220 and US 17 (which is currently unserved between CR 220 and Kingsley Avenue).

Scenario 3: Introduce Microtransit Service

Scenario 3 introduces microtransit service to the Oakleaf Plantation community, providing an efficient and cost-effective service for residents in this community to connect with the broader Clay County. This service would be supplemented by the proposed routes from the first scenario (Scenario 1), which include the Red B from Middleburg to Green Cove Springs and the Orange Park Circulator.

Scenario 4: Introduce Flex Service in Oakleaf Plantation

The final scenario from the Mid-Range Transit Network introduces a flex service in Oakleaf Plantation, providing service from Oakleaf Plantation to Fleming Island. This route connects with the Red, Red B, Blue, and Orange Park Circulator. This scenario is identical to Scenario 3 with that exception, which provides a frequent flex service for Oakleaf Plantation and provide connections to other CCT routes and JTA.

Figure 47: Mid-Range Transit Network Scenario 1

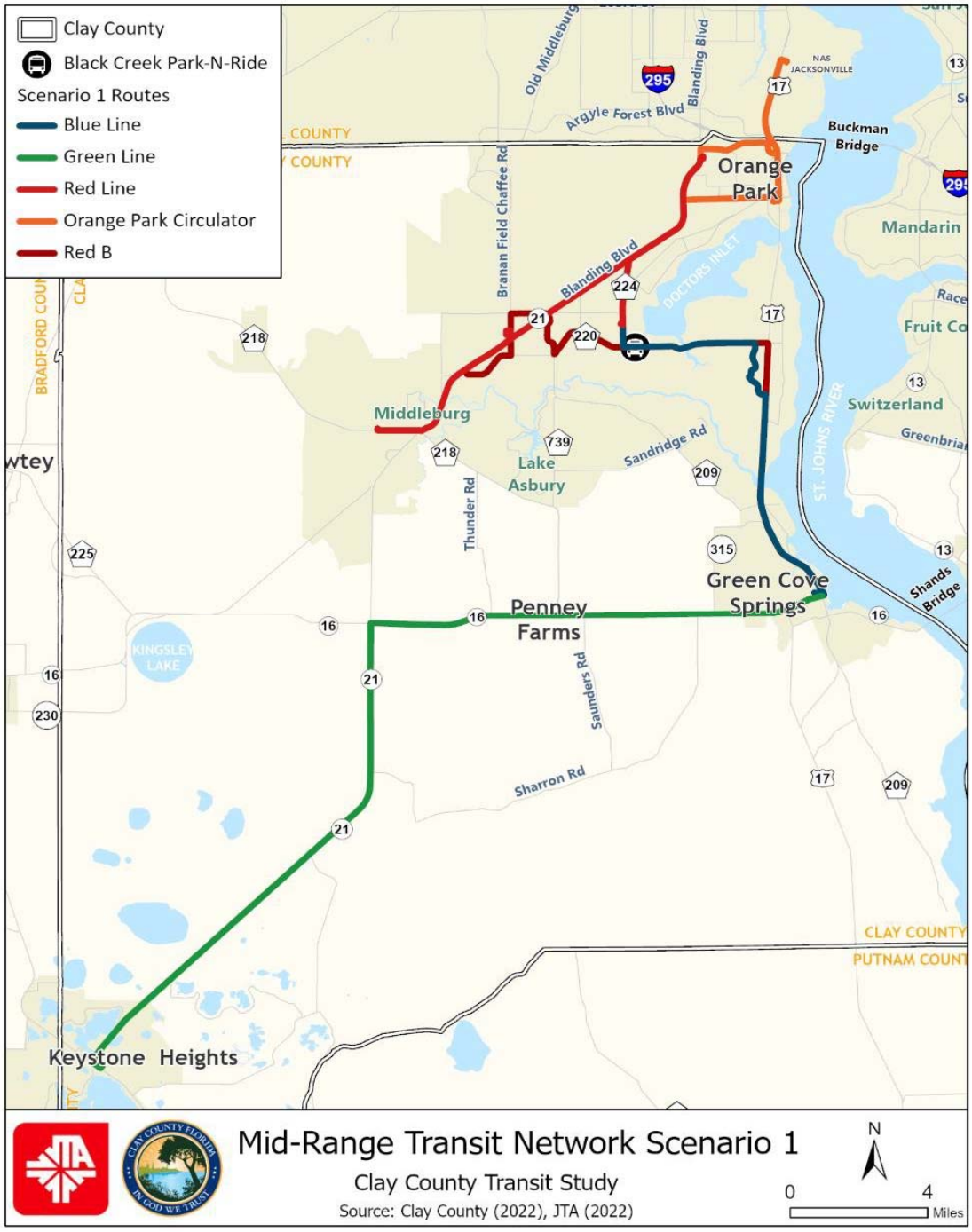
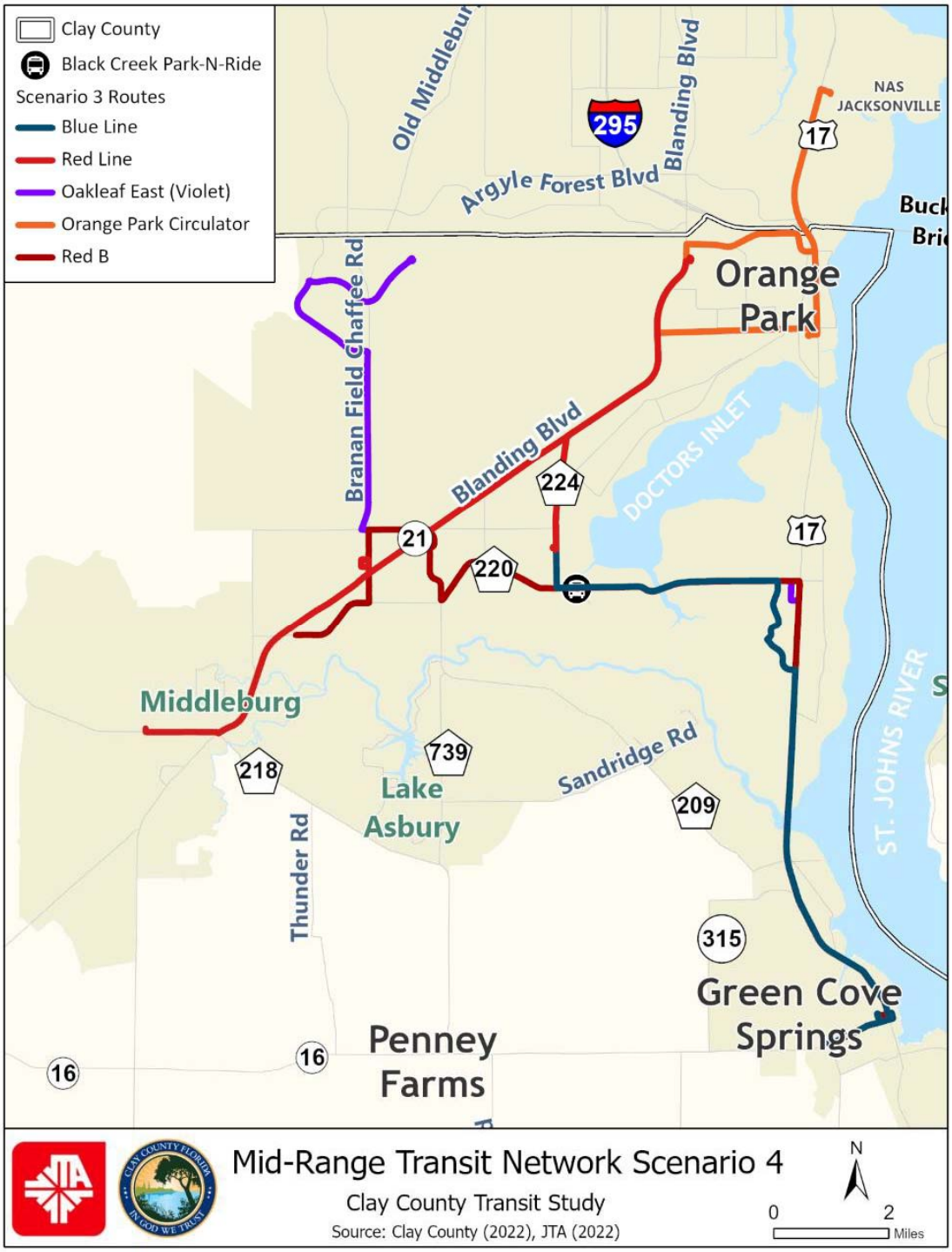


Figure 48: Mid-Range Transit Network Scenario 2

Figure 49: Mid-Range Transit Network Scenario 3

Figure 50: Mid-Range Transit Network Scenario 4



Preferred Alternative

The preferred alternative for the Mid-Range Transit Network is designed to increase access, promote ridership growth through improving existing routes and introducing new flex service. This alternative builds upon the changes made in the Short-Range Transit Network and combined with non-service improvements, such as technology investments, infrastructure improvements, and fare structure changes, will lead to increased ridership for CCT.

All routes have Saturday service, including the new Red B and Orange Park Circulator. The Magenta Route is discontinued, and flex service via the Green route will continue to operate in Keystone Heights.

Blue Route

The Blue Route improves frequency and headway by decreasing the service miles traveled. The route will operate in the same communities and corridor as in the Short-Range Transit Network, except it does not provide direct service to NAS Jacksonville. Riders can transfer to the Orange Park Circulator, however, which will provide service to NAS Jacksonville. This change in route alignment means that there will be an increase in frequency and daily revenue service trips.

The headway for this route is 98 minutes, with three vehicles now servicing this route. The Blue Route connects to the Orange Park Circulator, Red, and Red B flex routes at two major transfer sites at the proposed mobility hubs:

- Orange Park Mall – Red, Orange Park Circulator
- Black Creek Park-N-Ride station – Red B, Orange Park Circulator

Transfers to the Green Route occur at the Clayton and Mildred Revels Senior Center in Green Cove Springs.

Red Route

The Red Route has a reduction in the route alignment, due to the introduction of the Orange Park Circulator. This decreases the trip length for passengers from Middleburg and improves their overall trip through connections to the Red B, Blue, and Orange Park Circulator flex routes. The route alignment operates primarily on Blanding Blvd, with a deviation on College Drive to the Middleburg VA clinic. This route has major connections to additional JTA routes at the proposed Orange Park Mall Mobility Hub.

This route has a headway of 127 minutes, operating two buses with a round trip travel time of 128.3 minutes. The service span is 13.6 hours daily, providing 10 daily revenue service trips.

Green Route

The Green Route continues to provide the same service as the route in the Short-Term Transit Network. The service hours for this route continue to be 7:30 am – 3:30 PM, providing eight daily revenue service trips, Monday through Friday. Passengers can connect to the Blue Route at the Clayton and Mildred Revels Senior Center in Green Cove Springs.

Figure 51: Mid-Range Transit Network Preferred Alternative Proposed Blue Route Alignment

Figure 52: Mid-Range Transit Network Preferred Alternative Proposed Red Route Alignment

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Figure 53: Mid-Range Transit Network Preferred Alternative Proposed Green Route Alignment

Preferred Alternative

Red B

This new route travels from Middleburg High School to downtown Green Cove Springs. It provides connections to other routes, including the Red, Blue, Orange Park Circulator, and Green routes, and the major corridors for this route include Baxley Road, Henley Road, CR 220, and US 17. Important destinations along this route include:

- Middleburg High School
- Ascension/St Vincent's Hospital
- Doctors Inlet community
- Black Creek Park-N-Ride station
- Clay County Courthouse
- Clayton and Mildred Revels Senior Center

The route operates 14 daily trips, running with two vehicles from 5:30 am to 7:30 pm, with a 120-minute headway between two consecutive trips. The round-trip travel time for this route is 127 minutes.

This route also provides service to residential communities in Middleburg, making it a convenient option for residents in the area. These individuals can transfer to the Blue, Orange, and Clay Select routes at the Black Creek Park-N-Ride station, which can offer commuters additional transportation options to reach their destinations.

Orange Park Circulator

The Orange Park Circulator provides looped service around Orange Park, including deviations to NAS Jacksonville and Black Creek Park-N-Ride station (via College Drive). This service was highly requested during public feedback as it was a previous service offered by CCT.

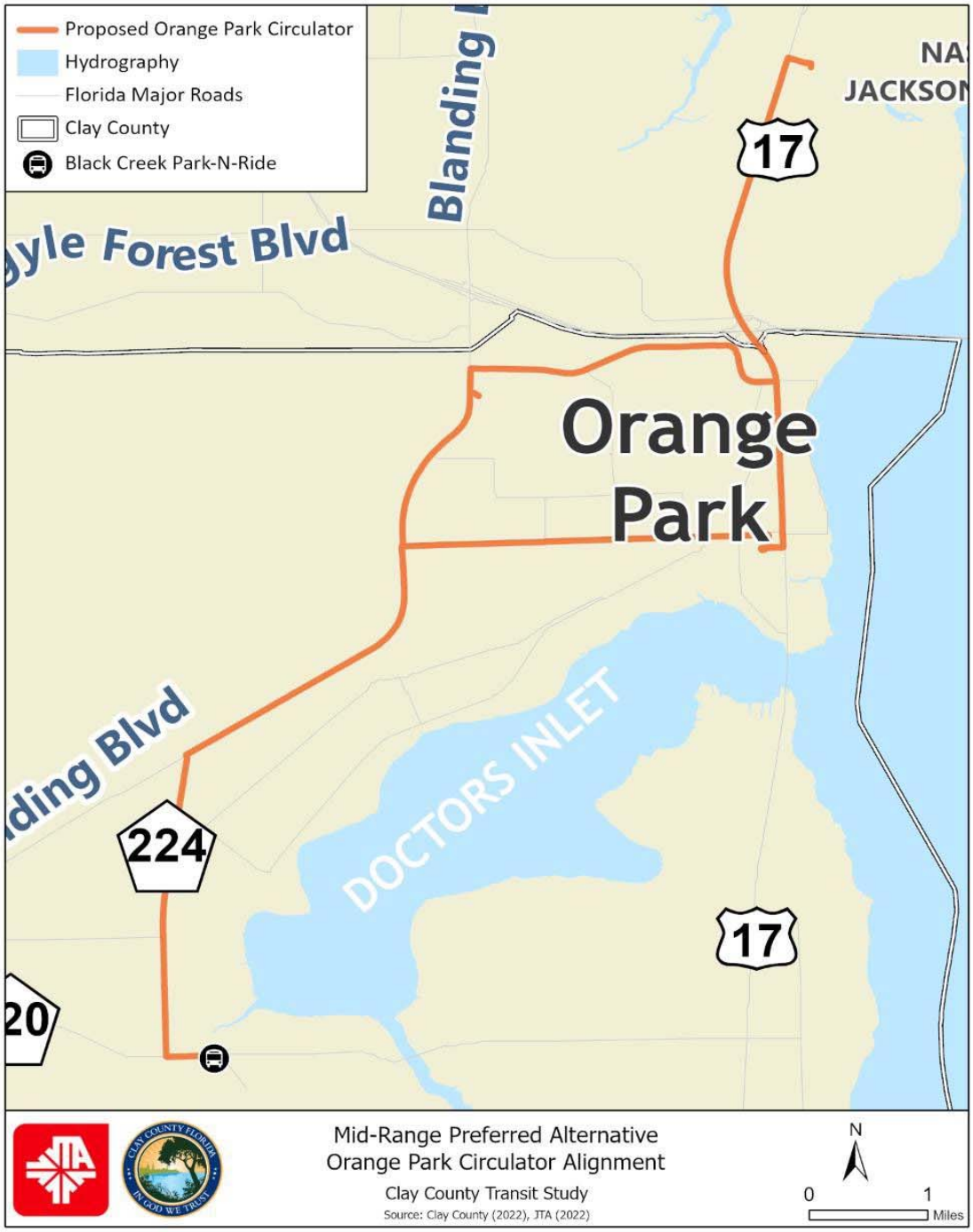
This route loops around Orange Park on Wells Road, US 17, Kingsley Avenue, and Blanding Blvd before heading south on College Drive to the Black Creek Park-N-Ride station. Twice daily, trips go to the NAS Jacksonville providing service that was formerly offered by the Blue Route. Stops that were previously serviced by the Blue and Red routes on and near Kingsley Avenue, including the Orange Park Senior Center, Orange Park Public Library, and the HCA Florida Orange Park Hospital are now serviced by the Orange Park Circulator.

At the proposed mobility hub at the Orange Park Mall, transfers are available to the Blue and Red routes, and JTA route #31. Riders can transfer to destinations further north into Duval County and further south, into Green Cove Springs.

There will be nine daily trips offered, with a headway of 102 minutes. The average round trip travel time is 127 minutes, with two vehicles offering service on this route. The route runs from 6:00 am to 7:00 pm, six days a week, with no service offered on Sunday.

Figure 54: Mid-Range Transit Network Preferred Alternative Proposed Red B Route Alignment

Figure 55: Mid-Range Transit Network Preferred Alt. Proposed Orange Park Circulator Alignment



Cost Analysis of Preferred Alternative

The cost projects developed for the preferred alternative are for FY 2028, within the 3-5 years of the Mid-Range Transit Network. The costs are broken out by route and service, including the Clay County Express Select service. For General Public Passenger Revenues, these were kept at $1 per trip. These figures can be viewed in Table 38.

Table 38: Mid-Range Transit Network Cost Analysis

	Passenger Trips	Contractor Operating Cost	General Public Passenger Revenues	Net of Cost Service	State Funding / Transit Corridor	State Funding/ Service Development	Federal (5311 Rural Funds)	Local Contribution / Match
JTA Overhead Operating Cost	--	$ 191,442	--	$ 191,442	--	--	--	$ 191,442
Red Line	23,257	$ 516,974	$ 23,257	$ 493,717	$ 124,258	--	--	$ 369,458
Blue Line	17,887	$ 844,898	$ 17,887	$ 827,010	$ 202,000	--	--	$ 625,010
Red B Line	22,275	$ 1,020,340	$ 22,275	$ 998,065	--	--	--	$ 998,065
Orange Park Circulator	38,642	$ 585,041	$ 38,642	$ 546,400	--	--	--	$ 546,400
Aging True + Transportation Disadvantage	24,720	$ 910,189	$ 45,134	$ 865,055	$ 778,550	--	--	$ 86,506
Magenta Line	420	$ 299,888	$ 420	$ 299,468	--	--	$ 149,734	$ 149,734
Green Line	1,120	$ 292,004	$ 1,120	$ 290,884	--	$ 145,442	--	$ 145,442
Clay County Express Select	2,628	$ 575,603	--	$ 575,603	$ 283,500	--	--	$ 292,103
Clay County Totals	130,948	$ 5,236,378	$ 148,734	$ 5,087,644	$ 1,388,308	$ 145,442	$ 149,734	$ 3,404,160

Chapter 8. Implementation Plan

The Clay County Transit Study includes a multifaceted and complex suite of recommendations that will require administrative efforts, development of new policies and partnerships, capital procurement, community engagement and education, and operational service changes. To position CCT for success, an Implementation Plan was developed and provides a detailed roadmap for how to achieve specific goals related to improving or expanding transit services. This implementation plan will help Clay County make informed decisions about how to allocate resources, prioritize projects, and overcome obstacles to implementation.

This implementation plan will include several components that are vital to planning the future of CCT. These components include:

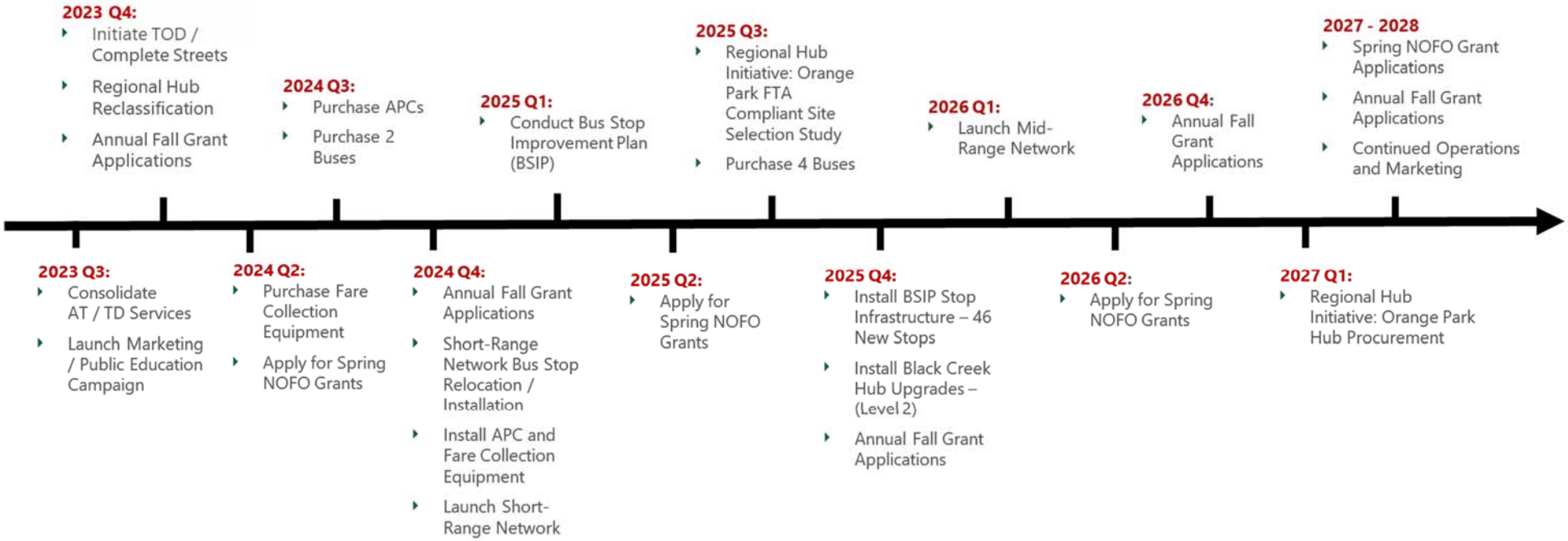
- Implementation schedule
- Financial plan for the proposed short-term and mid-term transit networks
- Anticipated revenues by source
- Monitoring program for tracking performance measures

Implementation Schedule

As described in the Master Plan Service Framework, the primary focus of the short-range service framework is to maintain cost neutral fixed-flex service while critical capital investments are prioritized, and grant funding is secured for new and expanded services. The primary focus of the mid-range service framework is to build on short-range initiatives and expand services to meet demand using upgraded technology and expanded capital and operational resources. The long-range service framework focuses on continued efforts to expand services to meet demand, including introduction of alternative fuels and Intelligent Transportation Systems (ITS) for congested transit corridors.

The following implementation timeline provides a sequential view of implementation tasks for key short-range and mid-range recommendations. This timeline demonstrates how tasks are scheduled to strategically position CCT for implementation, such as securing funding, launching a public information campaign, and procuring capital rolling stock before service modifications are undertaken.

Figure 56: Short- and Mid-Range Implementation Timeline



The following implementation schedule provides more detail and identifies improvements that have a recommended start and end date (orange), versus activities that reoccur on an annual basis (gray).

Table 39. Short and Mid-Range Recommendations Implementation Schedule

Improvement Classification	Recommendation	2023	2024	2025	2026	2027	2028
Operational	Combining Aging True and TD Services (Contractual)						
Operational	Initiate Marketing, Public Information, and Training Campaign						
Policy	Initiate TOD and Complete Streets Policy Development						
Policy	Regional Hub Initiative: Reclassify Orange Park and Black Creek as Level 2						
Administrative	Apply for Formula and Discretionary Grants in Fall Application Cycle						
Capital	Purchase Fare Collection Equipment						
Administrative	Apply for Discretionary Grants – Spring NOFO						
Capital	Purchase Automated Passenger Counters						
Capital	Purchase 2 Cutaway Mid-Duty Service Expansion Vehicles – Short-Range						
Capital	Purchase/Installation of Short-Range Optimization Bus Stop Amenities						
Operational	Install Fare Collection Equipment and Automated Passenger Counters						
Operational	Short-Range Network Fixed Flex Optimization on Blue and Green Routes						
Planning	Conduct BSIP Analysis						
Planning	Regional Hub Initiative: Orange Park Site Selection Study						
Capital	Purchase 4 Cutaway Mid-Duty Service Expansion Vehicles – Mid-Range						
Capital	Implementation of BSIP Recommendations for 46 New Stops						
Capital	Regional Hub Initiative: Black Creek Park-N-Ride Enhancements						
Operational	Mid-Range Network: Expanded Fixed Flex and Demand Response						
Capital	Regional Hub Initiative: Orange Park Implementation						
Planning	Complete COA						

Financial Plan for Proposed Short-Term and Mid-Term Transit Networks

Understanding the financial elements of the proposed service modifications is the foundation for implementation. A full financial analysis was completed, and a financial plan was developed outlining the costs and revenues on an annual basis. Table 40 displays the five-year financial plan summary.

Table 40: 5 Year Financial Plan Summary

Source	2023	2024	2025	2026	2027
Capital	$ 75,000	$ 1,195,228	$ 1,853,928	$ -	$ 264,000
Operating	$ 200,000	$ 2,332,975	$ 2,329,361	$ 4,658,983	$ 5,002,373
Federal / State Funding	$ -	$ 2,104,039	$ 2,441,192	$ 1,493,694	$ 1,791,685
Local Contribution	$ 275,000	$ 1,424,165	$ 1,573,097	$ 3,020,657	$ 3,327,995

Anticipated Revenues by Source

Funding History

The distribution of Urbanized Area Formula Funds (49 U.S.C. 5307 grant) to transit providers in urbanized areas of the United States is administered by the FTA. An urbanized area is an incorporated area with a population of 50,000 or more that is designated as such by the U.S. Census Bureau. However, for urbanized areas with population under 200,000, the federal funds are apportioned to the governor of each state for distribution. The distribution of these funds is overseen by the FDOT. For urbanized areas with 200,000 in population and over, funds are apportioned and flow directly to a designated recipient selected locally to apply for and receive federal funds, which has traditionally been JTA. The estimated population for the Clay County urbanized area according to the 2020 census data is below the 200,000-population threshold, therefore Clay County is a subrecipient to FDOT for all federal transit apportionments.

Historically, JTA as the designated recipient, receives 5307 urbanized formula funding on behalf Clay County which they currently maximize. In addition, the county also receives FTA 5311 Rural Area funds, FTA 5310 Enhanced Mobility of Seniors & Individuals with Disabilities, FDOT Service Development and FDOT Transit Corridor funds. A snapshot of the current funding is provided in Table 41.

Table 41: CCT Current Funding Sources

Funding Type	Description	Match
Federal	Formula Grants for Rural Areas	50 %
Federal	Enhanced Mobility of Seniors & Individuals with Disabilities	20% Capital / 50% Operating
State	Service Development	100% Funded
State	Transit Corridor	100% Funded
State	FCTD Trust Fund – Trip and Equipment Grant Program	0% -10%

FTA Section 5310 - Enhanced Mobility of Seniors & Individuals with Disabilities

This federal grant program provides formula funding to states for the purpose of assisting private nonprofit groups in meeting the transportation needs of older adults and people with disabilities when the transportation service provided is unavailable, insufficient, or inappropriate to meeting these needs. Funds are apportioned based on each state's share of the population for these two groups. FDOT serves as the direct recipient for these formula funds for rural and small urban areas, while in large urban areas, the Governor chooses a designated recipient.

Direct recipients have flexibility in how they select subrecipient projects for funding, but their decision process must be clearly noted in a state/program management plan. The selection process may be formula-based, competitive or discretionary, and subrecipients can include states or local government authorities, private non-profit organizations, and/or operators of public transportation. JTA is the state designated agency through which these funds currently flow.

FTA Section 5311 - Formula Grants for Rural Areas

This grant program provides capital, planning, and operating assistance to states to support public transportation in rural areas with populations of less than 50,000, where many residents often rely on public transit to reach their destinations. Subrecipients for the 5311 program may include state or local government authorities, nonprofit organizations, and operators of public transportation or intercity bus service. Clay County apply for their portion of the 5311-grant funding. Additionally, the federal share is 80 percent for capital projects, 50 percent for operating assistance, and 80 percent for ADA non-fixed route paratransit service. These funds are available to the States during the fiscal year of apportionment plus two additional years (total of three years and are apportioned to States based on a formula that includes land area, population, revenue vehicle miles, and low income individuals in rural areas.

FDOT – Innovative Service Development Grant (ISD)

The Florida Commission for the Transportation Disadvantaged (FCTD) administers the TD Trust Funds, pursuant to Section 427.0159, Florida Statutes (F.S.). This program is competitive funding designed to support ISD grant projects. These funds are contingent upon final approval by the Florida Legislature and the Governor. The program is selectively applied to determine whether a new or innovative technique or measure can be used to improve or expand public transit services. Service Development Projects specifically include projects involving the use of new technologies, services, routes, or vehicle frequencies, the purchase of special transportation services and other such techniques for increasing service to the riding public. Projects involving the application of new technologies or methods for improving operations, maintenance, and marketing in public transit systems are also eligible for Service Development Program funding. Service

Development Projects are subject to specified times of duration, but no more than three years. If determined to be successful, Service Development Projects must be continued by the public transit provider without additional Public Transit Service Development Program funds.[16]

Funding from this grant program provides ninety percent (90%) of project costs, with the applicant providing a ten percent (10%) cash match generated from local sources. However, Clay County has received 100% of these funds over the last fiscal year.

FDOT - Transit Corridor Program

The FDOT Transit Corridor Program is authorized in Chapter 341, Florida Statutes and specific program guidelines are provided in FDOT Procedure Topic Number 725-030-003. The Transit Corridor Program provides funding to Community Transportation Coordinators or transit agencies to support new services within specific corridors when the services are designed and expected to help reduce or alleviate congestion or other mobility issues within the corridor. Transit Corridor funds are discretionary and are distributed based on documented need. Transit Corridor Program funds may be used for capital or operating expenses. Eligible projects must be identified in a Transit Development Plan (TDP), Congestion Management System Plan, or other formal study undertaken by a public agency.

FDOT – Transit Service Development Program

The FDOT Transit Service Development Program is authorized in Chapter 341, Florida Statutes and specific program guidelines are provided in FDOT Procedure Topic Number 725-030-005. The program is selectively applied to determine whether a new or innovative technique or measure can be used to improve or expand public transit services.[17] Projects can include the use of new technologies; service, route, or vehicle frequencies; purchase of special transportation service; and other methods of increasing public transit services. Projects have specified timeframes which can be no longer than three years in duration. If the project is successful, they must be continued by the provider without additional Service Development funding. Projects must be included in the TDP or in the TDSP, if applicable.

FCTD Trip & Equipment Grant

The Florida Commission for the Transportation Disadvantaged (FCTD) administers the Transportation Disadvantaged Trust Fund (TDTF), which is used to purchase trips for individuals with disabilities, persons of low income, older adults, and at-risk children to access critical life activities within their community. The majority of TDTF dollars are disbursed through the Trip & Equipment (T&E) Grant program. Each year, the Florida Legislature appropriates funding to the FCTD Grant programs for the state fiscal year (July 1 through June 30).[18] The FCTD then allocates T&E Grant funding to each of the counties based on the following four variables:

- TD Eligible Population – 5% of the funding is allocated based on a county's estimated TD eligible population (individuals living with a disability, persons living below poverty, and adults who are 65 or older), as reported by the U.S. Census Bureau's American Community Survey.
- Centerline Miles of Public Roads – 5% of the funding is allocated based on a county's total miles of public roads, as reported by the Federal Highway Administration (FHWA).

[16] FDOT Transit Corridor Program
[17] https://www.fdot.gov/docs/default-source/transit/documents/TransitResourceGuide.pdf
[18] FCTD Trip & Equipment Grant

- T&E Grant Funded Services (Paratransit Trips, Miles, and Bus Passes) – 30% of the funding is allocated based on a county's performance in delivering TD "non-sponsored" services reimbursed under the T&E Grant, as reported on monthly invoices submitted by the county's Community Transportation Coordinator.
- Base Funding – 60% of the funding is based on a percentage of a county's total allocated amount under the T&E Grant from the previous fiscal year. This ensures a certain level of stability in funding year-to-year.

Clay County – Approved FDOT 5-Year Work Program

The state approved five-year work program includes current and projected funding amounts for the CCT services by route. These figures were used to establish the baseline and projected capital and operational funding levels for the five-year implementation plan. This financial plan was developed utilizing the anticipated revenues shown in Table 42 for each service type and incorporated with the anticipated operating and capital revenues and projected expenditures.

Table 42: Clay County – FDOT 5-year Work Program Snapshot

Grant Number	Grant Description	Fiscal Year	Funding amount	Funds Type	Percentage of Funding	Clay County projected Share
G2445	Clay County Red Line	FY 22/23	$ 113,052	Transit Corridor	100%	
		FY 23/24	$ 115,000	Transit Corridor	100%	
		FY 24/25	$ 117,000	Transit Corridor	100%	
		FY 25/26	$ 120,000	Transit Corridor	100%	
G2450	Clay County Blue Line	FY 22/23	$ 182,000	Transit Corridor	100%	
		FY 23/24	$ 186,000	Transit Corridor	100%	
		FY 24/25	$ 190,000	Transit Corridor	100%	
		FY 25/26	$ 194,000	Transit Corridor	100%	
G2451	Clay County Express Select	FY 22/23	$ 262,250	Transit Corridor	50%	Clay County Project share $131,125
***New PTGA	Clay County Express Select	FY 23/24	$ 266,000	Transit Corridor	100%	
	Clay County Express Select	FY 24/25	$ 270,000	Transit Corridor	100%	
	Clay County Express Select	FY 25/26	$ 274,500	Transit Corridor	100%	
G2444	Clay County Green Line	FY 22/22	$ 584,000	Service Development	50%	Clay County Project share $292,000
G1A10	Clay County Magenta Line	FY 18/19	$ 447,118	5311, Formula Grant for Rural Areas	50%	Clay County Project share $223,559
G2998	Clay County TD Service	FY 22/23	$ 538,939	FCTD Trip and Equipment Grant Program	90%	Clay County Project share $53,893

**** Assumptions: A new agreement will occur here to allow funding to become 100%*

According to funding agreements between Clay County and JTA, JTA is permitted to use the funds granted by Clay County to administer, implement, and provide the transportation services on behalf of Clay County. The projected cost of services for each route is as detailed below:

Red and Blue Flex Routes

These Lines were funded 100% by a FDOT Grant that was anticipated to expire in December 2022. Upon expiration, FDOT funding will decrease to 75%. Clay County, in consideration of JTA's activities in providing these services, agrees to pay to JTA on a cash reimbursement basis for services rendered in connection with these lines, an amount estimated at $86,678.00.

Magenta Line

Clay County, in consideration of the FTA 5311 Rural Public Transit Operating Grant for funding the Magenta Line public transportation route serving residents in the southern part of Clay County having been applied for by JTA on behalf of and at the request of Clay County, agrees to pay the local matching funds requirement of this grant in an amount estimated at $130,287.00.

Green Line

Clay County, in consideration of a fifty percent (50%) share of the FDOT Service Development Grant totaling $584,000.00 for a three-year period for the Green Line, agreed to provide a total of $292,000.00 over the three-year grant period which began in 2022. The FY 2022 match was calculated at approximately $97,500.00. This amount represents one-third of the total three-year grant award. There are remaining funds available under the FDOT Grant. Accordingly, Clay County's FY 2023 match is calculated at $8,427.00. The estimated match for Fiscal years 2024 and 2025 is estimated at $97,500.00 per year.

TD Program

Clay County, in consideration of JTA's activities is providing essential services to the disadvantaged of the county, and in order to replace lost State TD Program funding, agrees to pay to JTA on a cash reimbursement basis for services rendered in connection with the TD Program, an amount estimated at $281,854.00.

Potential Funding

The FTA administers competitive grant programs that provide transit agencies with opportunities to secure supplemental funding even though not historically used by Clay County. Even without these additional revenue sources, federal funding plays an increasingly vital role in financing the current transit service operations and capital expenditures for the area, through JTA. Additionally, federal funding has increased dramatically with the new Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law (BIL) that was signed into law in 2021. The law authorizes $1.2 trillion for transportation and infrastructure spending with $550 billion of that figure going toward "new" investments and programs. As portions of Clay County continue to urbanize, federal allocations for both section 5311 and 5307 funding sources currently being utilized to provide service in the region are projected to change.

The new BIL/IIJA provides advance apportions for certain public transportation programs as it focuses on improving safety, modernizing bus and rail facilities, climate change and equity. Table 43 provides an overview of potential funding opportunities for Clay County that are not currently being utilized to support capital and operating needs and could be a source for supported proposed recommendations.

Table 43: Potential Funding Sources to be considered by Clay County

Potential Funding Sources	Description	Eligibility	Funding Match/Requirements	Capital/Operating
FTA - Section 5339 - Bus and Bus Facilities	Funds to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities including technological changes or innovations to modify low or no emission vehicles or facilities.	State and local government entities that operate fixed route bus service and that are eligible to receive direct grants under 5307 and 5311 may now be direct recipients of Section 5339 funds, regardless of their designated recipient status.	80% Federal	Capital
FTA Section5309- Capital Investment Grants Program	Funds fixed guideway investments including new and expanded rapid rail, commuter rail, light rail, streetcars, bus rapid transit, and ferries, as well as corridor-based bus rapid transit investments that emulate the features of rail.	State and local government agencies, including transit agencies.	The maximum CIG (Sec 5309) share varies by project type, with: • New Starts: 60 percent • Small Starts: 80 percent • Core Capacity: 80 percent Total federal funds for any project type may not exceed 80 percent.	Capital
Expedited Project Delivery	Project Delivery (EPD) Pilot program is intended to expedite the delivery of new fixed guideway capital projects, small starts projects, or core capacity improvement projects that utilize public-private partnerships.	Up to eight grants from state and local government agencies, including transit agencies.	80% Federal	Capital
Innovative Coordinated Access and Mobility Grants	Funding to support innovative projects for the TD that will improve the coordination of transportation services and non-emergency medical transportation services.	Eligible applicants are organizations that are eligible to be recipients and subrecipients of the Enhanced Mobility for Seniors and Individuals with Disabilities Program, (defined under 49 U.S.C. 5310): designated recipients, states and local governmental authorities, private nonprofit organizations, and operators of public transportation.	80% Federal 20% local can be in-kind contributions	Capital

Potential Funding Sources	Description	Eligibility	Funding Match/Requirements	Capital/Operating
Joint Development Program	Joint Development is the coordinated development of transit facilities with non-transit commercial and residential projects. The Joint Development program allows FTA grant recipients to use FTA capital grant program funds or FTA-funded real property for joint development.	An FTA grant recipient may propose a joint development project that either (a) will be financed with an FTA grant, or (b) will make use of project property that is subject to the federal interest.	80% Federal	Capital /Operating
Technical Assistance and Workforce Development	Conduct technical assistance activities that enable more effective and efficient delivery of transportation services, foster compliance with federal laws, and improve public transportation service. Develop standards and best practices for the transit industry. Address public transportation workforce needs through research, outreach, training, and the implementation of a frontline workforce grant program and conduct training and educational programs in support of the public transportation industry.	Federal government departments, agencies, and instrumentalities of the government; Metropolitan Planning Organizations; state and local governmental entities; providers of public transportation; and national nonprofit organizations that have the appropriate demonstrated capacity to provide public transportation-related technical assistance.	80% Federal	Capital/Operating
FHWA Carbon Reduction Program (CRP)	Funds for projects designed to reduce transportation emissions, defined as carbon dioxide (CO2) emissions from on- road highway sources. For example: A public transportation project eligible under 23 U.S.C. 142. A transportation alternative project including, but not limited to, the construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation	The BIL directs FHWA to apportion funding as a lump sum for each State then divide that total among apportioned programs. Each State's CRP apportionment is calculated based on a percentage specified in law. This is then apportioned to MPOs, and the state based on population. 65% of the funding is proportioned by population. Before obligating CRP funds for an eligible project in an urbanized area that is not a transportation management area, a State shall coordinate with any MPO that represents the urbanized area prior to determining which activities should be conducted under the project.	80% Federal	Capital

Potential Funding Sources	Description	Eligibility	Funding Match/Requirements	Capital/Operating
Pilot Program for Transit-Oriented Development Planning	Provides funding to local communities to integrate land use and transportation planning with a new fixed guideway or core capacity transit capital investment. The grants help organizations plan for transportation projects that connect communities and improve access to transit and affordable housing.	Eligible project partners and sub-recipients may include, but are not limited to: • Public transportation systems • Private for-profit and nonprofit organizations, including technology system suppliers and bus manufacturers • Operators of transportation, such as employee shuttle services or airport connector services or university transportation systems • State or local government entities • Other organizations that may contribute to the success of the project team including consultants, research consortia or nonprofit industry organizations, and institutions of higher education • Standard Development Organizations	80% Federal	Capital
Transit Asset Management	The TAM program enables transit agencies to implement strategic approaches to monitoring, maintaining, and replacing transit assets.	Any recipient or subrecipient that owns, operates, or manages capital assets used for providing public transportation.	80% Federal	Capital
Public Transportation Innovation	Funding to advance innovative public transportation research and development.	Federal Government departments, agencies, and instrumentalities of the Government, including Federal laboratories; State and local governmental entities; providers of public transportation; private or non-profit organizations; institutions of higher education; and technical and community colleges.	80% Federal	Capital

Monitoring Program for Tracking Performance Measures

In keeping with the national shift to a performance-based planning approach, the Transit Study performance monitoring program utilizes the FTA recommended SMART approach. The SMART approach is defined as:

- Specific, Measurable, Agreed-upon, Realistic, and Time-bound.

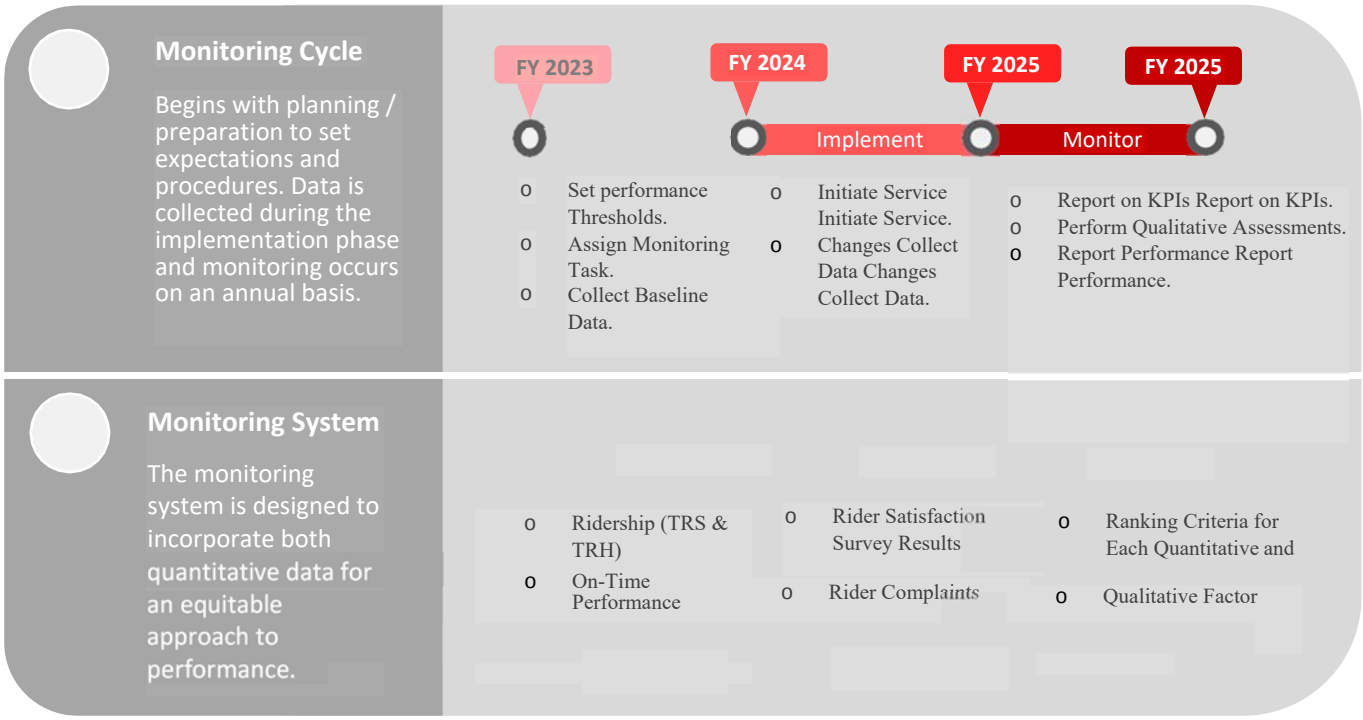
This SMART principle focuses on the utilization of available data that will provide measurable results over a defined time period; data should have multiple applications and an undue burden should not be placed on staff to collect data or measure the results.

In keeping with the SMART planning approach, the recommendations of the Transit Study should be assessed on a regular basis to determine the status, issues impeding the anticipated implementation schedule, and potential strategies to overcome these issues. These assessments should be conducted a minimum of once per fiscal year, in conjunction with the annual budget development process. The SMART principles for each recommendation should also be applied following implementation, to ensure the anticipated outcomes of the program are performing as designed. These thresholds should be established prior to implementation and ongoing performance results should be made available to officials, as well as the public. This approach provides full transparency and limits confusion if pilot programs are not able to continue due to poor performance.

Key steps to implementation of an effective monitoring process includes identifying a program of projects for each fiscal year, assigning project managers and support staff, anticipating outcomes/targets, for agency review and approval, and setting achievable deadlines for program delivery and monitoring.

The following figure summarizes the monitoring program for tracking performance measures.

Figure 57: Performance Based Monitoring Program



Quantitative Performance Monitoring

Key data elements include:

- Revenue hours (all modes)
- Revenue miles (all modes)
- Vehicle hours (all modes)
- Vehicle miles (all modes)
- Passengers / Trips (all modes)
- Passenger miles (all modes)
- Operating expense (all modes)
- Accidents—major and non-major (All modes)
- Requested trips (demand response and flex)
- Scheduled trips (demand response and flex)
- Completed trips (demand response and flex)
- Cancellation—advanced, same day, and late (demand response and flex)
- No-show (demand response and flex)
- Missed trip (demand response and flex)
- Trip denial (demand response and flex)
- Trip length (All Modes)
- Travel time
- Complaints

The collected information is used to develop industry standard performance measure variables including the following examples.

- Operating cost per passenger trip and mile
- Operating cost per vehicle hour and mile
- Passenger revenue per total operating cost or fare recovery ratio
- Unlinked Passenger trips per vehicle hour and miles
- Accidents per 100,000 miles
- No-shows per scheduled trips
- On-time pick-ups to total pick-ups (on-time performance)
- Complaints per 1,000 passenger trips
- Average trip length
- Average vehicle travel time
- System speed
- Response time
- Trip denials per trip requested.
- Vehicles operated at maximum services (VOMS)
- Regular service days for each month

While much of the required data is already routinely collected, key data collection technology upgrades were recommended in the first year of the Transit Study's implementation schedule to ensure that the data needed for effective and accurate quantitative reporting can be collected for enhanced performance monitoring.

Qualitative Performance Monitoring

In 2020 FTA published additional performance monitoring criteria in FTA Report No. 0152 Mobility Performance Metrics (MPM) for Integrated Mobility[19]

> *"The goal of developing and using a new set of performance metrics is to measure how well an integrated mobility system meets the needs of individual travelers, how well the system performs while meeting overall travel demand, and what the system's impact is locally and nationally. By measuring transportation performance from the traveler's perspective, agencies and operators can be incentivized to improve service based on what matters most to travelers. In addition, performance metrics should be selected and designed to evaluate progress toward an agency's overall goals and objectives. As such, it is important to reassess public transportation's goals, how progress toward those goals can be measured comprehensively from traveler and system perspectives, what the federal government's role is in setting national transportation goals and facilitating progress toward the achievement of national goals."*

- Survey Response Metrics
  - Ease of Use
  - Accuracy of Predicted Wait Times
  - Accuracy of Predicted Journey Time
  - Availability of Accurate and Reliable Information
  - Safety and Security
  - Rider Satisfaction
    - Travel time
    - Wait time
    - Connecting Time
    - Cost / Price
- Mobile App Purchases Initiated vs Completed
- Percentage of Population with Transit Access
- Number of Incidents
- Net Job Growth within Proximity to Transit Services
- New Access to Essential Amenities
- First and Last Mile Connectivity (measured in investment levels)

[19] FDOT Transit Corridor Program

Appendices

Glossary of Abbreviations

ACS – American Community Survey

ADA – The Americans with Disabilities Act

AVL – Automated Vehicle Location

APC – Automated Passenger Counters

BRT – Bus Rapid Transit

BSIP –Bus Stop Improvement Program

CCT- Clay Community Transportation

COA – Comprehensive Operational Analysis

CR – County Road

FCF – First Coast Flyer

FCTD – Florida Commission for the Transportation Disadvantaged

FDOT – Florida Department of Transportation

FHWA – Federal Highway Administration

FTA – Federal Transit Administration

FY – Fiscal Year

ISD - Innovative Service Development Grant

JRTC – Jacksonville Regional Transportation Center

JTA – Jacksonville Transportation Authority

LEHD – Longitudinal Employer Household Dynamics

MDT – Mobile Data Terminal

NTD – National Transit Database

SR – State Road

TBEST – Transit Boardings Estimation and Simulation Tool

TD – Transportation Disadvantaged

TDP – Transit Development Plan

TDSP – Transportation Disadvantaged Service Plan

UPT – Unlinked Passenger Trip

VRH – Vehicle Revenue Hour

VRM – Vehicle Revenue Mile