

TRANSIT SERVICES ASSESSMENT

CHEROKEE COUNTY CTP

DECEMBER 2022

Cherokee



MOVES

Cherokee County
2022 Comprehensive Transportation Plan

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1. INTRODUCTION

Cherokee County's previous Comprehensive Transportation Plan (CTP) was adopted in 2016 and featured a special focus on transit services and funding recommendations. Since 2016, there have been significant advancements in transportation technologies, service modes, and changes in transportation patterns, transit usage and commuting trends. These factors have necessitated a reexamination of Cherokee's County transit services to ensure the current system is reflecting existing conditions and leveraging advancements in technology to provide the greatest benefits to the residents of Cherokee County.

The impacts of the COVID-19 pandemic on travel behavior and the rise in wide-scale use of transportation network companies (TNCs), like Uber and Lyft, are two other recent factors necessitating a reexamination of transit provision in the county. Developments in planned transit investments, the coordination of regional services, and the advancement of a regional fare policy are other important factors considered in this reevaluation of transit service.

Transit providers throughout the United States are considering new modes of public transportation to meet the mobility needs of residents. This includes microtransit, which is a new form of demand response transit that uses smartphone technology to match riders to vehicles to provide flexible, cost-effective, and timely transit service. The American Public Transit Association (APTA) defines microtransit as small-scale, on-demand public transit services that can offer fixed-routes and schedules, as well as flexible routes and on-demand scheduling. This form of transit is particularly suited to lower-density suburban areas where fixed-route bus service struggles to serve transit riders efficiently. This report has a special focus on the applicability of microtransit services in Cherokee County.

Another major focus of this report is an examination of Cherokee Area Transit System's (CATS) fare policy and fare recommendations. Other key components of this report include recommendations to improve regional transit connectivity and enhancements to fixed-route local bus service.

ABOUT THE CTP

This *Transit Services Assessment* is a stand-alone component of the *Cherokee Moves: Cherokee County 2022 Comprehensive Transportation Plan (CTP)* update, which concludes in the summer of 2022. The purpose of the CTP is to identify a countywide transportation vision and to prioritize transportation improvements in the near, mid and long-term. The CTP contains recommendations for all forms of transportation including automobiles, transit, walking, biking, freight, and emerging transportation technologies. This report provides a summary of the transit analysis portion of the CTP update and concludes with a series of recommendations for future transit service.



STUDY AREA

The study area for the *Transit Services Assessment* comprises the entirety of Cherokee County, including the municipalities of Ball Ground, Canton, Holly Springs, Mountain Park, Nelson, Waleska and Woodstock (shown in **Figure 2.1**). The larger regional context of Cherokee County has also been examined to identify the best locations to connect to regional transit services.

ABOUT THIS REPORT

The Transit Services Assessment is organized in six major chapters as follows:

2. **Existing Conditions** – Provides an inventory of existing transit services and conditions within Cherokee County that sets the foundation for which to identify transit needs and solutions.
3. **Needs Analysis** – Includes an assessment and summary of transit needs to assist in the development of recommendations.
4. **Fare Policy** – Provides an assessment of CATS's existing fare structure and details recommended policy changes.
5. **Microtransit Assessment** – Contains an analysis of the applicability of microtransit services within the county.
6. **Recommendations** – Provides a summary of the findings from the previous chapters and synthesizes the analysis into a set of recommended transit improvements.



2. EXISTING CONDITIONS

This chapter provides an inventory of existing transit services and conditions in Cherokee County. This provides the background information necessary to identify transit needs and recommended solutions. This chapter contains an overview of previous transit planning efforts and an inventory of existing transit services.

OVERVIEW OF PREVIOUS TRANSIT PLANNING EFFORTS

PREVIOUS CTP'S TRANSIT ASSESSMENT

Cherokee County's previous 2016 CTP update had a special focus on CATS services and contained a sustainable funding plan for the agency to address the anticipated funding transition from FTA 5311 to 5307 funding programs. The transit focus was documented in the CTP's *Appendix F-1 CATS Baseline Conditions and Needs Assessment* and *Appendix F-2 CATS Sustainable Funding Plan*.

The CTP's assessment included an inventory of existing services, revenue and funding, market analysis, peer systems analysis, and an identification of transit needs. It contained a Sustainable Funding Plan for CATS that included various funding level scenarios and corresponding levels of transit service that could be funded by each. The transit assessment included a short-term program of projects and a long-term vision for transit, with particular attention paid to estimating future revenue sources and reducing operating costs.

RECENT UPDATES TO CATS NETWORK

In 2020, CATS conducted an assessment of their fixed-route bus routes, which recommended adjustments to bus stop locations to better align with ridership demands and to address safety concerns. This was completed in early 2020 in advance of the known impacts of the COVID-19 pandemic.

The fixed-route study resulted in minor adjustments to bus stop locations on both routes. One stop was removed from Route 100 and four stops were transferred from Route 200 to 100. Six stops were removed from Route 200 and four stops were transferred from Route 100 to Route 200. Bus stops were removed due to low ridership demand or safety concerns. The presence, absence and need for bus stop amenities like benches, shelters, and trash cans were also inventoried as a component of this study.

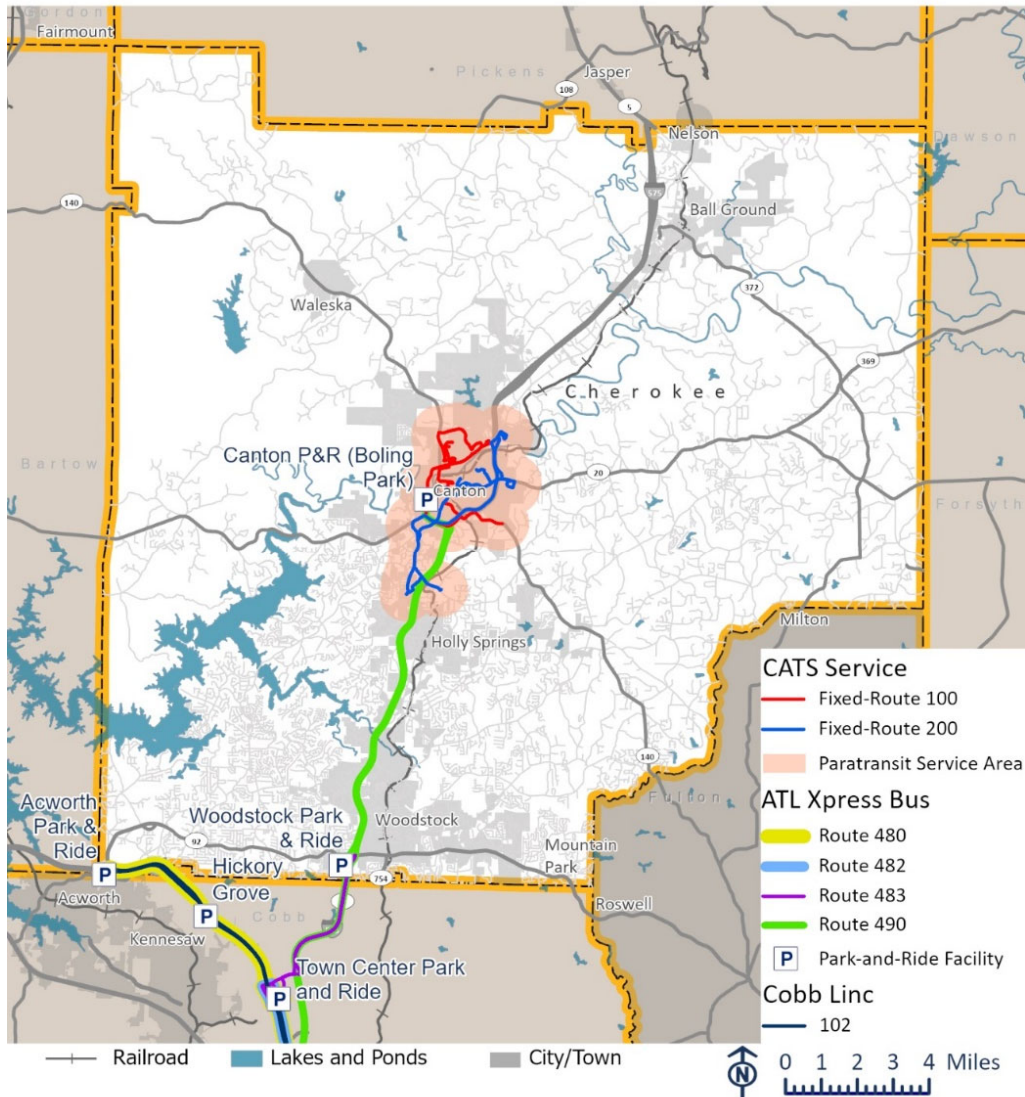
EXISTING TRANSIT SERVICE

This section provides an overview of existing transit services in Cherokee County, which includes services provided by CATS, Cherokee County Senior Services, and regional services provided by the Atlanta-region Transit Link Authority (the ATL) and CobbLinc.



Figure 2.1 illustrates existing transit services in Cherokee County. This includes two local bus routes in the Canton area, with a surrounding paratransit service area. ATL Xpress commuter bus, CobbLinc Route 102 and park-and-ride facilities are also included in **Figure 2.1**. Although not depicted in **Figure 2.1**, CATs also provides demand-response service throughout Cherokee County, known as Dial-a-Ride.

Figure 2.1: Existing Cherokee County Transit Services



CHEROKEE AREA TRANSPORTATION SYSTEM (CATS)



CATS provides four distinct forms of transit service, which includes fixed-route local bus, complementary paratransit, countywide demand response, and commuter vanpool. The County also provides transit service to the Senior Center via the Senior Services Division.

The vehicle service fleet for CATS fixed-route, paratransit and countywide demand response has been inventoried in **Appendix A-1**. This fleet inventory indicates that several vehicles are due for replacement 2022 or 2023.

FIXED-ROUTE LOCAL BUS

CATS provides fixed-route local bus service on two routes in the Canton area. Route 1 (formerly Route 100) serves downtown and north Canton. Route 2 (formerly Route 200) serves downtown, south Canton and north Holly Springs. The route alignments overlap in several corridors and transfers are provided at the Canton Police Department and Canton Walmart upon passenger request. The service characteristics of fixed-route bus have been summarized in **Table 2.1**. A detailed ridership analysis of CATS fixed-route bus is included in **Chapter 3 – Needs Analysis**.

Table 2.1: CATS Fixed-Route Local Bus Service Characteristics

CATS Fixed-Route Local Bus Service Characteristics	
Service Hours	Monday through Friday - 8:00 a.m. to 4:00 p.m.
Frequency (Headways)	Every Hour
Service Fleet	Two (2) Impulse Cutaway 20-seat Passenger Shuttle Buses
Fare Policy	\$1.25 for regular one-way trips. \$0.60 reduced fares are available for seniors, Medicare recipients, and persons with disabilities. Children under 42" ride for free. A 10-ride pass for adults and children over 42" are available for \$12.50. 10-ride passes for seniors, Medicare recipients, and persons with disabilities are offered for \$6.00. Passengers must have the correct fare as drivers cannot make changes.

COMPLEMENTARY PARATRANSIT SERVICE

Complementary paratransit service is provided for county residents who cannot access or utilize fixed-route service due to disability. This service is compliant with the Americans with Disability Act (ADA) and requires that trip origins and destinations are within three-



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fourths of a mile of fixed-route alignments. The service span is identical to that of fixed-route, operating Monday through Friday from 8:00 a.m. to 4:00 p.m. One-way fares are \$2.50 per trip. This service is currently not used consistently but it available upon request. No paratransit trips were reported for the period between October 2021 and February 2022. CATS countywide demand response service currently fulfills these service demands.

COUNTYWIDE DEMAND RESPONSE

Countywide demand response service is available to all county residents and is provided Monday through Friday from 6:30 a.m. to 4:00 p.m. The service characteristics of demand response are summarized in **Table 2.2**. Demand response service can be scheduled for any trip purpose if the origins and destinations are within Cherokee County. Major destinations include the Senior Center, Empower Cherokee Training Centers, Northside – Cherokee Hospital, Highland Rivers, Cherokee Wellness Center, medical facilities in Canton and Woodstock, nursing homes, shopping centers, and employment sites.

CATS provides demand response service via 16 shuttle buses with a capacity of 8-16 persons. Start and end times vary by vehicle based upon trips scheduled each day. CATS uses QRYde software to schedule requested trips. QRYde is an ADA-complaint scheduling and dispatching software designed to accommodate the needs of local demand response transit. CATS' experience with QRYde has been mixed. Some features of the software are effective, like the National Transit Data (NTD) reporting. However, some other features like the route optimization tool have not been effective. The preferred method for route planning is through the local knowledge of dispatchers and CATS typically utilizes 17 regular routes to provide service.

CATS maintains a contract with the Georgia Department of Human Services (DHS), which reimburses the agency for trips primarily to the Empower Cherokee Training Center at 133 Univeter Road, Eagle Point Empower Cherokee Training Center at 1229 Univeter Road, and the Cherokee Senior Center. Reimbursements are based upon fixed rates for each destination. The Cherokee Senior Center and Cherokee Training Center also contribute a portion of their trip costs to CATS. A detailed analysis of ridership trends for demand response service is provided in **Chapter 3 – Needs Analysis**.

Table 2.2: CATS Demand Response Service Characteristics

CATS Demand Response Service Characteristics	
Service Hours	Monday through Friday – 6:30 a.m. to 4:00 p.m.
Service Fleet	16 Cutaway 8 to 16-seat Passenger Buses. 2 wheelchair stations are provided on 15 vehicles.
Fare Policy	One-way fares are \$1.50 for the first five miles and an additional \$0.30 per mile over 5 miles. Payment is due at boarding and correct fare is required as drivers cannot



	make change. Advanced fare payment via a debit or credit card is available by phone.
Trip Reservation Policy	Trip reservations must be made in advance by calling dispatch at 770-345-6238. Trips can be scheduled up to one week in advance and service days often become booked up days ahead.

COMMUTER VANPOOL SERVICE

CATS has partnered with Enterprise Rent-a-Car and the Commute with Enterprise program to provide vanpool services. This service features newer model SUVs or passenger vans with insurance, maintenance, roadside assistance, and Peach Pass toll fare included. Fares vary by distance and number of riders per vehicle (typically 4-15 persons). CATS contributes 50% of the lease amount and fuel. The remaining costs are divided equally among riders. Commuter vanpools are particularly effective in serving the needs of residents who commute to regional employment centers not currently served through direct Xpress Routes. These locations include the Hartsfield-Jackson International Airport (H-JIA), the Emory/CDC area, Perimeter Center, Cumberland and Buckhead. Cherokee County's vanpool ridership trends from recent years have been summarized in **Table 2.3**.

Table 2.3: Unlinked Passenger Trips for Vanpool Service

	2019	2020
Annual Unlinked Passenger Trips	26,030	12,412

Source: National Transit Database

CHEROKEE COUNTY SENIOR SERVICES TRANSPORTATION

Cherokee County's Senior Services division provides pre-scheduled transportation services for seniors to the Senior Services Center in Canton via a 32-passenger bus, equipped with a lift and wheelchair assistance. The service also provides transportation for seniors in the congregate meal program to and from the Senior Services Center. This service is oriented towards providing transportation to large groups of seniors, while trips for individual seniors and small groups are better served by countywide demand response service. One-way fares are \$1.00 per trip. Residents aged 65 and over are eligible for reduced fares to the Senior Services Center for programmed activities.

ATL XPRESS COMMUTER BUS

The ATL provides regional transit service to Cherokee County through Xpress commuter bus. The ATL operates several Xpress routes in Cherokee County and in adjacent locations in Cobb County. Xpress bus routes operate Monday through Friday and serve commute trips to Atlanta in the a.m. and return trips in the afternoon/evening. These routes include:



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Route 480 – Acworth/Town Center to Downtown/Midtown - Service is provided from Acworth Park-and-Ride and Town Center/Big Shanty Park-and-Ride to Downtown Atlanta. Three a.m. pick-ups times and two p.m. return trips are provided.

Route 482 – Town Center to Perimeter - This route provided service between the Town Center Park-and-Ride and Perimeter Center and was discontinued due to historically low ridership levels and added declines from the COVID-19 pandemic.

Route 483 – Woodstock/Town Center (Big Shanty) to Midtown – Service is provided between the Woodstock and Town Center Park-and-Rides and Midtown Atlanta. Three pick-up times are offered in the a.m. and two return times in the p.m.

Route 490 - Canton/Woodstock to Downtown – Service is provided between Canton and Woodstock Park-and-Rides and downtown Atlanta. One pick-up time is provided in the a.m. and one return trip in the afternoon.

The ATL has recently added two new Xpress routes near Cherokee County in 2021. Services began on May 3rd, 2021. Both of these routes depart from the ATL's newly constructed Hickory Grove Park-and-Ride at 2018 Hickory Grove Road in Acworth. These routes include:

Route 484 – Hickory Grove to Midtown Atlanta – Service is provided between Hickory Grove and Midtown Atlanta with stops in Atlantic Station. This route provides two a.m. pick-up times and two p.m. return times.

Route 485 – Hickory Grove to Downtown Atlanta – Service is provided between Hickory Grove and downtown Atlanta. This route provides two a.m. pick-up times and two p.m. return times.

XPRESS RIDERSHIP ANALYSIS

Figure 2.2 illustrates monthly ridership for the five Xpress bus routes in or near Cherokee County, which were in operation from 2018 through 2022. The graph illustrates the historic low ridership levels on Route 482 from Town Center to Perimeter. This route was discontinued in January of 2021.

The highest ridership levels are seen consistently on Route 480 from Acworth/Town Center to Downtown/Midtown Atlanta. Prior to the COVID-19 pandemic Routes 480, 483, and 490, showed consistent patterns, year over year, with ridership peaking in the fall months.

The most striking feature of ridership trends is the precipitous drop-off in ridership seen in March of 2020, due to the COVID-19 pandemic. Modest increases in ridership are evident in 2021 and 2022, but it still remains far below pre-pandemic levels. In May of 2021, two new Xpress routes were launched out of the Hickory Grove Park-and-Ride (Routes 484 and 485). Ridership on these routes has been lower than on pre-existing routes. For example, in May of 2022 the monthly ridership on Cherokee serving routes were as follows:

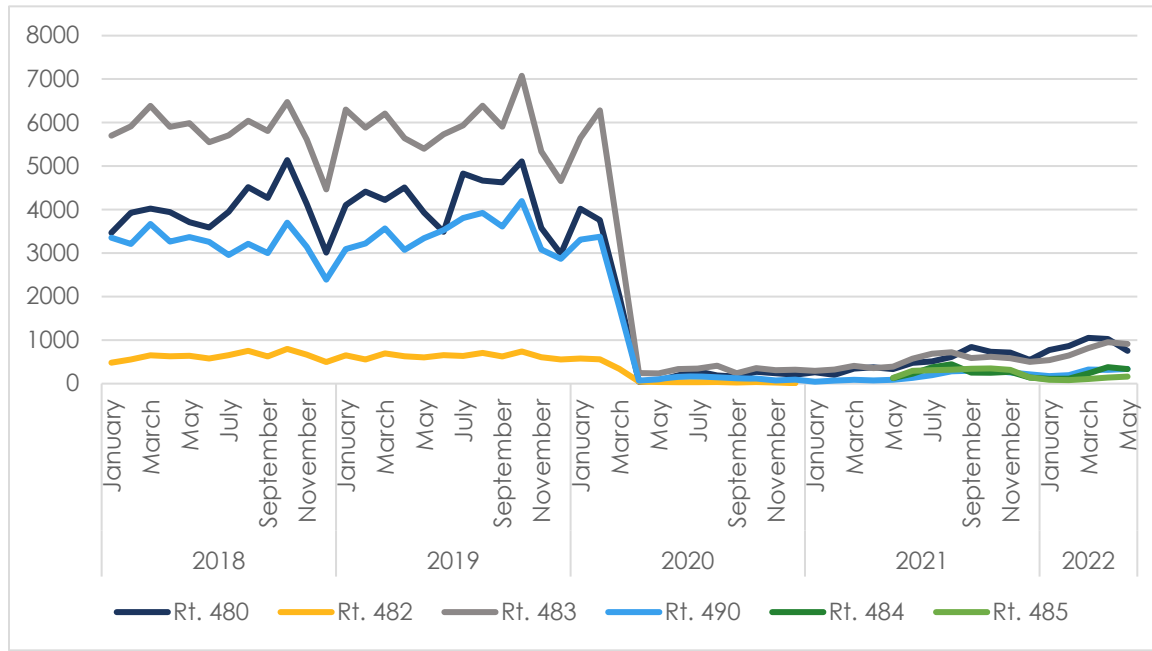
1. **Route 484** – Hickory Grove to Midtown Atlanta – 334 monthly riders



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2. **Route 485** – Hickory Grove to Downtown Atlanta – 161 monthly riders
3. **Route 480** - Acworth/Town Center to Downtown/Midtown – 751 monthly riders
4. **Route 483** - Woodstock/Town Center to Midtown – 909 monthly riders
5. **Route 490** - Canton/Woodstock to Downtown – 336 monthly riders

Figure 2.2: Xpress Bus Monthly Ridership by Route (2018-2022)



PARK-AND-RIDE FACILITIES

Several commuter park-and-ride facilities are located within Cherokee County or in adjacent areas that are used by many county residents. These park-and-ride facilities are mapped in **Figure 2.1**, at the beginning of this chapter, and include the following:

Woodstock Park-and-Ride (400 spaces) – At His Hands Church, 550 Molly Lane, Woodstock

Canton/Boling Park-and-Ride (173 spaces) – 1358 Marietta Highway (GA-140), Canton

Acworth Park-and-Ride (250 spaces) – 6045 Lake Acworth Drive (GA-92) at I-75, Acworth

Hickory Grove Park-and-Ride (522 spaces) - 2018 Hickory Grove Road, Acworth. This is a newly constructed facility that began operation in May of 2021 (shown in **Figure 2.3**).

Figure 2.3: Hickory Grove Park-and-Ride



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Table 2.4 details the park-and-rides located in and near Cherokee County, their corresponding Xpress routes, destinations served, and the number of service trips before and during/post the COVID-19 pandemic. The table illustrates that Xpress service trips to these park-and-rides has been reduced significantly from pre-pandemic service levels.

Table 0.1: Number of Xpress Service Trips by Park-and-Ride

County	Park-and-Ride	Routes	Destinations	# of Trips	
				Pre-Pandemic	During/Post-Pandemic
Cherokee	Canton	490	Downtown	8	2
Cherokee	Woodstock	483, 490	Midtown	14	7
Cobb	Acworth	480	Downtown	10	5
Cobb	Hickory Grove	484, 485	Midtown	N/A	8

COBBLINC

CobbLinc operates express commuter bus service on Route 102 from the Acworth Park-and-Ride to the Arts Center MARTA Station. This route attracts significant ridership from Cherokee County due to its proximity, being located just south of the Cobb/Cherokee County line. Route 102 was temporarily suspended on April 15, 2020, due to the COVID-19 pandemic. Service was reinstated on March 14, 2022 at a reduced level.

Before suspension, a.m. pick-ups were provided at 5:30, 6:00, 6:30, 7:00, and 8:00 a.m. Drop-offs in the a.m. were provided at two locations in Atlantic Station on 17th Street, West Peachtree Street at 14th Street and at the MARTA Arts Center Station. In the p.m. pick-ups from the Arts Center MARTA Station direct to Acworth were offered at 3:00, 3:30, 4:05, 5:05, 5:35, and 6:10 p.m.

The reinstated service provides two out-bound pick-ups from the Acworth Park-and-Ride at 6:00 a.m. and 7:00 a.m. and two in-bound pick-ups from the Arts Center MARTA Station at 4:05 p.m. and 5:05 p.m.



3. NEEDS ANALYSIS

This chapter provides an assessment and summary of transit needs used to aid in the development of transit recommendations. This includes a summary of community identified needs sourced from an extensive public survey effort. It also includes an overlay gap analysis which provides a comparison of existing transit services to areas of high population and employment density. A regional connectivity analysis is also included which identifies ways to improve connections between CATS and regional transit services.

COMMUNITY IDENTIFIED NEEDS

Community identified transit needs were primarily sourced from the CTP's online public survey. The survey asked a variety of questions about improvements to multiple transportation modes and facilities. This included roadways, bicycle and pedestrian facilities, and transit services. A total of 1,968 respondents participated in the online survey.

Several polling questions assessed the public's satisfaction with existing transit services. Respondents shared their thoughts on transit needs in an open-ended question format. Several common themes and consensus items arose among their responses and include the following:

1. There is a desire to expand fixed-route bus services to other areas including Ball Ground, Riverstone Parkway, Holly Springs, Hickory Flat, Waleska and Woodstock.
2. The service span of transit services should be expanded later than 4:00 p.m.
3. Public education and marketing of existing transit services should be increased.
4. Trip reservations for countywide demand response are often required one or two weeks in advance. Service capacity should be increased to better align with demand and enable a shorter reservation window.
5. On-time bus performance for countywide demand response was identified as an area in need of improvement.
6. There is a need for improved connections to regional transit services including Xpress, CobbLinc and MARTA .

OVERLAY GAP ANALYSIS

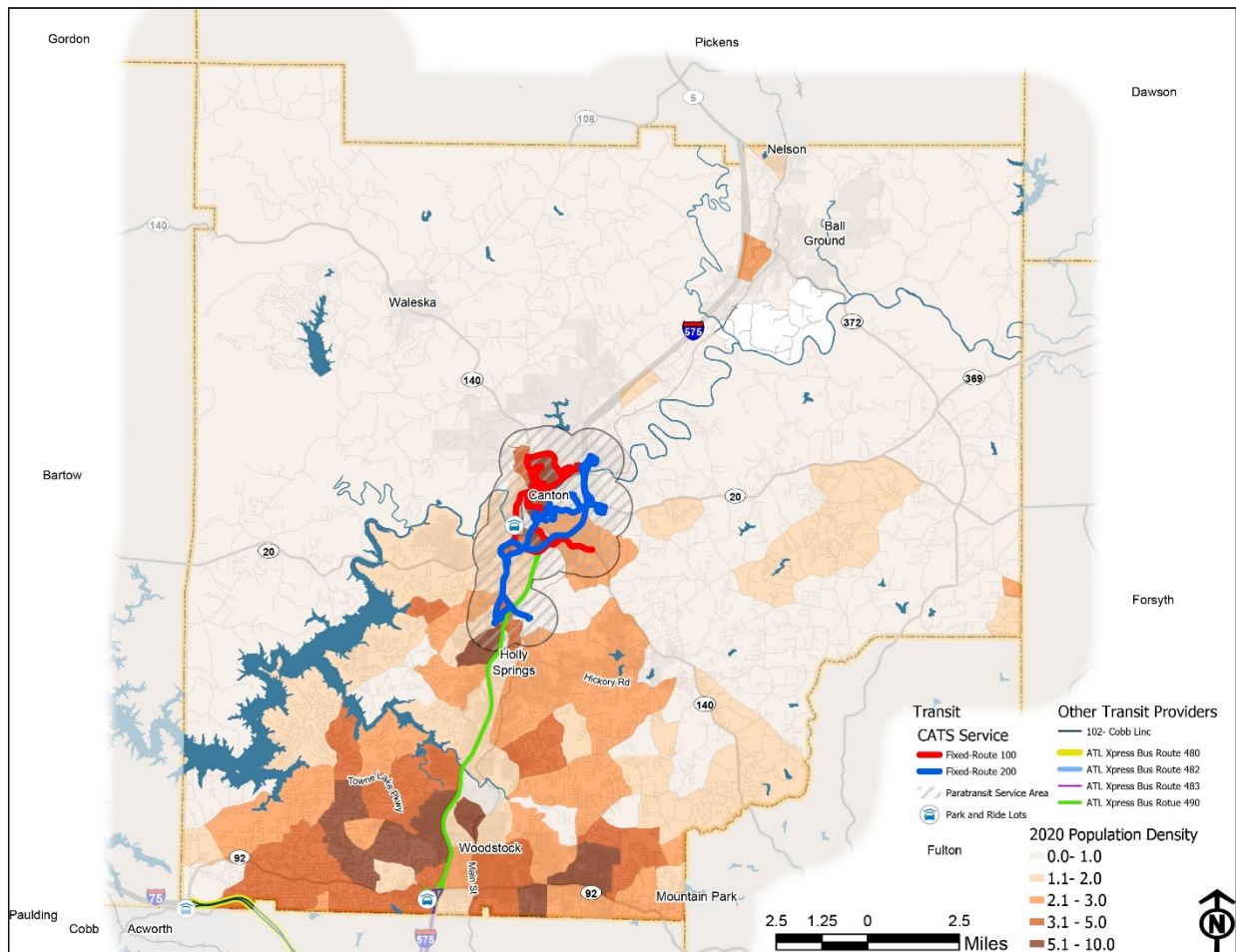
To identify areas of the county where fixed-route expansion may be warranted an overlay gap analysis was conducted. This included overlaying existing transit services with existing and projected population and employment density and concentrations of transit-reliant populations. Transit-reliant populations groups include seniors, individuals with disabilities, low-income persons, and car free households,



EXISTING POPULATION DENSITY (2020)

Figure 3.1 illustrates existing population density in 2020, as persons per acre, with existing fixed-route transit services in Cherokee County. The CATS fixed-route service area covers most of the high-density population in the greater Canton area. Southern Cherokee County in Woodstock and along SR 92 stands out as being a concentrated area of high-density population without local fixed-route bus service. Service gaps areas are notable along the SR 92 corridor, I-575, Bells Ferry Road, SR 140, Towne Lake Parkway, Hickory Road, and Main Street.

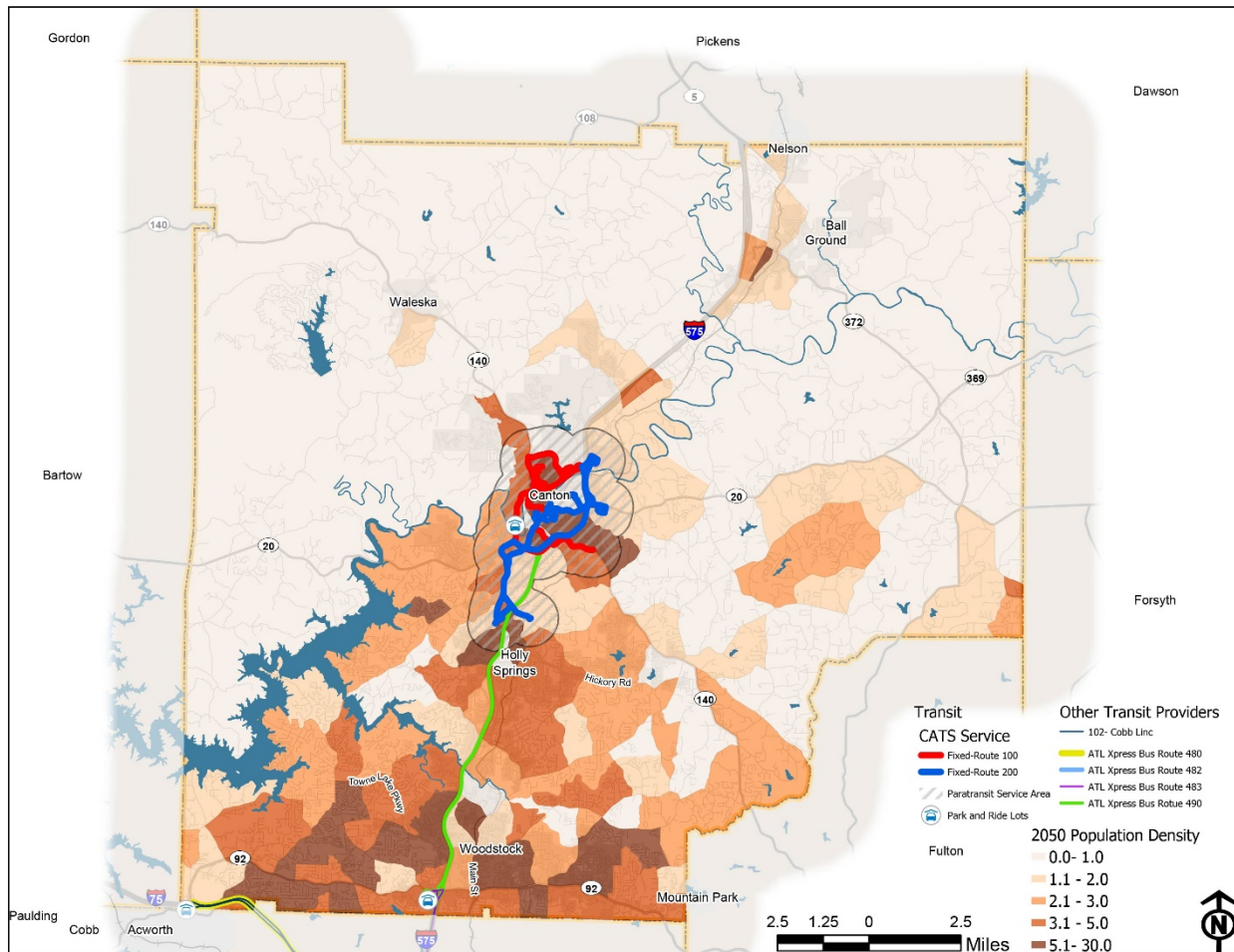
Figure 3.1: Existing Population Density (2020) and Transit Services



PROJECTED POPULATION DENSITY (2050)

Figure 3.2 illustrates projected population density in 2050 with existing fixed-route transit services. The CATS fixed-route local bus service area serves most of the projected population density in the greater Canton area. Large concentrations of projected population density along the SR 92 corridor and in Woodstock area lack existing fixed-route local bus service. Service gaps are evident along SR 92, I-575, Bells Ferry Road, SR 372, SR140, Towne Lake Parkway, Hickory Road, and Main Street.

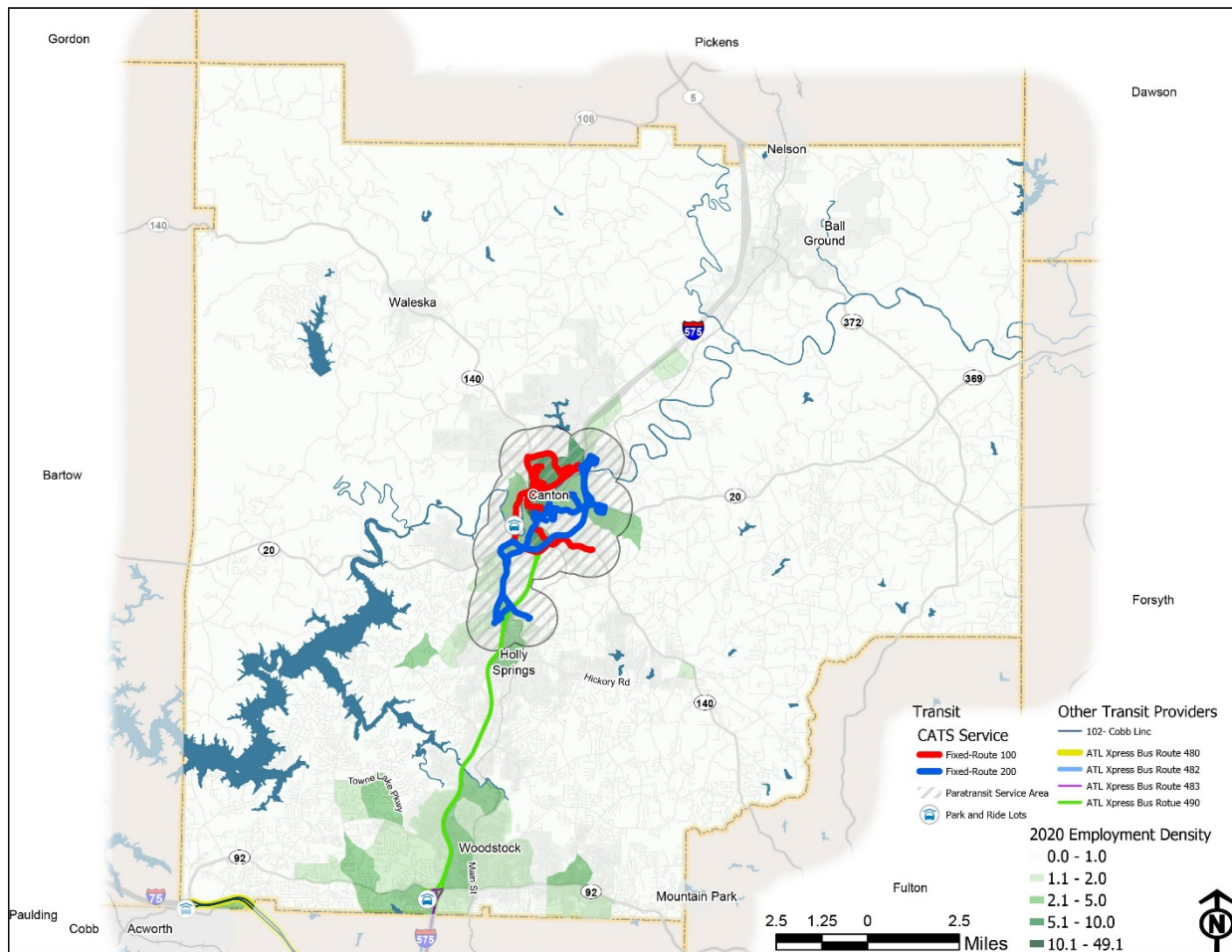
Figure 3.2: Projected Population Density (2050) and Existing Transit Services



EXISTING EMPLOYMENT DENSITY (2020)

Figure 3.3 illustrates the existing employment density in 2020, as jobs per acre, with existing fixed-route transit services. The CATS fixed-route service area serves higher density areas of employment in the Canton area well. However, areas of employment density in the SR 92 corridor and greater Woodstock area do not have local fixed-route bus service. Service gap areas are evident in the SR 92, I-575, and SR 140 corridors.

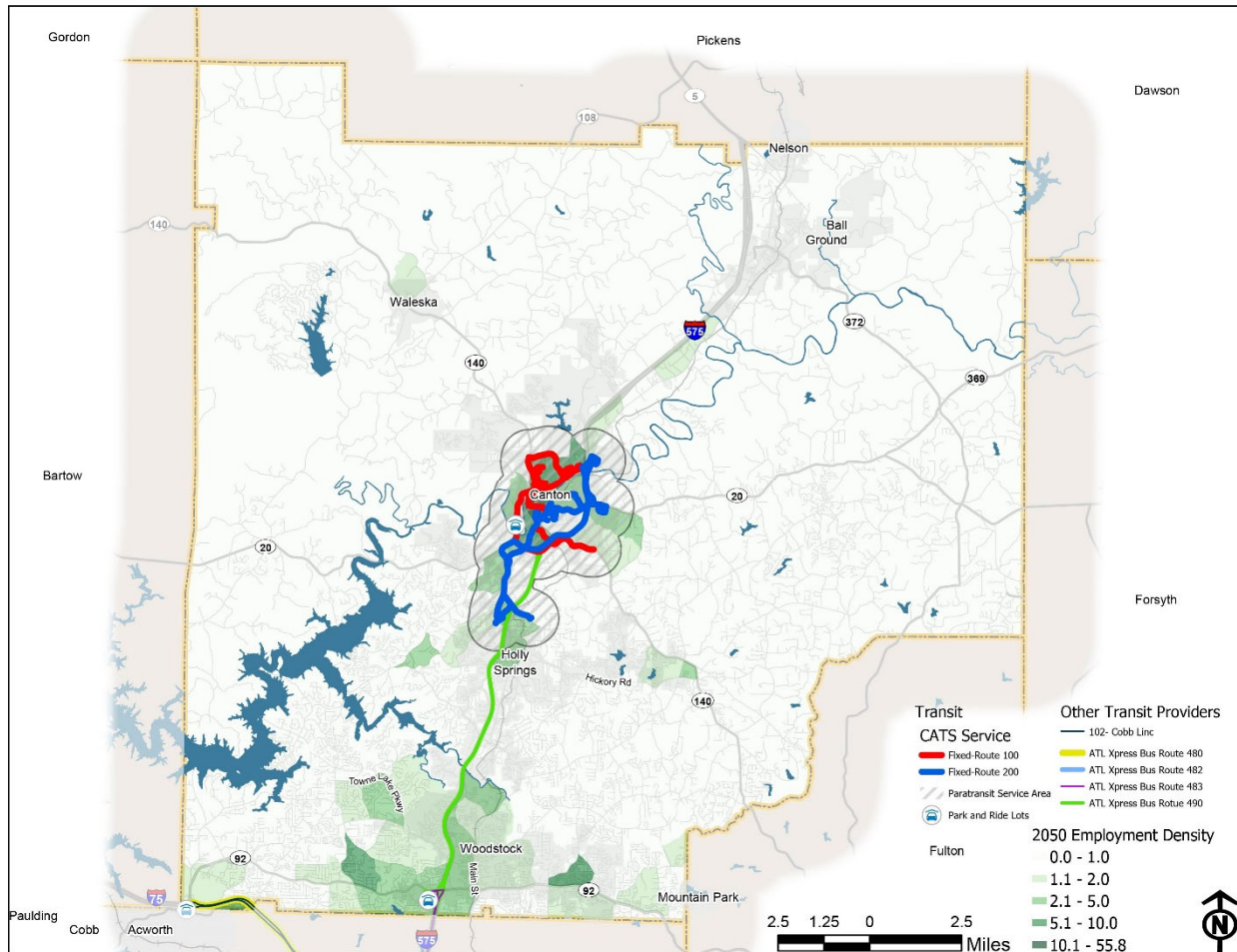
Figure 3.3: Existing Employment Density (2020) and Transit Services



PROJECTED EMPLOYMENT DENSITY (2050)

Figure 3.4 illustrates the projected employment density for Cherokee County in 2050 overlaid with existing fixed-route transit services. Similar to the employment density in 2020, projected dense employment areas in 2050 are only served by local bus in the greater Canton area. Service gaps are evident in the SR 92, I-575, Bells Ferry Road, SR 140, and Main Street corridors.

Figure 3.4: Projected Employment Density (2050) and Existing Transit Services



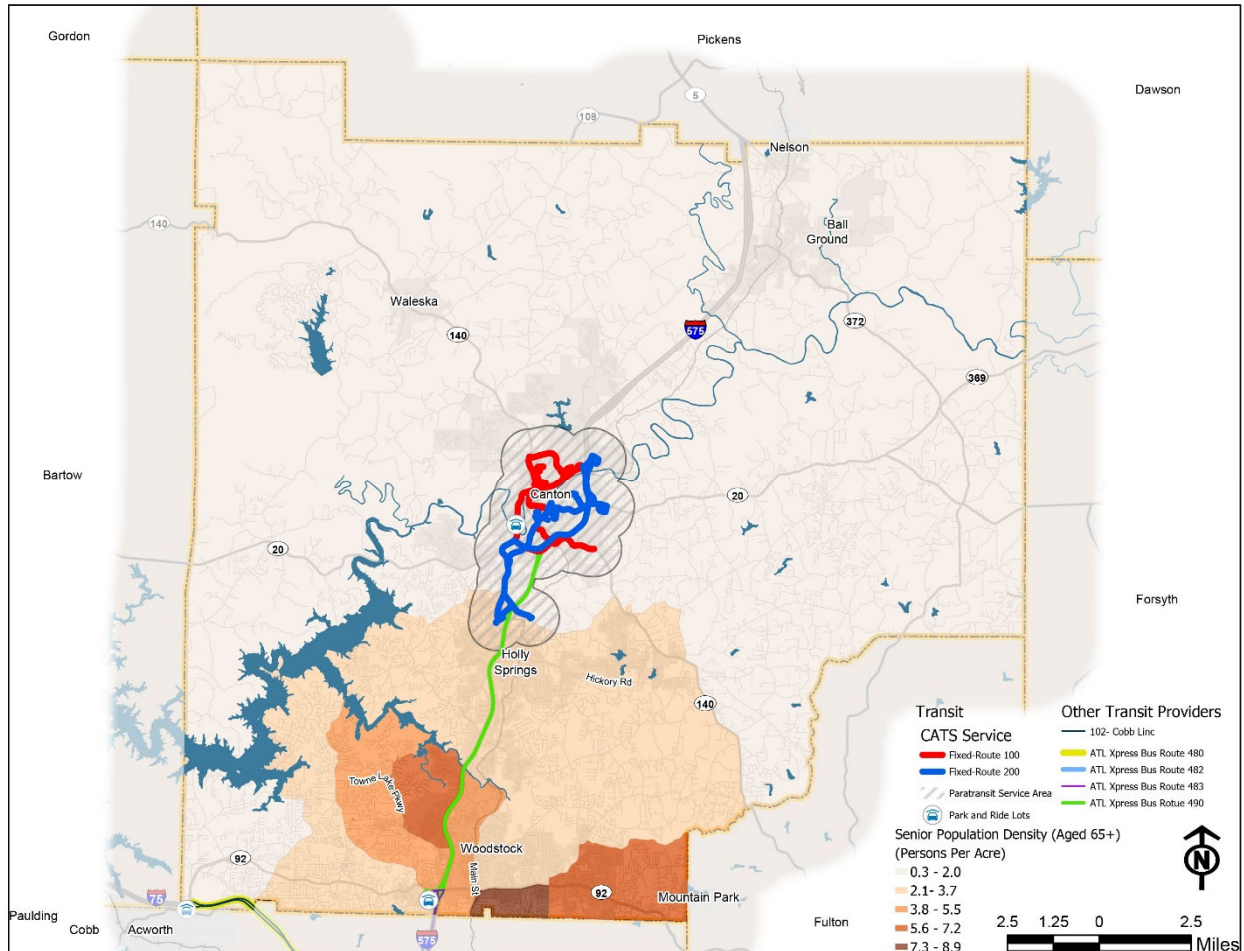
TRANSIT-RELIANT POPULATIONS

Specific population groups that may be more reliant on transit to meet their transportation needs have also been examined to assess transit service gaps. Transit-reliant population groups include seniors, individuals with disabilities, and low-income persons and car free households. These population groups have been mapped individually and then in combination as a composite group.

SENIORS

Figure 3.5 illustrates senior population density that is overlaid with existing fixed-route transit services in Cherokee County. Most of the concentrated areas with a dense senior population are in the southern portion of the county where local fixed-route service is absent. Service area gaps are seen along SR 92, I-575, and adjacent to the Cobb County line.

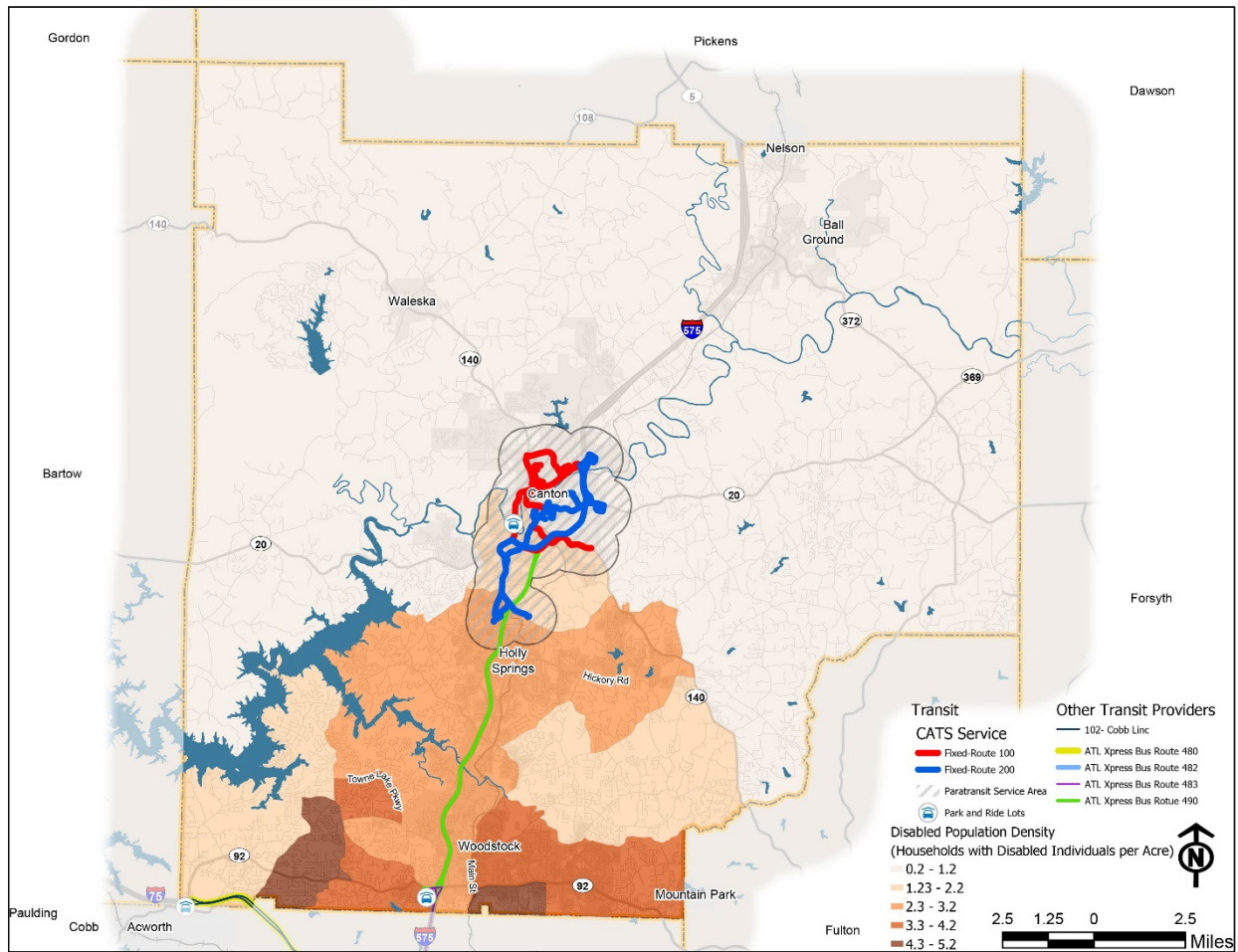
Figure 3.5: Senior Population Density and Existing Transit Services



INDIVIDUALS WITH DISABILITIES

Figure 3.6 illustrates the density of individuals with disabilities overlaid with existing fixed-route transit services. Areas with the highest concentrations are located in southern Cherokee County adjacent to Cobb County and do not have local bus service, are not currently served by local transit service. The SR 92 corridor stands out as the greatest service gap for this population group.

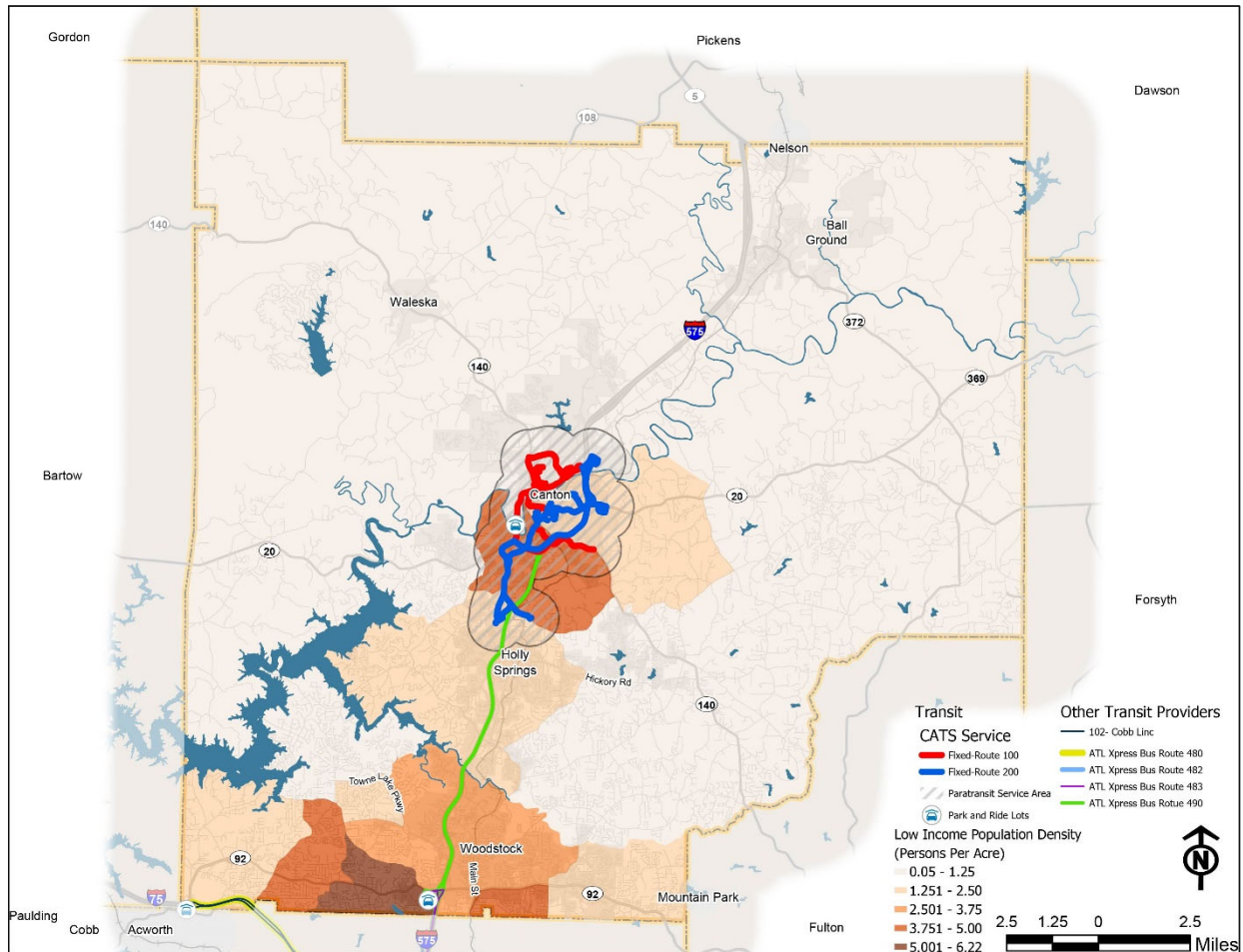
Figure 3.6: Disabled Population Density and Existing Transit Service



LOW-INCOME POPULATIONS

Figure 3.7 illustrates the low-income population densities overlaid with existing fixed-route transit service in the county. Concentrations of low-income individuals are found in the Canton area which is served by CATS local bus service. Areas of density along the SR 92 corridor and in the greater Woodstock area are evident as a fixed-route service gap.

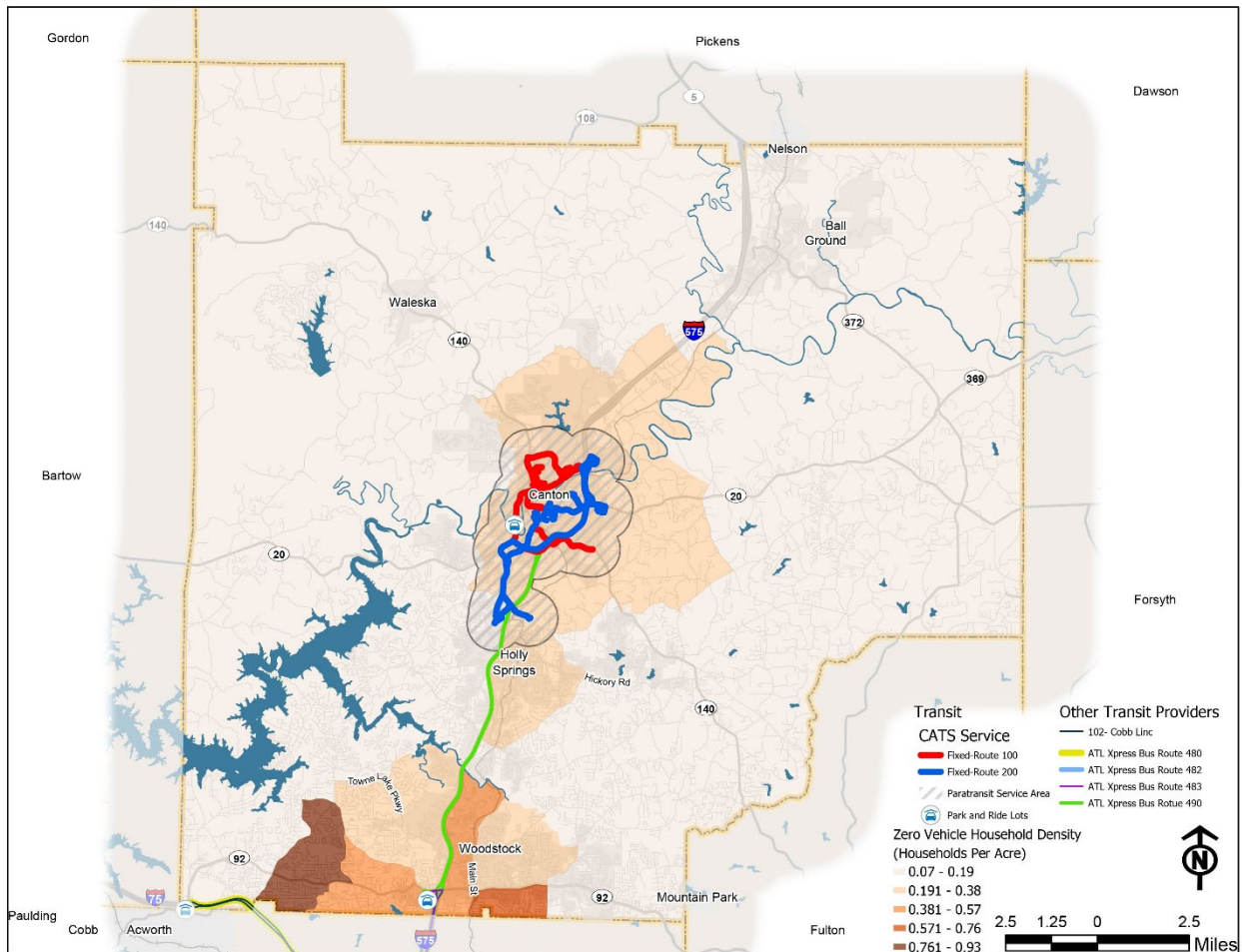
Figure 3.7: Low-Income Population Density and Existing Transit Service



CAR FREE HOUSEHOLDS

The highest density areas of car free households are found in areas without any existing local bus service in southern Cherokee County. Like the other transit-reliant groups, these too are predominately concentrated along the Cobb County border and within the SR 92 corridor. With limited transit service in these areas these households are severely restricted in their transportation options to meet basic needs. **Figure 3.8** illustrates the density of car free households and service gaps evident in south Cherokee County.

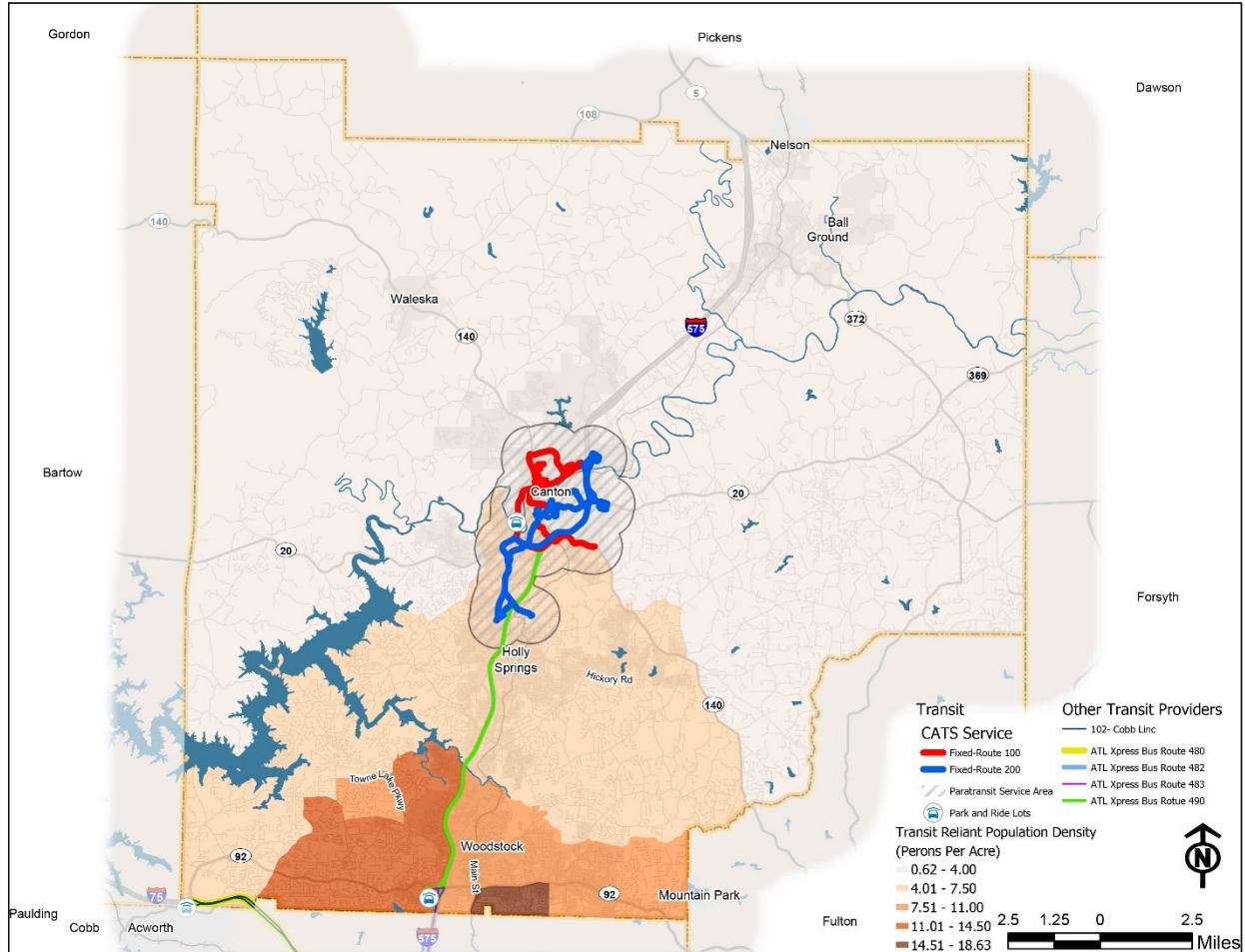
Figure 3.8: Car Free Household Density and Existing Transit Service



COMPOSITE TRANSIT-RELIANT POPULATIONS

Figure 3.9 illustrates the transit reliant population density as a composite of the individual demographic groups: seniors, individuals with disabilities, low-income individuals, and

Figure 3.9: Transit-Reliant Population Density and Existing Transit Service



car free households. The map indicates that areas with the highest transit-reliant population density are deficient in fixed-route local bus service. Transit-reliant populations are concentrated in southern Cherokee County, which has no access to local fixed-route transit. Service gaps are evident along SR 92, I-575, Main Street and in the greater Woodstock area.

REGIONAL CONNECTIVITY ANALYSIS

The need to improve connectivity to regional transit services was identified through the CTP's public and stakeholder involvement process. Currently, the service span and stop locations of CATS local bus routes do not facilitate connections between local and the regional services. Ways to better connect local CATS's services to the ATL's Xpress



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services and to CobbLinc's services in Cobb County have been examined in this section.

CONNECTIVITY TO ATL XPRESS SERVICE

CATS fixed-route local bus service consists of two routes limited to the Canton area. Both routes operate Monday through Friday from 8:00 AM to 4:00 PM with one-hour headways. Current fixed-route service does not align well with the ATL's Xpress bus routes that serve the county.

The ATL operates two Xpress routes in Cherokee County. This includes Route 483 with service from the Woodstock Park-and-Ride and Route 490 with service from the Canton and Woodstock Park-and-Rides. Trip times for these routes are detailed below. Below are the ATL Xpress bus routes serving Cherokee County:

1. **Route 483-** Woodstock/Town Center (Big Shanty) to Midtown
 1. Two morning pick up (6:30 AM, 7:30 AM departures)
 2. Two afternoon return trips (5:08 PM, 5:38 PM returns)
2. **Route 490-** Canton/Woodstock to Downtown
 1. Two morning pick up trips (6:01 AM, 6:33 AM departures)
 2. Two afternoon return trips (5:11 PM, 5:41 PM returns)

Local and regional transit services do not allow for transfers due to different service spans and stop locations. The only park-and-ride lot within the CATS local bus service area is the Canton Park-and-Ride at Boling Park. Therefore, the only regional route with transfer opportunities with CATS local bus is Xpress Route 490. The CATS service start time of 8:00 AM is after the last Xpress departure from Canton. Additionally, the CATS local bus end time of 4:00 PM is before the first afternoon Xpress return trip arrival at the Canton Park-and-Ride. This creates connectivity barriers for transit users who want to travel to Midtown/Downtown Atlanta utilizing fixed-route bus.

In addition to span of service gaps, route alignment and schedule issues further constrain connectivity between CATS local bus and regional express bus. CATS Route 1 runs along SR 140 past Boling Park but does not stop at the park-and-ride lot. To better connect these services a local bus stop should be added at the Canton Park-and-Ride to enable direct transfer opportunities. With the loop design of the CATS local bus routes and one-hour headways, CATS local buses should start operation at least one hour before the first morning Xpress departure and continue at least one hour past the last afternoon Xpress return to enable riders at downstream stops to transfer from local to express bus.

Cherokee County is projected to have the fastest population growth in the region between 2020 and 2050. To serve projected growth, CATS has the opportunity to implement service changes and enhancements to better meet the needs of a growing population. For local bus service, CATS could extend the service span at least one hour before the first morning Xpress departure and one hour after the last afternoon Xpress return and add of bus stops at park-and-ride locations. Additional improvements that would significantly enhance regional connectivity opportunities would be to expand



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fixed-route service to southern Cherokee County and stop directly to the park-and-ride lot in Woodstock.

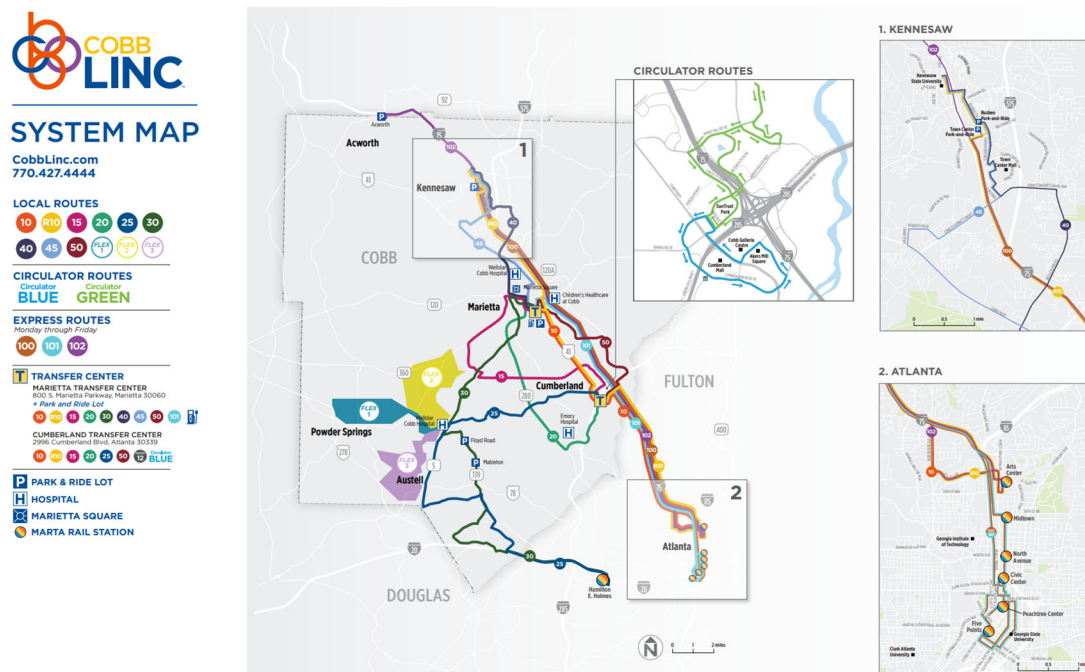
CONNECTIVITY TO COBBLINC

Regional transit connections to Cobb County and CobbLinc services were also examined. This included identifying the best connection points to existing and planned future services.

EXISTING COBBLINC SERVICES

Figure 3.10 illustrates existing CobbLinc transit services in Cherokee County. CobbLinc is the local transit service provider for Cobb County and operates nine local fixed routes, complimentary ADA paratransit, Flex - demand response service, three express bus routes, and two circulator routes.

Figure 3.10: Existing CobbLinc Transit Service



The closest connection point between Cherokee County and CobbLinc is just south of the Cherokee/Cobb border at the Acworth Park-and-Ride. This park-and-ride is served by CobbLinc Express Route 102 with service to Arts Center MARTA station and Xpress Route 480 with service to downtown Atlanta. While this is the closest connection point to Cherokee County it is not the best connection into CobbLinc's system.

The best regional connection point location in Cobb County is the transit nexus at the Town Center (Big Shanty Road) and Busbee Road Park-and-Rides. This location near the intersection of Big Shanty Road and George Busby Parkway is approximately five miles from the Cherokee County border. At this location a connection can be made to two local CobbLinc routes (Route 40, 45), one CobbLinc Express route (Route 100), two ATL



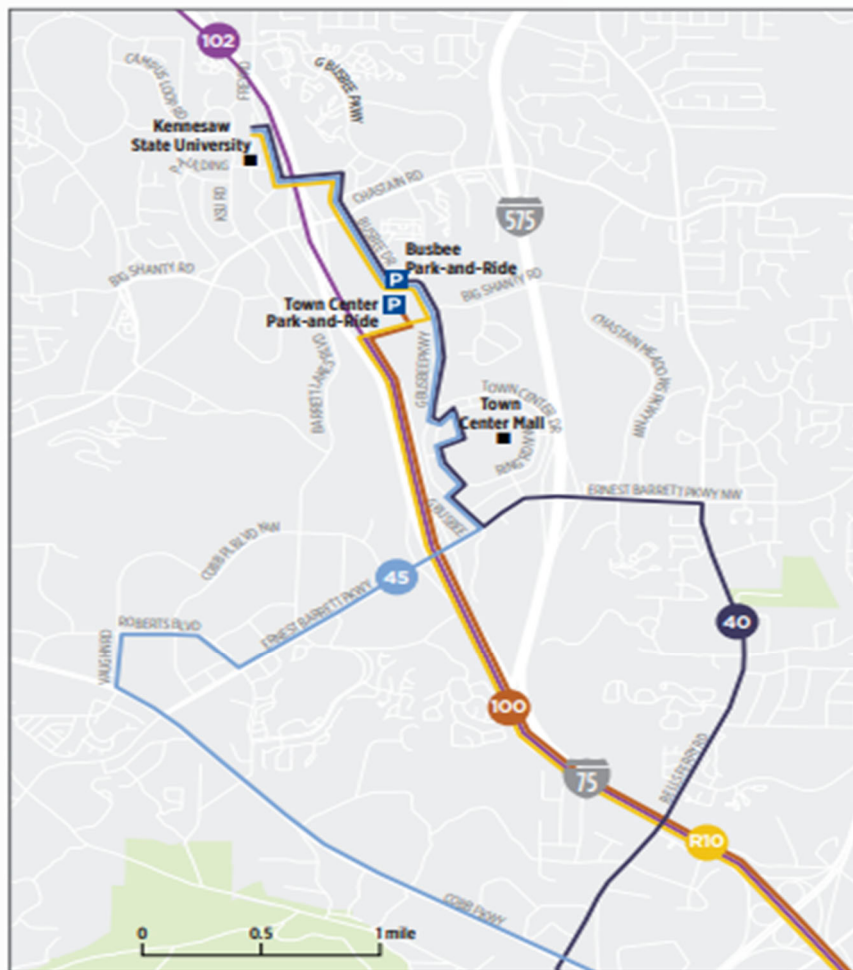
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Xpress routes (Routes 480, 483) and the CobbLinc Rapid 10. This location is shown in **Figure 3.11** and illustrates the numerous connections to other CobbLinc services within this area.

The CobbLinc Rapid 10 is the best regional connection as it features all-day weekday frequent express service to midtown Atlanta. It also provides a direct connection to the entire CobbLinc system through stops at the Marietta Transfer Center and the Cumberland Transfer Center. During the weekday peak period the Rapid 10 provides service frequencies of every 15 minutes and every 30 minutes in the off-peak periods. On Saturdays service frequencies are every 30 minutes and on Sundays every hour.

Figure 3.11: Existing CobbLinc Service in the Kennesaw Area

1. KENNESAW



FUTURE COBBLINC SERVICES

The regional connectivity analysis also examined the best locations to connect to planned future services. The Cobb Forward Comprehensive Transportation Plan 2050 was recently adopted in February of 2022 and included a future transit service plan for the

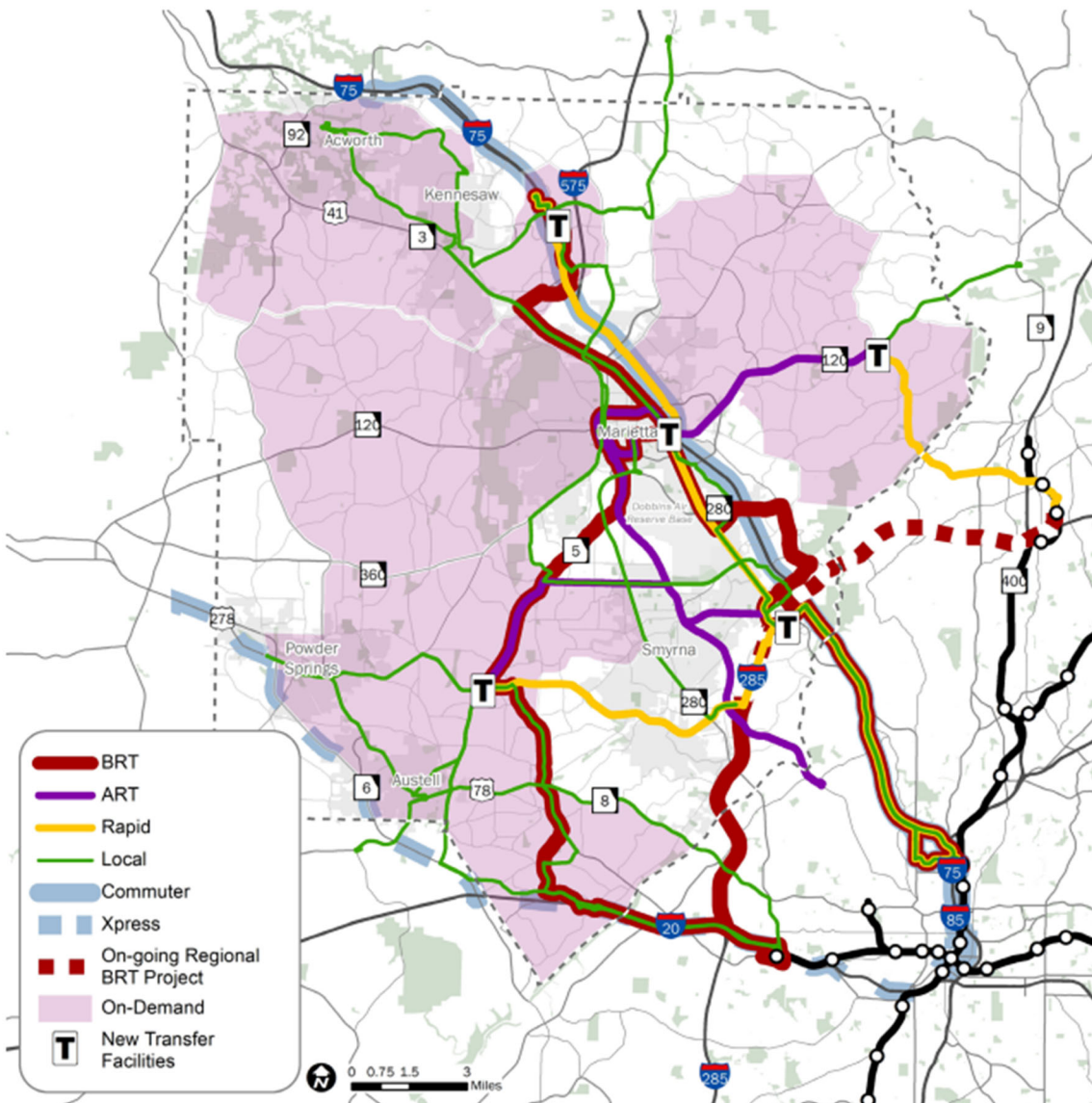


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county. This includes a phased Short-Range Service Plan (5-Year), Mid-Range Service Plan (10-Year) and a Long-Range Service Plan (30-Year). Major planned projects in the vicinity of Cherokee County, during each service phase are shown in **Figure 3.12** and include the following:

1. Short-Range Service Plan (5-Year):
 1. Extend local bus service to Acworth
2. Mid-Range Service (10-Year):
 1. Construct North Cobb Transfer Center at Town Center
3. Long-Range Service (30-Year):
 1. Extend Local Bus to Woodstock
 2. Bus rapid transit (BRT) service to Kennesaw State University (KSU)

Figure 3.12: Cobb Forward CTP - Long Range Transit Service Plan (30-Year)



The best regional connection point to CobbLinc's future services is in the same as existing services. The Town Center and Busbee Park-and-Ride area is the planned site for a future transfer facility in the Mid-Range Service Plan. This transfer facility is planned in the 10-year timeframe and will serve as a connection point to expanded CobbLinc services throughout Cobb County. When planned future transit services in the Long-Range Service Plan (30-year) become operational connecting to these services in the vicinity of Cherokee County should be reexamined.

4. FARE POLICY

Another key component of the *Transit Services Assessment* is a fare policy analysis. The purpose of this is to assess CATS's current fare structure and develop fare policy recommendations. This includes modifications to the current fare program and ensuring a seamless integration into regional fare initiatives. Given that CATS has not raised fares in over 15 years and the ATL is developing regional fare policy guidance there is a desire and need to revisit and update the county's fare policy.

EXISTING FARE POLICY

FIXED-ROUTE LOCAL BUS

The existing fare structure for CATS' fixed-route local bus is detailed in **Table 4.1** along with a comparison to regional peer systems. This indicates that CATS' fare is considerably lower than regional peers. CATS' regular one-way fare is \$1.25, compared to \$2.50 for Gwinnett County Transit (GCT), CobbLinc, Connect Douglas and Metropolitan Atlanta Regional Transit Authority (MARTA).

Table 4.1: Fixed-Route Local Bus Service Regional Peer Fare Comparison

Fixed-Route Local Bus Regional Fare Comparison					
Agency	CATS	GCT	CobbLinc	Connect Douglas	MARTA
Regular Fare One-Way	\$1.25	\$2.50	\$2.50	\$2.50	\$2.50
Reduced Fare One-Way	\$0.60 for Seniors, Medicare, Disabled	\$1.25 for Seniors, Medicare, Disabled	\$1.00 for Seniors, Medicare. \$1.50 for Youth under 18.	\$1.00 for Seniors, Disabled, Students	\$1.00 for Seniors, Medicare, Disabled



Agency	CATS	GCT	CobbLinc	Connect Douglas	MARTA
Regular Fare 10-Ride Pass	\$12.50	\$22.50	\$18.00	\$25.00	\$25.00
Reduced Fare 10-Ride Pass	\$6.00	\$12.50	\$10.00	\$10.00	\$10.00
Regular Fare Monthly Pass	Not Offered	\$80.00	\$72.00	\$75.00	\$95.00
Payment Options	Cash (Exact change is required), Check, Debit and credit cards are accepted over the phone.	Cash (exact change), Breeze Card, Tickets, GCT passes, Mobile payments via the Token Transit mobile app (pilot program).	Cash (exact change), Breeze Card, CobbLinc magnetic tickets and passes.	Cash (exact fare), Connect Douglas Trip passes	Breeze Card or Breeze ticket.

CATS provides reduced fares for seniors, Medicare recipients, and individuals with disabilities. The reduced fares are \$0.60 for a one-way fare and \$6.00 for a 10-ride pass. This is considerably lower than regional peers which range from \$1.00 to \$1.50 for a one-way trip and \$10.00-\$12.50 for a 10-ride pass.

Payment options vary between services. CATS permits fare payment via cash, check, and credit or debit cards over the phone. CobbLinc, GCT and MARTA all utilize the Breeze fare payment system, which permits seamless transfers between systems. GCT is the only service that permits payment through a mobile app via the Token Transit application. All four regional peers utilize their own branded fare tickets or passes as a payment option.

FIXED-ROUTE FAREBOX RECOVERY RATIO

A transit system's farebox recovery ratio is a performance metric which reflects the percentage of operating costs that are recovered from fare revenue. It is calculated by dividing a services total fare revenue by its operating costs. **Figure 4.2** displays the farebox recovery ratio of fixed-route bus for CATS and peer systems in the Atlanta region in between 2016-2020. This illustrates that CATS is near or at the bottom compared to regional peers. The only other service that exhibits a similar level of



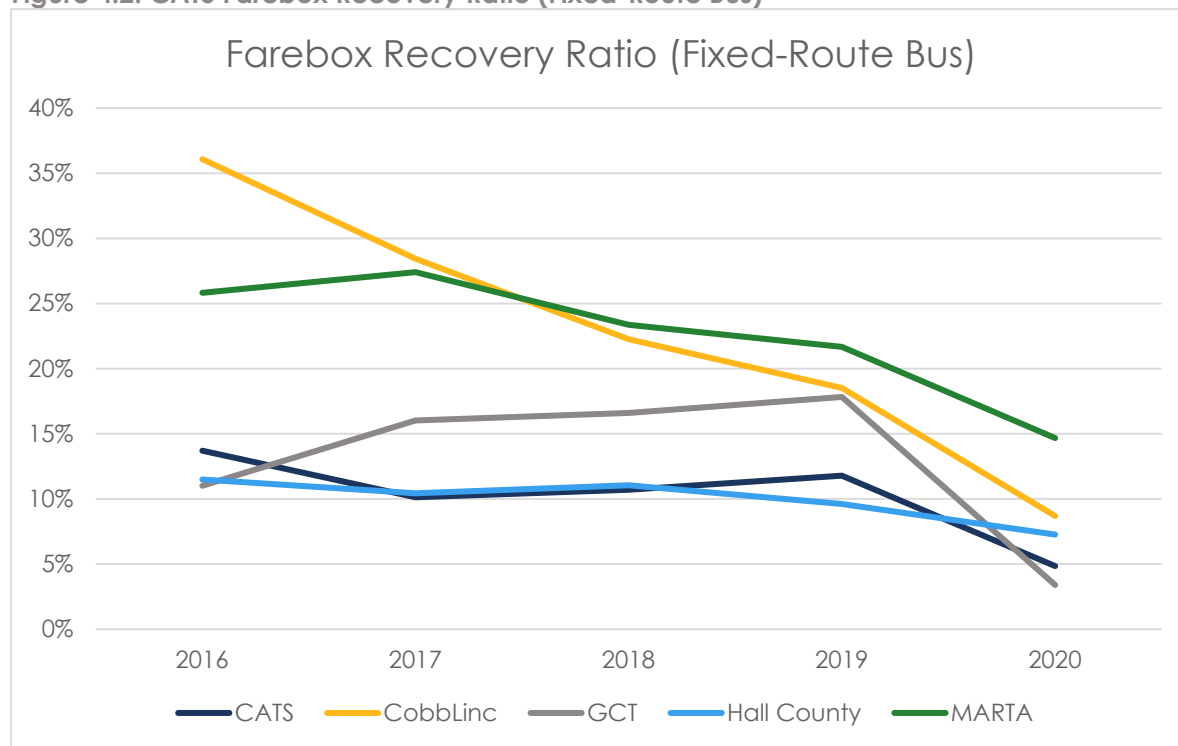
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farebox recovery ratio is Hall County Transit, which has discontinued fixed-route bus service and replaced it with microtransit.

Having a low farebox recovery ratio can be an indication that a service is inefficient and due to low ridership fare revenues only cover a small percentage of the operating costs. In the case of CATS, a low farebox recovery ratio compared to peers is also a function of passenger fares that are considerably lower than regional peers.

While a system's farebox recovery ratio can be an indicator of service efficiency, placing too much emphasis on maximizing this can reduce ridership levels if fares become too high. It is important to note that fare revenues are not expected to cover a substantial portion of operating costs, nor would this be desirable as transit's role as a public service and is anticipated to require a public subsidy to operate.

Figure 4.2: CATS Farebox Recovery Ratio (Fixed-Route Bus)



DEMAND RESPONSE SERVICE

The fare structure for countywide demand response services provided by CATS and regional peers are detailed in **Table 4.2**. Like fixed-route local bus CATS's fares for demand response service are also considerably lower than peer systems, with the exception of Paulding County Transit, which does not charge a fare. Similar Dial-a-Ride systems in Henry and Forsyth Counties charge \$4.00 and \$2.00 respectively for one-way regular fares.



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CATS employs variable rate fares charging an additional \$0.30 for every mile over five miles. Distance-based variable rates are a fare pricing best practice as they price transit in relation to the operating costs incurred by the agency. However, they can be more difficult to administer and collect than a flat rate. The majority of demand response trips in Cherokee County do not exceed 5 miles in length so the flat fare of \$1.50.

The WeGo system in Gainesville-Hall County utilizes distance-based variable rates. Trips less than 5 miles are charged a flat fare of \$2.00. Trips longer than five miles are charged \$0.50 cents for each additional mile. An analysis of trip lengths from the County's previous Dial-a-Ride system indicated that a large majority of trips are under 5 miles in length. The variable rates are calculated automatically through Via's operating software and charged to a rider's payment method, and this means there is no administrative burden related to calculating and collecting the accurate fare from a rider. Riders must register and create an account to access WeGo services. Users keep an active credit card, debit card, or prepaid card on file and are automatically billed for trips. No cash is exchanged between vehicle operators and riders.

Table 4.2: Demand Response Regional Peer Fare Comparison

Countywide Demand Response	CATS	Henry County Transit	Forsyth County Dial-a-Ride	Coweta County Transit	Paulding County Transit	Gainesville-Hall Transit (WeGo)
One-Way Regular Fare	\$1.50 per trip for first 5 miles and additional \$0.30 per mile over 5 miles	\$4.00	\$2.00	\$3.00	Free	\$2.00 per trip for the first 5 miles and additional \$0.50 per each mile over 5 miles
Reduced Fare	Not Offered	\$2.00 for persons 60+	Not Offered	Not Offered	Not Offered	Not Offered
Payment Options	Cash (exact change) Debit and credit cards accepted via phone.	Cash (exact change), Checks	Cash (exact change)	Cash (exact change)	Not Applicable	Credit card, debit card, prepaid card



TRANSFER POLICY

The transfer policy between transit operators is a key component of an agency's fare policy structure. This includes fare reciprocity with other regional service providers. **Table 4.3** details the transfer policy of CATS and other regional transit systems.

Table 4.3: Transfer Policy Regional Comparison

Transfer Policy of Regional Transit Providers	
Cherokee Area Transit System (CATS)	External transfers between CATS and other regional agencies are not provided. One internal transfer is permitted amongst CATS fixed-route and demand response services.
Gwinnett County Transit (GCT)	Free transfers are provided between GCT Commuter Bus routes and MARTA rail and/or bus, but they require the use of a Breeze Card loaded with GCT fare or stored value. Cash patrons and paper ticket/pass holders cannot receive a free transfer to/from MARTA, so if a customer plans to travel between systems a Breeze Card is recommended. Upcharges are required to transfer from local GCT routes and ADA paratransit to GCT Express Commuter Bus routes.
CobbLinc	<p>External transfers between CobbLinc to MARTA are provided within three hours from start to trips with a CobbLinc fare product located on a Breeze Card. Transfers between CobbLinc Paratransit to MARTA Mobility are subject to MARTA Mobility fares.</p> <p>Free transfers are provided between CobbLinc Commuter Bus routes and MARTA rail and/or bus with a Breeze Card. Free transfers are provided for up to three hours in the same direction of travel, but not on return trips.</p> <p>Free external transfers are also provided to Connect Douglas' Route 40.</p>
MARTA	<p>Free external transfers are provided between MARTA to CobbLinc with a MARTA fare product on a Breeze Card. Transfers are valid for three hours from the start of trip and in same direction of travel. Transfers are not valid for round trips. Transfers to CobbLinc Paratransit are subject to an up-charge.</p> <p>Free external transfers are provided between MARTA to GCT with GCT fare product or stored value.</p> <p>Free external transfers also are provided between MARTA to Xpress with a Breeze Card.</p>
Connect Douglas	Free transfers are provided between Connect Douglas' Route 40 and CobbLinc Route 30 at the Riverside EpiCenter stop. Free transfers from Connect Douglas to the MARTA system are not provided.



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Forsyth County Transit	Free transfers between Forsyth County and other agencies are not provided.
Xpress (Atlanta-Region Transit Link Authority)	Free external transfers are provided from Xpress to MARTA bus and rail with a Breeze Card. Subsequent transfers from Xpress to MARTA to GCT buses in the direction of travel are also provided free of charge. Subsequent transfers from Xpress to MARTA to CobbLinc are not provided free of charge and require an additional \$2.50 fare.

COORDINATION WITH REGIONAL FARE POLICY

The Atlanta-Region Transit Link Authority (the ATL) is in the process of conducting a regional fare policy study to coordinate transit fare policy throughout the Atlanta region. Throughout 2020 and 2021 the ATL conducted a series of five workshops with regional transit operators to reach consensus on regional fare collection policy and standards.

The study has established a guiding framework for a seamless regional fare system. This framework includes four pillars of cooperative regional fare collection standards. The four pillars incorporate corresponding fare collaboration principles and are as follows:

- A. Fare Structure/Policy** – Seamlessness of fare charges to the regional transit rider will be an objective of every partner, with particular attention to multi-agency trips and transfer connections.
 - A.1** Partners will inform each other of any planned changes in fare structure.
 - A.2** Muti-agency fare products will be provided when feasible with consideration to minimize negative impacts on revenue.
 - A.3** Partners will standardize definitions of rider classes such as full fare, seniors, people with disabilities, and children for approval by respective Boards.
 - A.4** Partners will standardize transfer expiration times and number of transfers for approval by respective Boards.
 - A.5** Partners will seek regionally standardized fares and collaborate with each other in evaluating fixed fares, time-of-day, or distance-based charges for recommendations to respective Boards.
 - A.6** Partners will standardize mode definitions for customers (e.g., express and local bus service types).
- B. Fare Collection Technology** – Seamlessness of rider's fare payment process will be an objective of every partner.



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B.1 Technology will be interoperable, by efficiently functioning across systems and interfaces.

B.2 Partners will share fare collection technology planning timelines and relevant documents such as technology evaluations or plans.

B.3 Partners will implement open, account-based payment systems.

B.4 Partners should use open application programming interface (open APIs) in fare collection and administration technology with consideration to impact on all agencies.

B.5 Partners will strive to make secure data management an organizational priority.

B.6 Partners will sustain an equitable payment system by retaining cash payment system by retaining cash payment methods.

C. Fare Administration – Partners will maximize each other's read access to fare revenue, fare collection, and fare administration data.

C.1 Partners will agree on a transparent and standard process to collectively review any fare-related data.

C.2 Any agency holding fiduciary duties will cooperate in reasonable reviews to ensure fare revenue reconciliation is administered in collaborative manner.

C.3 Partner will, upon request, share fare tables and related revenue records.

C.4 Partners will provide data for fare-related inquiry by any partners for its riders.

D. Fare System Procurements – Partners will plan procurement with each other and coordinate during RFP/RFQ.

D.1 Partners will notify other partners and provide time for comment on any fare technology procurement solicitation and where appropriate shall invite partners to participate in the scope and requirements.

D.2 Procuring partners may, as appropriate, name other partners with options, as assignees, 3rd party beneficiaries, or in similar user roles, and partner needs may be listed and quantified.

D.3 Partners may share technology intellectual property rights with the contracting agency or agencies.

The fare policy study has developed a guiding framework, but it has not yet progressed into implementation. The study has identified a four-step path forward to advance the fare collection principles into a work program. This is heavily contingent on coordination with the planning and implementation of MARTA's new automatic fare collection system, known as AFC 2.0. The four-step path forward is as follows:

1. **Workshops** – Continue workshop format hosted by ATL.
2. **Coordinate with AFC 2.0** – Align workshop schedule with AFC 2.0 award.
3. **Memorialize Principles** – Identify appropriate agreement mechanism.



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4. **Implement Principles** – Begin with recommendations which have partner support (e.g., rider classes, transfer rules, multi-agency passes).

The next phase of the ATL's study will continue workshops to memorialize the fare principles and begin implementation. This will coincide with MARTA's AFC 2.0 procurement schedule to ensure that any fare principles that require coordination with AFC 2.0 technology are adopted before the rollout of the new hardware and software. With CobbLinc and GCT being partners in the Breeze fare system they will be key parties in negotiating the AFC 2.0 procurement. It is estimated that this phase will conclude with the anticipated rollout of AFC 2.0, around 2026. In the next phase it is expected that the working group will recommend and adopt binding fare structures, technologies, and administrative policies with delegated authority.

FARE POLICY RECOMMENDATIONS

The following section provides fare policy recommendations for CATS that are based upon an assessment of the current fare structure and align with the ATL regional fare policy study's guiding principles. This includes increasing fares to a regional standard consistent with peer systems, as detailed in fare collaboration principle A.5. It also includes facilitating a regional fare payment system and adopting a free transfer policy to facilitate and ensure seamless regional transfers. Both of which are described in the fare study's collaboration pillars A and B.

Key fare policy recommendations include the following:

Increase fares to meet regional standards. CATS has not increased fares in 15 years and currently has the lowest fares for fixed-route service amongst regional peers. It is recommended that CATS consider increasing fares for fixed-route local bus service from \$1.25 for a regular one-way fare to the regional standard of \$2.50 per trip. Increasing reduced rate fares for seniors, Medicare recipients, and individuals with disabilities from \$0.60 to \$1.00 to meet regional standards is also warranted. Increasing fares to the regional standard would help ensure seamless fare payment across the region.

Demand response fares are also considerably lower than regional peers, which range from \$2.00 to \$4.00 per trip. Increasing fares from the variable rate of \$1.50 with \$0.30 for every mile over 5 miles to better match regional peers would be reasonable at this time considering these fares have remained unchanged for 15 years. Currently there are no regional fare standards for demand response services. If through the ATL's fare policy study regional fare standards are established aligning with the ATL's regional fare structure should be considered for demand response and fixed-route services.

Facilitate a seamless regional fare payment system.

To greatly improve the ease of use and customer experience for CATS riders making regional transfers CATS should facilitate seamless fare payments between CATS and regional service providers. This would allow for regional transfers that do not require a transfer ticket to be issued by drivers or the purchase a separate fare product to access other services.



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With MARTA's imminent procurement of a new automated fare collection system (AFC 2.0), CATS becoming a partner of the existing Breeze system to facilitate seamless fare payment is not a viable option. It is recommended that CATS utilize the ATL's fare policy study's working group to advocate for fare payment technologies in AFC 2.0, that could be beneficial for CATS' customers seeking regional transfers. This may involve mobile application and/or web-based fare payment options available to MARTA riders and the riders of other regional services.

Adopt a complimentary regional transfer policy.

To improve regional transit connectivity, CATs may consider adopting a complimentary transfer policy between regional operators. Many operators in the region currently provide for free transfers to other services, as detailed in **Table 4.3**. To align with the ATL's fare policy guidance, CATS may consider implementing the transfer policies of regional peers to ensure a seamless transfer experience for riders among public transit services in metro Atlanta.

5. MICROTRANSIT ASSESSMENT

This chapter provides an assessment of the applicability of microtransit services within Cherokee County. Microtransit is a new form of demand response transit (DRT) that utilizes recent advancements in technology (i.e. ubiquitous smart phone use, automatic vehicle location (AVL) technology, and trip routing algorithms) to match riders with available vehicles. Microtransit has the potential to provide public transportation that is more flexible, cost-effective, and responsive than traditional forms of fixed-route transit. There is an identified need among community stakeholders and decision-makers to examine this form of transit for suitability within Cherokee County.

This assessment analyzes the potential of replacing existing countywide demand response service and/or fixed-route local bus service with microtransit service. This also includes the potential of microtransit serving as an adjunct to fixed-route services in currently underserved areas of the county.

A key component of the assessment includes case studies of peer jurisdictions that have recently implemented microtransit services to identify best practices and lessons learned. This includes two jurisdictions in Georgia, Gainesville-Hall County and Valdosta, Georgia, which have implemented different operating models for microtransit services. An examination of the pros and cons of each model has been analyzed with applicability to Cherokee County.

MICROTRANSIT CASE STUDIES AND INTERVIEWS

To assist CATS with evaluating the suitability of microtransit services two peer interviews were conducted. The purpose of these interviews were to collect information on implementation, service delivery and identify best practices and lessons learned. The City of Valdosta and Gainesville-Hall County were selected as case studies because they are among the first. These jurisdictions were selected because they are among the first microtransit systems to be implemented in the state and utilize different operating models.



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VALDOSTA ON-DEMAND

The City of Valdosta launched microtransit service in April of 2021, under the 'Valdosta On-Demand' transit brand, shown in **Figure 5.1**. Valdosta selected a Transportation as a Service (Taas) model, which was provided by Via as the vendor. In this model, the vendor provides a turnkey solution that includes microtransit software and technology, plus drivers, vehicles, and operations management. The service characteristics for Valdosta On-Demand are summarized in **Table 5.1**.



Figure 5.1: Valdosta On-Demand service launch and public education event.

Table 5.1: Summary of Valdosta On-Demand Service Characteristics

Valdosta On-Demand Service Characteristics	
Service Population	Open to Valdosta residents aged 13 and older. Children under 13 must be accompanied by a parent or guardian. City of Valdosta population - 55, 378 in 2020.
Service Area	Valdosta city limits - 36.43 square miles. Population density – 1,520 persons per square mile.
Service Hours	Monday through Friday 6 a.m.-9 p.m.
Fare	\$2.00 per trip, \$1.00 per additional passenger.
Service Fleet	Seven branded vans featuring 'Valdosta On-Demand' logo. All vehicles are wheelchair accessible.
Ride Booking Procedure	Via mobile application or phone. Patrons without a smart phone may call the dispatcher directly to request a trip at (229) 441-2940.



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Trip Reservation Policy	Trip bookings can be made up to three days in advance. Recurring trips can be booked through the mobile app through the 'Schedule' feature. Riders may bring up to two additional passengers at a price of \$1 per additional passenger.
Mobile Application	The 'Valdosta On-Demand' mobile application is available in the Apple App Store or Google Play store. Within the app under the 'Favorites' tab a rider can 'Set Home Address' and/or 'Set Work Address'. The need for wheelchair equipped vehicles can be indicated within the app's rider profile tab.
Pick-up Locations	Passengers are typically directed to walk to the nearest intersection or corner to facilitate a timely pick-up without any driver detours required. When a ride is booked the app will identify the pick-up location via street to the pick-up location. Once on board the destination cannot be changed. The trip must be cancelled and re-booked with a new destination. Over time some of these virtual bus stop locations have been modified based upon customer concerns, mobility limitations, or safety considerations.
Cancellation Policy	Cancellation fees within 1-minute of booking are waived. A no-show penalty of \$1.00 will be charged if the driver is unable to locate a rider within a two-minute waiting period. Passengers with a pattern of no-shows or late cancellations will receive a verbal warning first, followed by a warning letter and then receive successively longer service suspensions from one week to one month.

Interviews were held with representatives from the City of Valdosta, the South Georgia Regional Commission (SGRC), and Via in April of 2022. These interviews were helpful in gaining important insights into microtransit service planning, implementation, and operating experience. The highlights, key findings and lessons learned from these interviews are detailed below.

Valdosta On-Demand's service planning period required approximately a year and a half before service launch. The South Georgia Regional Commission (SGRC) and the Georgia Department of Transportation (GDOT) were major coordinating partners during this period. The SGRC assisted with service planning studies and the request for proposals (RFP) for the microtransit vendor. The SGRC's transit plans for Valdosta did not originally include a microtransit only system. The SGRC envisions a hybrid system of fixed-route local bus and microtransit being feasible within the city of Valdosta.

Via described the service planning process to be a balance of accurately estimating demand, establishing service quality or standards, and determining the appropriate supply of vehicle capacity. Via indicated that accurately estimating demand to be the most difficult component of service planning due to the variety of factors involved.



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During service planning a zone-based system was considered but it was determined that a city-wide service was the most appropriate given the city's size. The service was launched fully city-wide without a pilot or test area approach. The service launched during the COVID-19 pandemic, which necessitated a capacity limit of three riders per vehicle. This has since been relaxed to permit five riders per vehicle.

Since Valdosta On-Demand's launch the service has been very popular with the public, demand has been very high and it is currently exceeding vehicle capacity and the contracted service hours. The system provides an average of 300 rides daily with an estimated demand of upward of 500. The City of Valdosta has recently amended their service contract for Fiscal Year 2023 to increase the vehicle fleet from seven to ten vehicles to better meet demand. Representatives from Via estimate a service fleet of 16 vehicles is needed to fully meet demands.

Representatives from the City of Valdosta have had positive experiences working with Via and describe an easy working relationship. The City reports that the service costs been very transparent in the contract with Via and there have not been any unforeseen costs or fees. Representatives from the SGRC have indicated that Valdosta On-Demand's costs per rider are assumed to be slightly less than traditional Dial-a-Ride.

WEGO – GAINESVILLE-HALL COUNTY

Hall Area Transit (HAT) launched WeGo in December of 2020 within the city of Gainesville. A pilot approach was used first in launching within the city of Gainesville and then expanding to the entire county. Service was expanded to the entirety of Gainesville-Hall County on July 1, 2021. Service initially replaced three underperforming fixed-routes in Gainesville before it replaced the entire fixed-route and Dial-a-Ride system within the county.

HAT implemented the software as a service (SaaS) operating model in which they lease the microtransit software from Via but operate and maintain all other aspects of the transit service. This was a reasonable option for the county as they already had operations capabilities and experience, drivers, and maintenance facilities. The agency described the community as being a 'slow-adopter' of public transit and 'outsider' operations (Via) would not be accepted well by customers who have a familiarity with existing drivers. The County also desired to closely control and manage the service and maintain their transit infrastructure in the event that WeGo services were unsuccessful. A summary of WeGo's service characteristics are provided in **Table 5.2**.



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Table 5.2: Summary of WeGo Service Characteristics

WeGo Service Characteristics	
Service Population	Open to residents of Gainesville-Hall County. Gainesville-Hall County population - 201,434 in 2020.
Service Area	Gainesville-Hall County - 429 square miles. Population density – 470 persons per square mile.
Service Hours	Monday through Friday 6 a.m.-10 p.m.
Fare	\$2.00 per trip for the first five miles and \$0.50 per additional mile.
Service Fleet	17 service vehicles comprised of Lonestar 1500 & Lonestar 3500 vans. 12 operating in maximum service. - Ten 10-seater vehicles, five 12-seater vehicles and two 14-seater vans. All vehicles are wheelchair accessible.
Trip Booking Procedure	Trip bookings can be made via the 'WeGo' mobile app or by phone at 770-503-333. Wait times will vary depending on nearby driver availability, but generally should not exceed 15 minutes in the City of Gainesville and 45 minutes in other parts of Hall County.
Mobile Application	The 'WeGo' powered by Via mobile application is available in the Apple App Store or Google Play store. Customers enter their pick-up and drop-off locations in the app.
Pick-up Locations	Passengers are typically directed to walk to the nearest intersection or corner to facilitate a timely pick-up without any driver detours required.

In April 2022, an interview was conducted with the Director of Gainesville-Hall County Community Services. Important insights into the planning, implementation, and operating experience of microtransit services were gained during this interview. The highlights and key takeaways from these interviews are described in more depth below.

The planning and implementation process ran smoothly with assistance from Via. The driver training process took approximately two hours. Service vehicles have been retrofitted with iPads which show turn-by-turn directions to drivers and communicate with passengers. Lessons learned include selecting the right cell service provider with good consistent reception throughout the county and ensure the appropriate charging cords are used for the tablets to prevent burning out the battery.

The County made the choice to purchase new vehicles (shown in **Figure 5.2**), as opposed to retrofitting existing vehicles. There was a desire to have a new look for the service with new vehicles and a new brand to encourage public acceptance. The existing cutaway vans were also difficult to maneuver and too large for many streets in the county. The cutaways were transferred to Rome Transit. The County hired a third-party to develop the transit brand based upon the City of Gainesville's recent branding change.





Figure 5.2: WeGo Service Van

The County has identified some key considerations when implementing microtransit service, which are as follows:

- Complete a thorough inventory of the existing customer base, home locations, mobility needs, top destinations and road conditions that may affect vehicle selection.
- Communicate with the current passenger body consistently at regular intervals to give riders time to prepare and secure access to a smart phone if need be. Gainesville-Hall County communicated at 18-months, 12-months and 6-months before service launch. Before service launch the County communicated via letters and worked directly with the caregivers of some customers. HATs promoted and marketed the WeGo service through one-on-one meetings, press releases, website, local newspaper, local radio station, and civic group meetings.
- Ensure the user interface of the mobile application is correctly designed at service launch. One lesson learned is that updating the mobile app's user interface took considerable time on the backend after service launch and would have been better if correct from the beginning. In hindsight including a preapproved button for ADA service and wheelchair service was needed. Without this many customers were using the wheelchair button to avoid walking to the virtual bus-stop location with prior approval. Careful consideration should be given to what permissions should be granted to different customers through the app.

HATs has indicated that Via has been easy to partner with and very responsive with excellent customer service. Via has a staff member assigned to the county who meets with HATs weekly to look at analytics and make recommendations for improvements. At service launch these meetings were two hours long and now they have been reduced



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to just 30 minutes, which is consistent with the county's need for support as the service has become established. While generally responsive tech solutions can take a while to complete, and the technology group is based in Israel which sometimes creates a time delay.

The WeGo system was planned and implemented as a county-wide service and is not zone based. However, vehicles are stationed throughout the county and are concentrated in high-ridership locations. Within the city of Gainesville wait times are targeted at 15-minutes or less. Wait times in the unincorporated county are 45-minutes or less. Vehicle placements are anticipated to change as patterns shift in ridership.

When the system launched in December 2020, within 90 days, it was clear that ridership exceeded that of both existing demand response and fixed-route service. During this time period representatives from GDOT and FTA advised holding a series of public hearings and an equity analysis (Title VI). Concerns were raised about the proposed regular one-way fare of \$4:00-\$5.00 per ride and a compromise was reached to reduce the majority of fares to \$2.00 with an additional \$0.50 per mile over five miles.

Ridership demands have consistency exceeded vehicle capacity. The service fleet is currently 17 vehicles with 12 operating in maximum service. HATs estimates that five additional vehicles are needed to keep pace with demand. Prior to WeGo's launch Hall Area Transit had 500 service accounts and this has now increased to 5,000 accounts. Service statistics for WeGo between July 2021 to April 2022 are shown below in **Table 5.3**.

Table 5.3: WeGo Service Statistics (July 2021 to April 2022)

WeGo Service Statistics (July 2021 to April 2022)	
Total Ride Requests	102,474
Total Ride Requests During Service Hours	97,565
Completed Rides	69,795
Number of WeGo Accounts Created	4,243
Average Pick-up Walking Distance	175.1 Feet
Average Wait Time	23 Minutes
Average Ride Rating	4.9
Average Ride Distance	4.5 Miles
Average Ride Duration	14.6 Minutes

HATs is considering adding a subscription feature to the app for regular riders. They are also considering adding a survey of trip purpose during peak periods. Many trips are being cancelled because the bus is late due to high demand. The County is looking to prioritize employment and education trips during the peak period. They are also considering implementing a significant financial penalty for cancellations or no-shows to limit the impacts on service capacity and efficiency.



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The 2020 US Census has designated Gainesville-Hall County as a large urban area (over 200,000 in population), affecting FTA's transit funding formulas in apportioning formula grants. The County no longer applies for FTA 5311 (rural area) funding as the designated rural area and corresponding funding has decreased considerably recently. The County chose to not fund the system by FTA formula grants due to requirements for drug and alcohol testing and workspace harassment. HATs prefers to control all of this themselves. The entire costs for WeGo vehicles and operating costs were covered under the Coronavirus Aid, Relief and Economic Security (CARES) Act transit funding.

At the time of the interview the exact operating costs comparison between microtransit and the previous Dial-a-Ride and fixed-route service was not available. It is assumed that microtransit is more cost efficient and this will be assessed when the Fiscal Year ends to compare year-to-year costs. At the time of the interview microtransit has been more cost-effective but this may change to become more expensive as the Fiscal Year concludes. Similar operating costs to previous services is tolerable to HATs given the higher level of transit service provided that is both more efficient and effective. No hidden or surprise service costs were evident with microtransit. The service contract costs with Via have been very transparent.

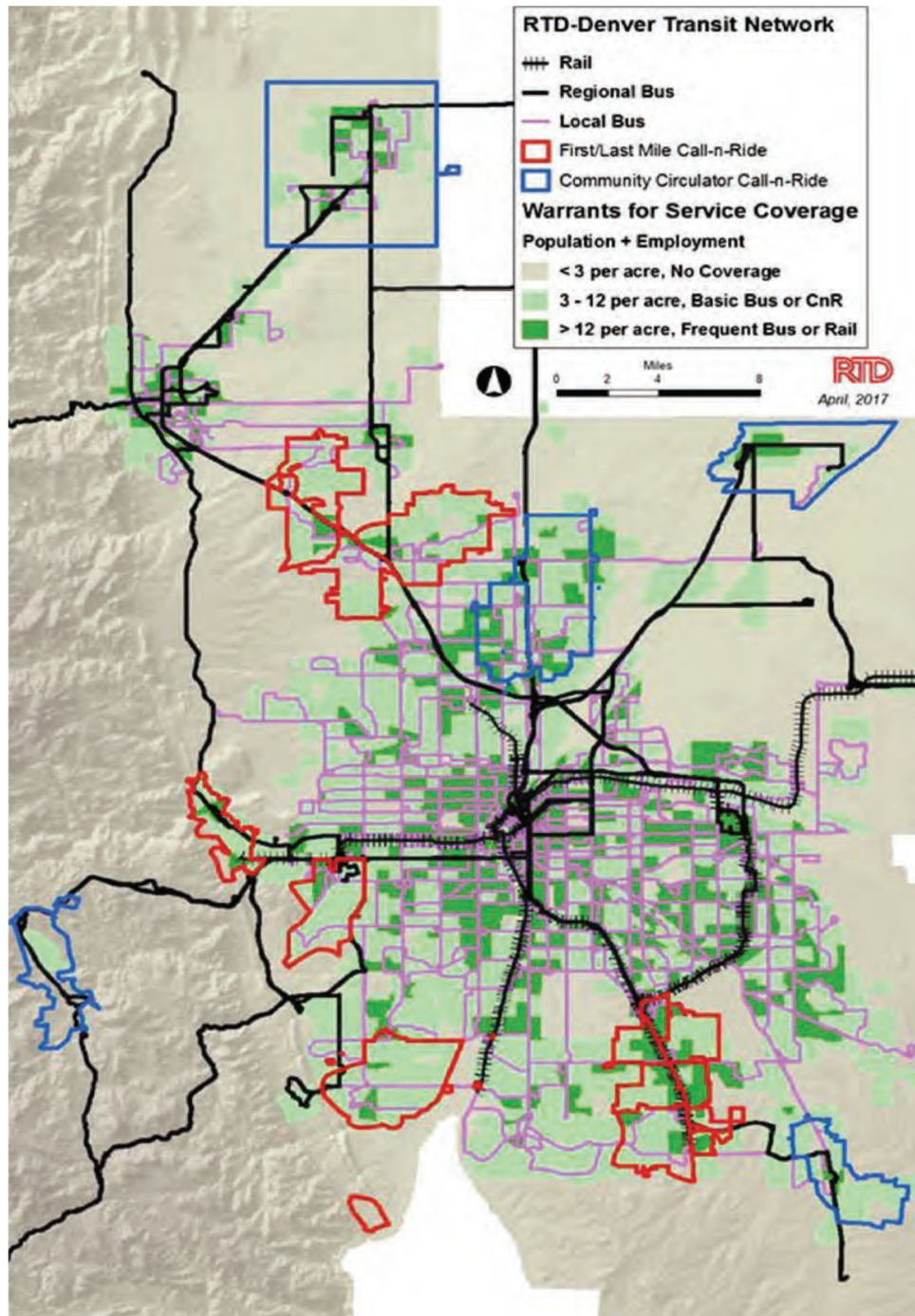
DENVER REGIONAL TRANSPORTATION DISTRICT (RTD)

The Denver Regional Transportation District (RTD) has extensive experience in providing variations of microtransit services. The RTD has been a national pioneer in developing microtransit and one of the longest continuous operators, which date back to 2004. No other transit agency provides the quantity of microtransit service and the RTD has been generous in sharing its experience. The RTD is an excellent resource for practical information given its long track record of operations and history of analyzing the effectiveness of various microtransit solutions. The agency serves two primary markets with microtransit: first mile/last mile for typical and reverse commuters and community circulators within residential and mixed-use areas.

The RTD is charged with providing transit services across an eight-county region, much of which is relatively low density. With a regional taxation model, issues of jurisdictional equity arise in areas that provide tax support but receive no transit service. To address the geographic equity of service provision the RTD has established warrants for service coverage based upon combined population and employment density. Three density thresholds correspond to appropriate transit modes. A combined population and employment density of greater than 12 per acre is suitable for frequent bus, BRT or rail service. Densities between 3 and 12 per acre are appropriate for basic local bus or microtransit service. Densities less than 3 per acre do not warrant transit coverage. These transit warrants are depicted in **Figure 5.3**, along with numerous microtransit zones in the Denver metro, which the RTD refers to as 'Call-n-Ride' service.



Figure 5.3: RTD Warrants for Service Coverage and Call-n-Ride Zones



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RTD launched microtransit or Call-n-Ride service to serve suburban, lower density areas where fixed route local bus is inefficient. Microtransit is more effective in serving areas with dispersed travel patterns and a non-contiguous street network than large fixed-route buses. RTD's first Call-n-Ride zone replaced an underperforming fixed-route bus route that carried 15 passengers per day. The new Call-n-Ride zone in 2004 carried 60 passengers per day for the same resources. The cost per hour to provide Call-n-Ride service is considerably less than that for fixed route service and less per passenger trip than paratransit service.

RTD carefully tracks the performance metrics of all its modes of service, including the Call-n-Ride program. While there is a surprising consistency in the level of ridership among most zones, it is clear that those first mile/last mile zones that serve commuter bus or rail stations are the most productive zones. This is particularly true for reverse commute zones that serve office parks and/or college. Stationing vehicles at transit stops to coincide with rail or commuter bus service has been shown to increase microtransit ridership by not requiring riders to request or pre-book trips.

The Call-n-Ride service utilizes a fully automated scheduling and vehicle management platform, known as MobilityDR. No reservationists, schedulers, or dispatchers are needed with this platform. With the platform and intelligent service configuration, many users have to do little to access the service and benefit from its on-demand nature. Customers can make online reservations through their computer or mobile phone or board spontaneously at scheduled checkpoints or stations. Subscriptions are also accepted so regular commuters do not need to book each pick-up trip at approximately the same time each day. The MobilityDR notification system alerts customers the Call-n-Ride vehicle is due to arrive in a few minutes via a text message, e-mail, or automated phone call.

Passengers boarding at rail or express bus stations or at other scheduled checkpoints do not need to book a trip thanks to MobilityDR's 'QuickBoard' feature. Passengers simply access the station or checkpoint on the published schedule and walk on, telling the driver their destination. The driver enters that information into the MobilityDR application on a tablet computer, and the automated scheduling system then schedules the trips of all those who just boarded, along with other advance reservation trips. All of these features of the application make accessing Call-n-Ride services simple for riders. Due to the highly structured nature of the service, nearly 75% of all trips in first mile/last mile zones have no need for any reservations to be made.

The Call-n-Ride zones employ a number of service modes that MobilityDR makes possible, such as flex route service, checkpoint-focused service, and fully demand-responsive service, where all addresses qualify as pickup or drop-off destinations. Within zones service modalities are often mixed. For instance, the service might run on a feeder route during peak hours and entirely on demand during off-peak hours.

KEY TAKEAWAYS FROM CALL-N-RIDE SERVICES

Key insights, takeaways and lessons learned from Call-n-Ride service applicable to microtransit in Cherokee County include the following:



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- Microtransit service is more cost-effective, productive and attractive than comparable fixed-route local bus service in suburban areas with low-to-moderate densities of 3 to 12 population and employment per acre, dispersed travel patterns and circuitous street networks.
- Microtransit is particularly useful at providing connectivity between dispersed suburban areas and the regional transit network at long-haul commuter transit stops, park-and-rides or stations.
- Lessons learned for implementing successful microtransit service include:
 - Establishing clear, measurable objectives.
 - Plan for the market: assess potential ridership, customer characteristics, and service area characteristics.
 - Research customers' travel patterns and configure the service to meet their needs.
 - To avoid providing taxi or transportation network company (TNC)-like service, that caters to individual trips, RTD has set service thresholds of at least 2 to 3 boardings per service hour.
 - Additional vehicles at peak times are needed to keep the service as efficient and attractive as possible.
- Compared to fixed-route services, marketing promotions are significantly more challenging. Marketing promotions require substantial coordination with communities affected, considerable outreach and direct promotions.
- A clear understanding of the market is critical. With 70% of all transit trips being for employment or education, no Call-n-Ride services have been successful without catering to one or both of these markets. Education trips are more prominent within community-circulator based zones, while work trips are more prominent within first mile/last mile zones.
- High-levels of customer satisfaction are associated with Call-n-Ride services. The high degree of automation within the system make relatively hassle-free on-demand service feasible for customers.
- RTD provides vehicles and fuel, but not a garage, operators or maintenance to its contractors. The agency has considerable documentation on the savings they have realized by contracting for transit service.
- Potential barriers or general challenges to implementing microtransit include:
 - Residents and stakeholders may not be aware of microtransit service options and may desire fixed-route bus.
 - There may be a lack of clear understanding of the transit market and what services are appropriate.
 - This new type of service will require a different approach to contract management and performance assessment.
 - There is a need for technology assessment and acquisition.
 - Effective integration with the regional transit network could present challenges.



TRANSIT SERVICE WARRANTS IN CHEROKEE COUNTY

RTD's transit service thresholds in the previous section were applied to Cherokee County to gain insights on where microtransit service or expanded fixed-route bus could be warranted. The combined population and employment density in 2020 is illustrated in **Figure 5.4**. RTD's regional standards indicate that densities are supportive of microtransit service in the light green areas in southern Cherokee along the SR 92 corridor and in the I-575 corridor north to Canton. These standards also indicate that the majority of the county does not have sufficient population or employment densities to support efficient transit service (>3 per acre -shown in tan).

Projected population and employment density in 2050 is illustrated in **Figure 5.5**. The transit warrants for 2050 are similar to 2020, with the exception of expanded microtransit supportive areas in southern Cherokee, Holly Springs and the greater Canton area. In 2050 the majority of the county also exhibits densities that do not support efficient transit service based upon RTD's thresholds.

Figure 5.4: 2020 Population and Employment Density

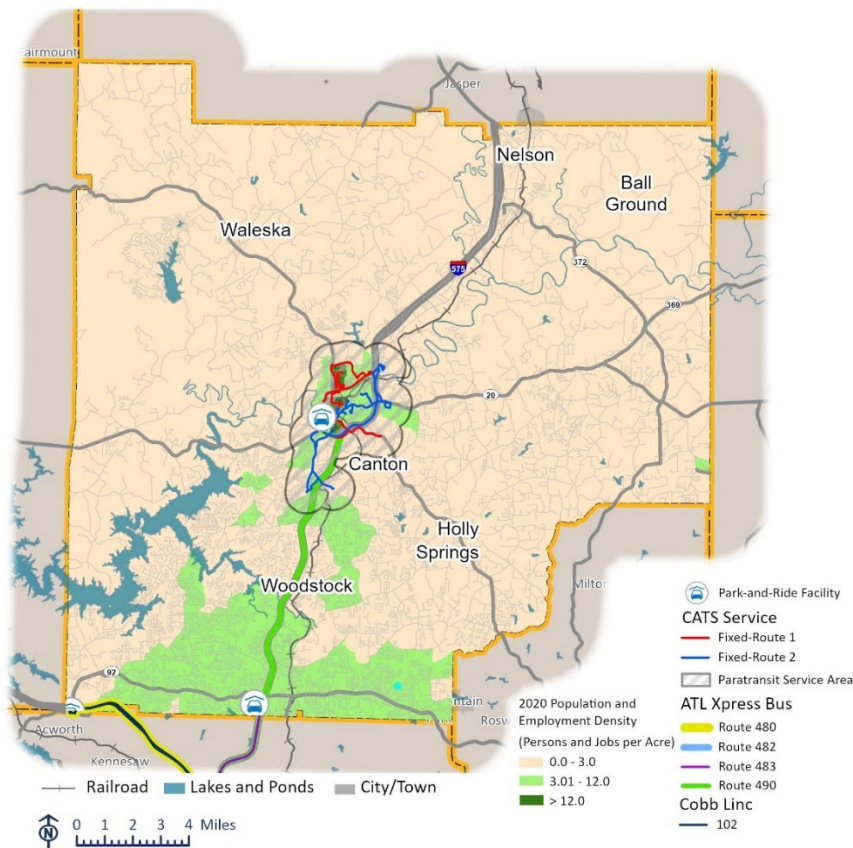
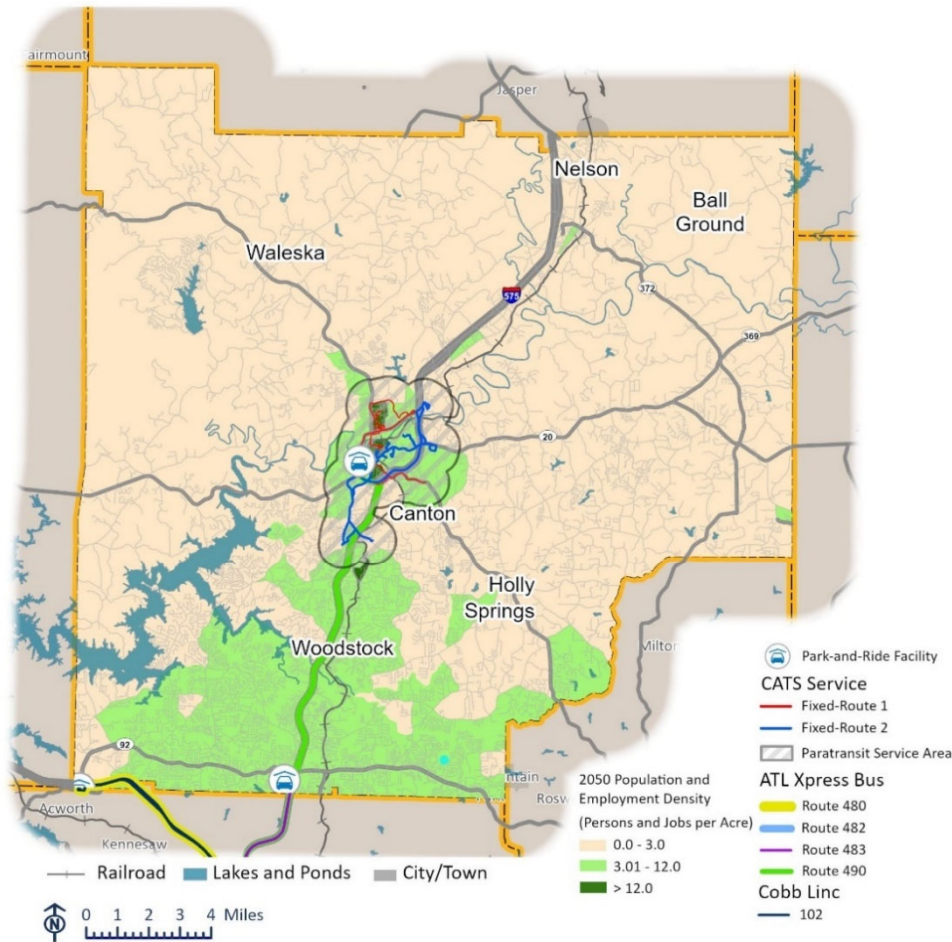


Figure 5.5: 2050 Population and Employment Density



CATS EXSITING TRANSIT SYSTEM EVALUATION

An evaluation of CATS existing fixed-route local bus and demand response transit was conducted to assess the potential for replacement with microtransit services. The Data Tripper data visualization tool was used to explore existing transit services. The data tool is available at https://vhb-transportation.shinyapps.io/Cherokee_CATS/ and includes a dashboard for examining Canton fixed-route and countywide dial-a-ride travel trends.

RIDERSHIP TRENDS

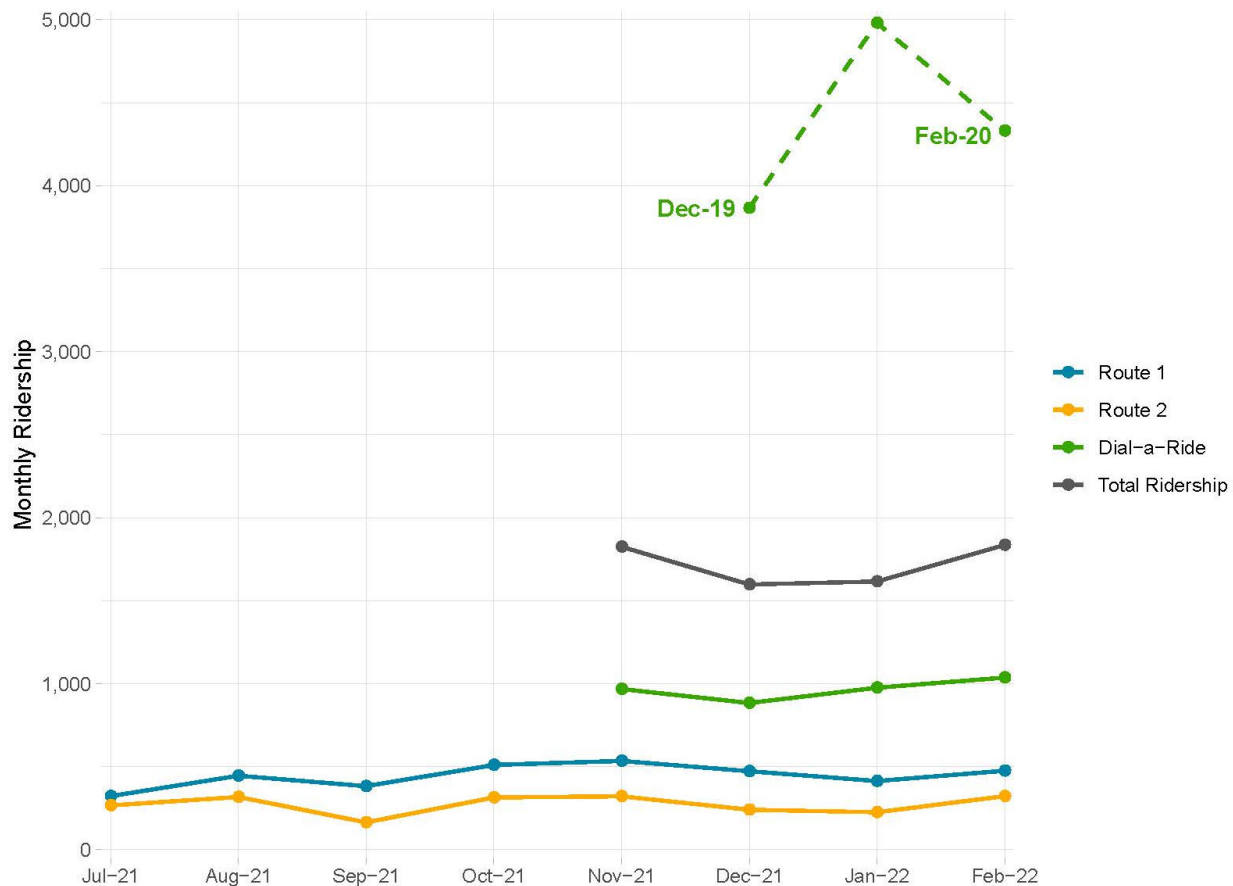
Recent monthly ridership trends for CATS fixed-route and Dial-a-Ride services have been summarized in the graph in **Figure 5.6**. This graph illustrates the steep 75-80% reduction in monthly Dial-a-Ride ridership from the pre-COVID period to early 2022. The top green line shows pre-pandemic Dial-a-Ride ridership ranging from 4,000 to 5,000



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monthly riders. Through late 2021 and early 2022 Dial-a-Ride ridership has stabilized at 1,000 monthly riders. The monthly ridership for both fixed routes in Canton, Routes 1 and 2, are also depicted in **Figure 5.6**. Ridership on Route 1 hovers around 500 monthly riders and Route 2 hovers around 300. The total CATS ridership, shown in the black line, sums fixed-route and dial-a-ride ridership. Total monthly ridership for CATS was approaching 2,000 monthly riders in early 2022.

Figure 5.6: CATS Monthly Ridership Trends (Dec 2019-Feb 2020 & July 2021-Feb 2022)



FIXED-ROUTE SERVICE

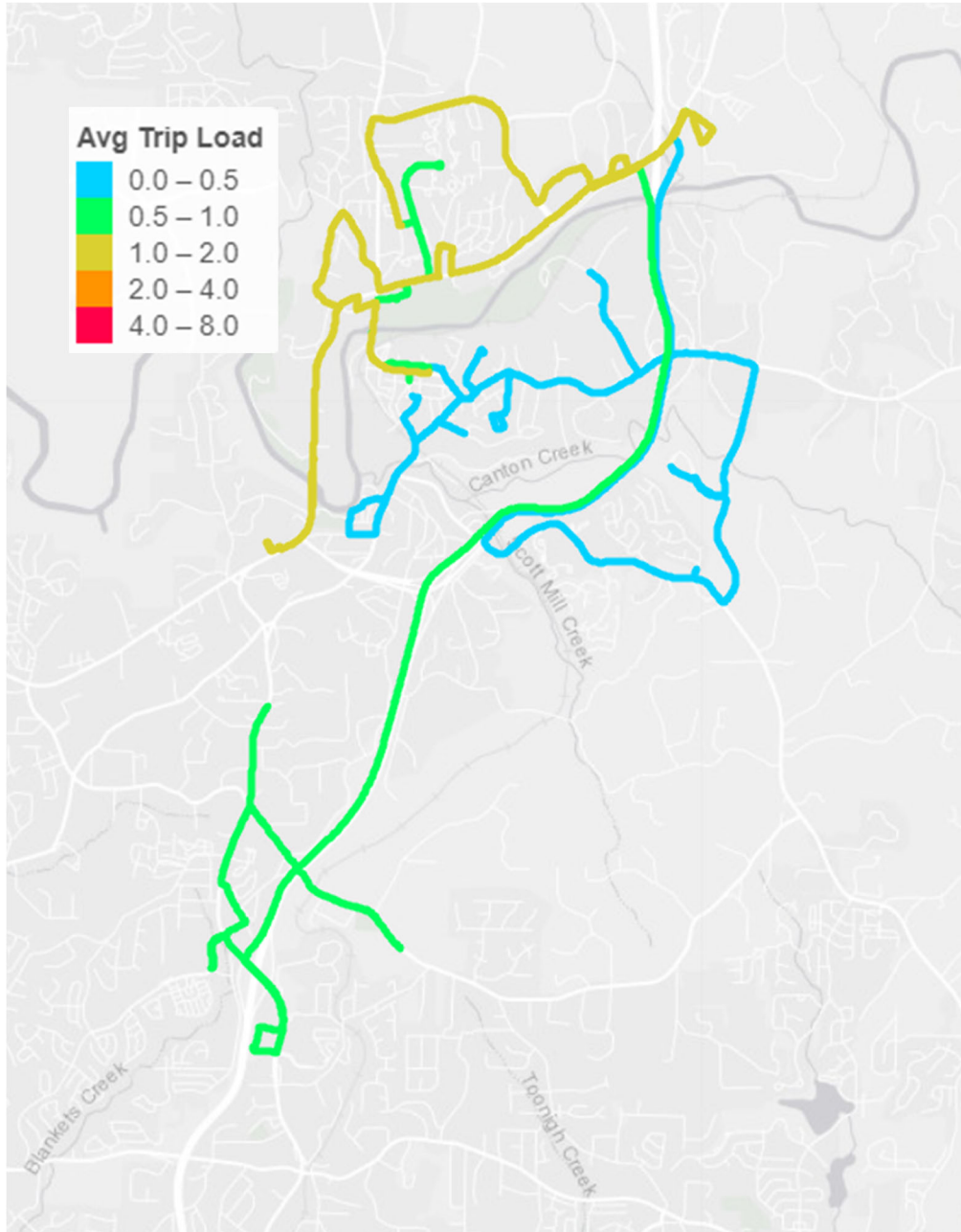
Fixed-route ridership data was collected for the period between July 2021 and March 2022. Ridership data for both Routes 1 and 2 were displayed by average trip load and average daily volume. The average trip load approximates the number of passengers on board at any given time during the service day. This is illustrated in **Figure 5.7** and indicates that route segments have average trip loads that range from 1-2, 0.5-1, and 0-0.5 passengers on board. Typically, average trip loads of 4 to 5 passengers are desirable to ensure service efficiency for fixed-route local bus. Average trip loads are considerably lower than this, which could be partially explained through reduced ridership levels during the COVID-19 pandemic period. Pre-COVID route ridership data is unavailable prior to July 2021, when automatic passenger counting devices were installed on vehicles. An analysis of total annual fixed-route ridership for the pre-COVID period from 2016 through 2020 is provided in an upcoming section to assess historic



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ridership levels before pandemic impacts. Regardless, the average trip loads from 2021 and 2022 indicate that the current fixed routes exhibit low service efficiencies and should be considered for improvements or replacement.

Figure 5.7: CATS Fixed-Route Average Trip Load (July 2021- March 2022)

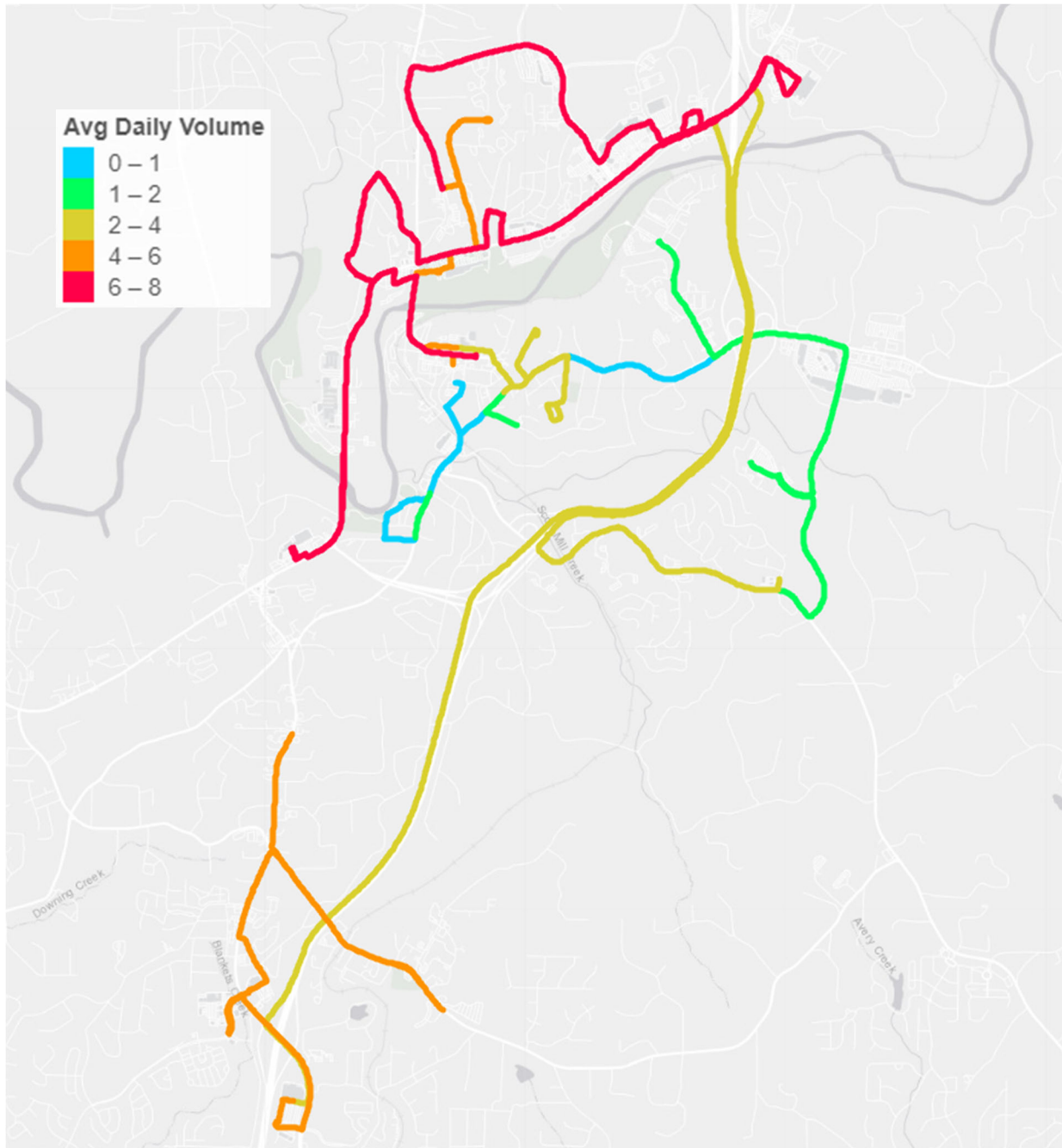


Fixed-route ridership data has also been displayed as average daily volume for both routes. This approximates the average number of passengers that pass through a route segment in a given service day. This is shown in **Figure 5.8** and indicates that the most highly traveled route segments average between 6 and 8 passengers per day. This is considerably lower than service efficiency targets of 4 to 5 passengers on board at any given time. This ridership measure corroborates the low service efficiencies seen in



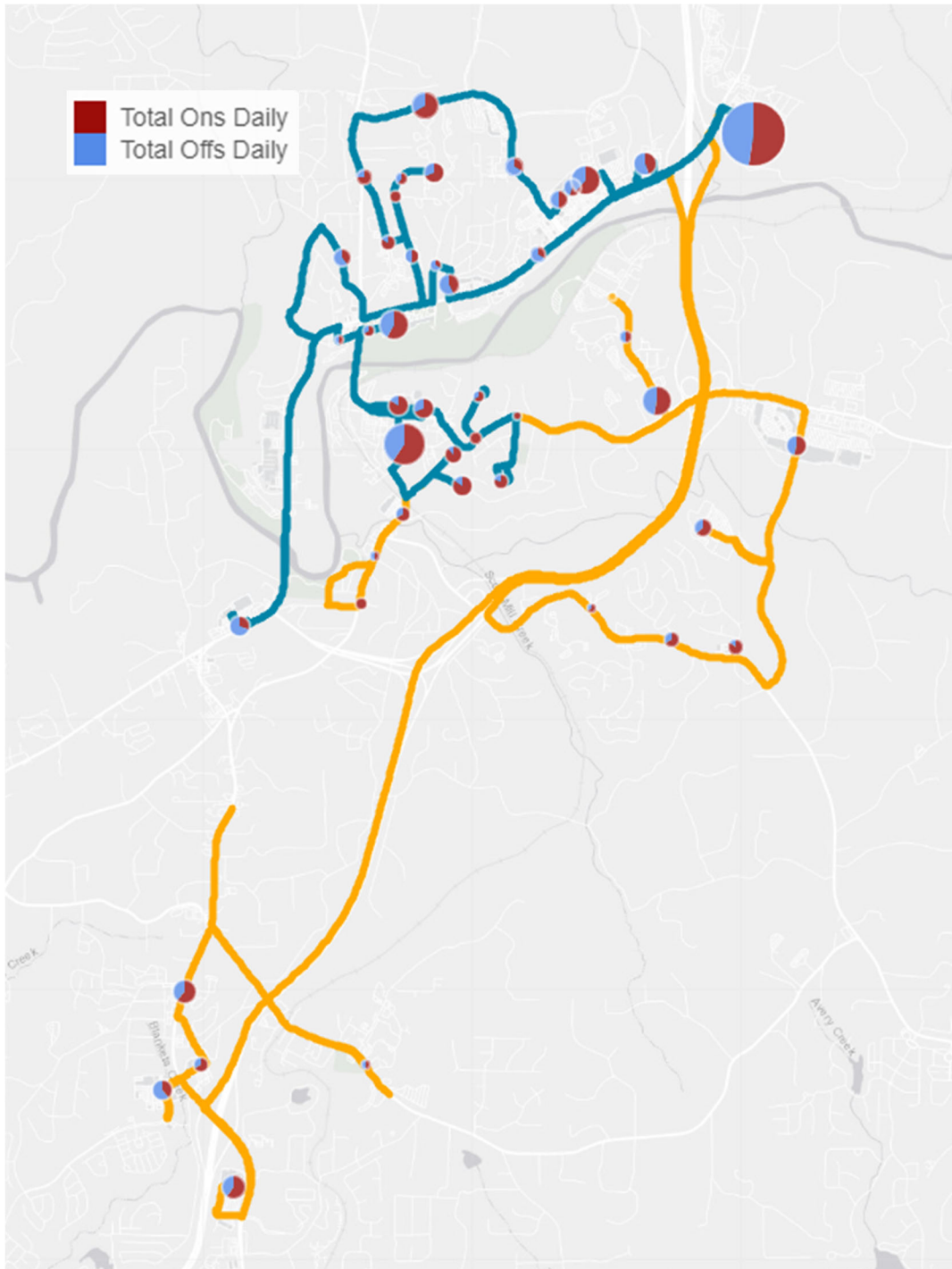
average trip loads and suggests consideration for service improvements or replacement.

Figure 5.8: CATS Fixed-Route Average Daily Volume (July 2021 - March 2022)



Route ridership data was also visualized by average daily ons and offs at bus stops. This is displayed in **Figure 5.9**. The two bus stops with the highest rider activity are unsurprisingly the Canton Walmart and Canton Police Department, which both serve as transfer locations between Routes 1 and 2. The Canton Walmart stop has the highest passenger activity, averaging nine daily ons and eight daily offs, further indicating low service efficiencies on fixed routes.

Figure 5.9: CATS Fixed-Route Average Daily Ons & Offs at Bus Stops (July 2021- March 2022)



SERVICE EFFECTIVENESS – LOCAL BUS

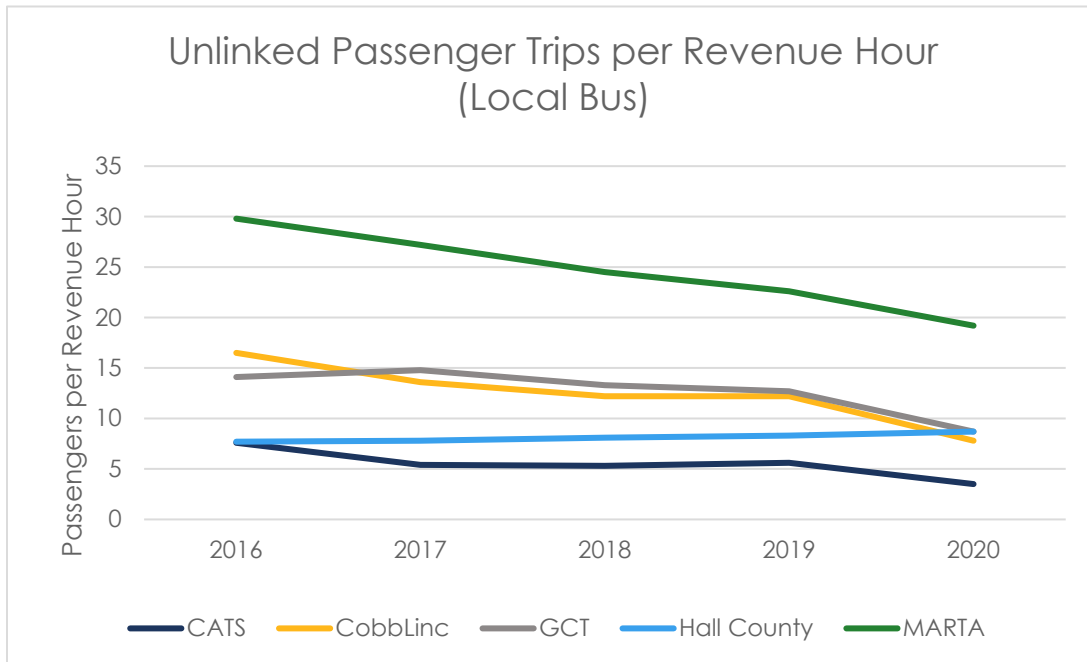
The service effectiveness or productivity measure most often used by transit planners is passenger trips per revenue hour. This is used nearly universally to assess the performance of transit systems and routes. This is most often calculated using 'unlinked' passenger trips, which essentially counts each time a person boards a bus as a trip.



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Since there are no federal or industry standards for transit performance metrics, peer comparisons provide the best way to benchmark system performance. **Figure 5.10** displays passenger trips per revenue hour for the fixed-route local bus networks of regional peer systems. These peers include CobbLinc, Hall Area Transit, Gwinnett County Transit (GCT), and Metropolitan Atlanta Regional Transportation Authority (MARTA).

Figure 5.10: Unlinked Passenger Trips per Revenue Hour (Local Bus)



A regional comparison of passenger trips per revenue hour indicates that CATS fixed-route bus has the lowest service effectiveness or productivity. Over the five-year period between 2016 and 2020 annual passenger trips per revenue hour averaged 5.5 passengers for CATS. Hall Area Transit had the second lowest level, averaging 8.1 passengers per revenue hour, before fixed-route services were replaced with microtransit in 2020 and 2021. CobbLinc averaged 12.5 passengers per revenue hour and GCT similarly averaged 12.7. MARTA exhibited the highest levels by far averaging 24.7 passengers per revenue hour.

Underperforming fixed-route local bus routes or systems that have ridership productivity rates between 5 to 16 passengers per revenue hour are strong candidates for replacement with microtransit services¹. CATS fixed-route ridership productivity falls within this candidate range and is most similar to Hall Area Transit's level, which has successfully transitioned fixed-route local bus service to microtransit in 2021. The passengers per revenue hour efficiency analysis suggests that CATS local bus is a prime candidate for successful replacement with microtransit.

¹ National Academies of Sciences, Engineering, and Medicine 2010. A Guide for Planning and Operating Flexible Public Transportation Services. Washington, DC: The National Academies Press. <https://doi.org/10.17226/22943>



RIDERSHIP ANALYSIS - DEMAND RESPONSE SERVICE

A ridership analysis of CATS demand response service, known as Dial-a-Ride, was conducted to assess the need for service improvements and analyze the potential for replacement with microtransit service. **Table 5.4** provides an overview of annual ridership for CATS demand response service from 2014 to 2020. Ridership trends indicate a growing demand within the county for demand response service in recent years, particularly from 2017 to 2019. Unsurprisingly ridership declined considerably in 2020, as a result of the COVID-19 pandemic, and this is anticipated to return to pre-pandemic levels of demand in coming years.

Table 5.4: Unlinked Passenger Trips for CATS Demand Response Service

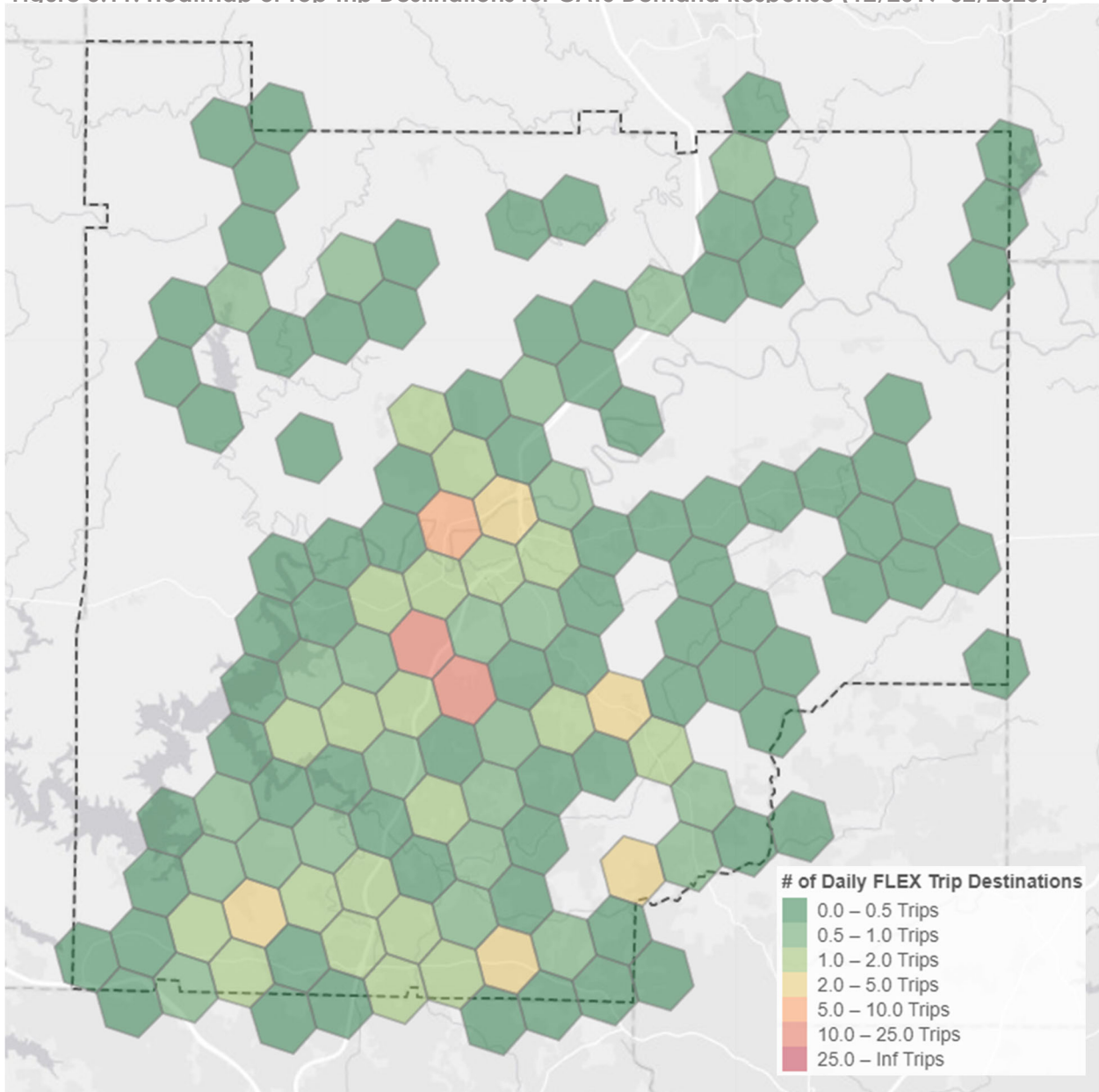
	2014	2015	2016	2017	2018	2019	2020
Annual Unlinked Passenger Trips	49,674	48,262	49,599	49,939	55,372	57,254	26,081

Source: National Transit Database

Data Tripper (https://vhb-transportation.shinyapps.io/Cherokee_CATS/) was used to visualize demand response trips via a heatmap, trip links and origin-destination points. **Figure 5.11** displays a heatmap of top trip destinations for CATS demand response services. The top three destinations include the Empower Cherokee Training Center at 133 Univeter Road, Eagle's Point – Cherokee Day Training Center at 1229 Univeter Road, and Cherokee County Senior Services at 1001 Univeter Road. Trips to and from these three locations comprise 75% of all demand response trips. During the pre-COVID period (December 2019-February 2020) the average daily ridership to these destinations consisted of 167 riders out of 222 total. These trips are provided through a contract with the Georgia Department of Human Services (DHS), which administers FTA 5310 funding for seniors and individuals with disabilities, and partially reimburses CATS with a fixed rate for these trips.

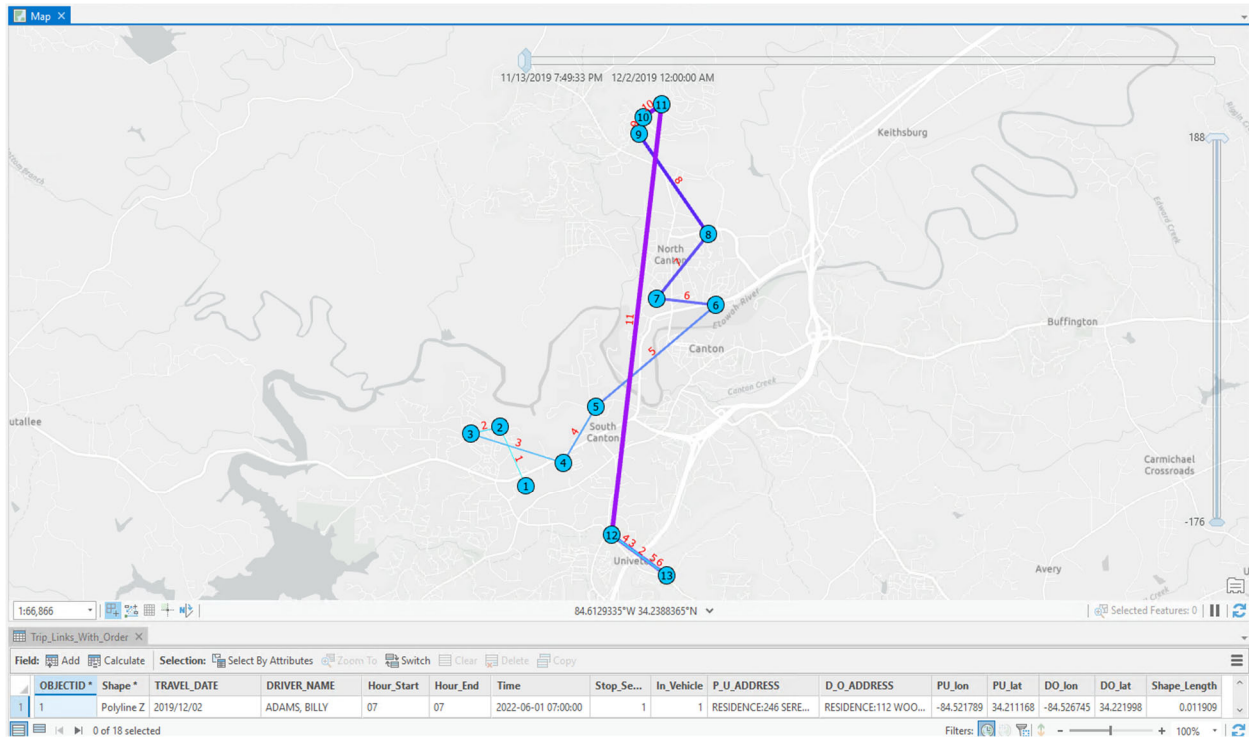


Figure 5.11: Heatmap of Top Trip Destinations for CATS Demand Response (12/2019-02/2020)



The vehicle manifests of demand response service was collected for the pre-COVID period. The manifest data for trips to and from the Senior Center and Empower Cherokee Training Centers was robust enough to analyze through a data viewer application in ArcGIS. This data viewer allowed trips to be filtered by vehicle, service day, number of passengers on board, and by origin or destination. Through this tool each vehicle could be tracked through a given service day and the number of passengers on board could be assessed. An example of this vehicle itinerary analysis shown in **Figure 5.12**. An analysis of DHS trips to and from the Senior Center and Empower Cherokee Training Centers was conducted via this method to determine if improvements to trip scheduling and service provision were needed. Through the analysis it was determined that these trips were being served efficiently with a high utilization of vehicle capacity and no recommended changes to service were needed.

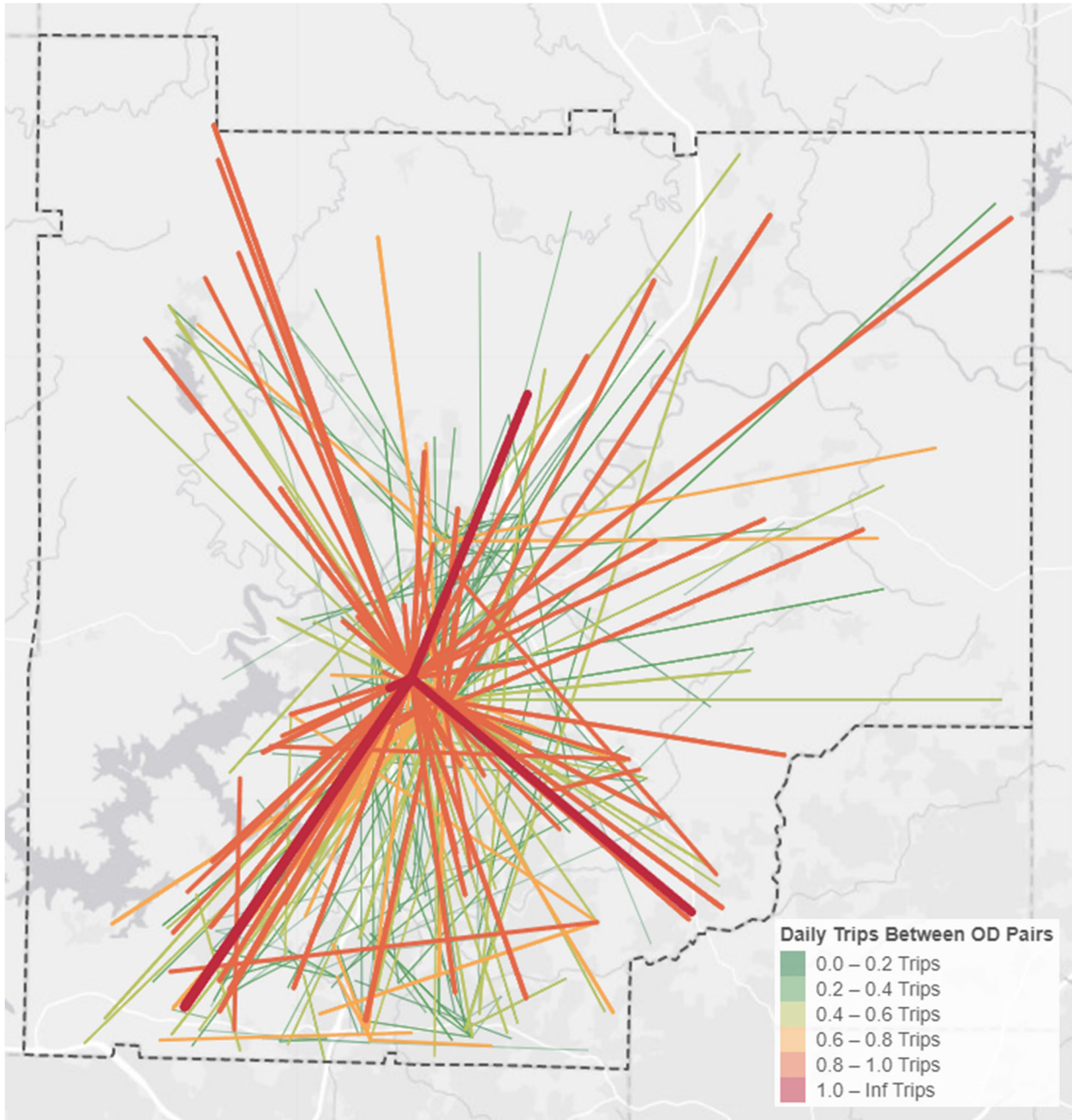
Figure 5.12: Illustration of Demand Response Vehicle Itinerary Analysis (December 2, 2019)



The trip link viewer function in Data Tripper was used to examine the trip patterns for DHS trips (Senior Center, Empower Cherokee) and general population trips. **Figure 5.13** depicts all demand response trips for the pre-COVID period, which includes both DHS trips and general population trips to all other destinations within the county. Trip link patterns illustrate long trip lengths that are geographically widespread, which primarily serve destinations in central Cherokee County. Given the high percentage of DHS trips (75% of total) and a customer population that is dispersed throughout the county these trips patterns are unsurprising.



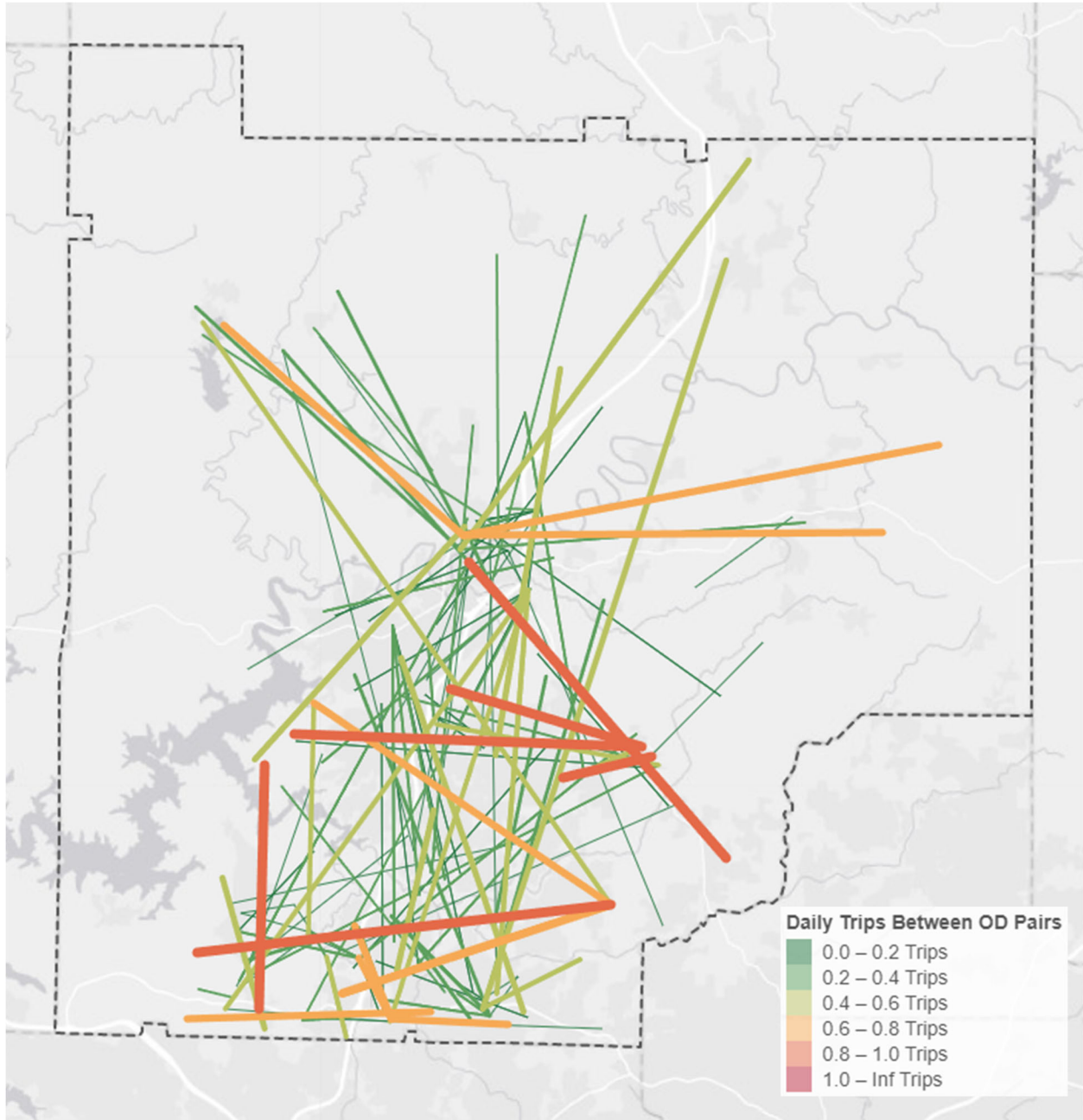
Figure 5.13: CATS Demand Response DHS and General Population Trips (12/2019-2/2020)



To isolate the trip patterns for non-DHS general population trips a filter was added to Data Tripper to screen out trips with destinations or origins at the Senior Center or Empower Cherokee. **Figure 5.14** illustrates the trips patterns for general population trips to other destinations within the county. The general population trip link patterns demonstrate shorter trip lengths within concentrated areas of southern and central Cherokee County. This trip pattern suggests a zone-based microtransit system would be effective at serving the existing demand response travel demand. The concentrated areas of short trips could be served with a series of microtransit zones in southern and central Cherokee County. Having designated microtransit zones is an effective way of

providing very responsive service with short wait times at a relatively low cost. If trip patterns were geographically dispersed throughout the county, a county-wide system would be more appropriate. Recommendations for microtransit services that incorporate this analysis are discussed in Chapter 6.

Figure 5.14: CATS Demand Response General Population Trips (12/2019-02/2020)



6. RECOMMENDATIONS

This chapter summarizes and synthesizes the analysis provided in previous chapters and provides detailed recommendations for transit improvements. Recommendations are grouped by service type and include fixed-route local bus, demand response and microtransit. An overview of recommendations presented in earlier in the report have also been included here to provide all recommendations in one chapter.

FIXED-ROUTE LOCAL BUS

The ridership assessment of CATS fixed-route service showed low productivity on both Routes 1 and 2. Historic trends have shown declining fixed-route ridership, even prior to the impacts of COVID-19. The historic service efficiency of 6 passengers per revenue hour for the period between 2014-2019, places the service squarely in the range of an underperforming fixed routes that could be good candidates for replacement with microtransit service. Recommendations for replacing fixed-route local bus with microtransit service are provided in a following section.

Should CATS determine that investing in improvements to fixed-route service is within the county's best interest, there are a number of recommendations they may pursue to enhance service and improve ridership. This includes expanding service to moderate-density corridors in southern Cherokee, improving service to better connect with regional transit and providing enhancements at bus stop locations.

It is important to note that due to the relatively modest levels of anticipated transit usage, demand and the significant costs associated with the implementation of both microtransit and fixed-route improvements, pursuing both is not recommended. Providing both could reduce the service efficiencies of each through the cannibalization of ridership between services. It is unlikely that these two services would complement each other but would rather compete for ridership. Making significant investments in microtransit or fixed-route service should be viewed as an either/or, rather than an and/both. Cherokee County does not currently exhibit the existing development density in 2020 or projected density in 2050 to support a hybrid system where microtransit would supporting core trunk lines of high-frequency fixed-route bus.

FIXED-ROUTE EXPANSION

The overlay gap analysis in Chapter 3 has identified areas throughout southern Cherokee where fixed-route local bus service could be warranted. The gap analysis examined existing and projected population and employment density in 2020 and 2050. The analysis identified wide swaths of southern Cherokee with dense areas of population and employment where fixed-route service is absent.

An examination of transit-reliant populations also indicated that dense concentrations of these groups lacked access to fixed-route transit. These population groups include seniors, individuals with disabilities, low-income individuals, and car free households. The highest concentrations of these groups are found in southern Cherokee County within the SR 92 and I-575 corridors.

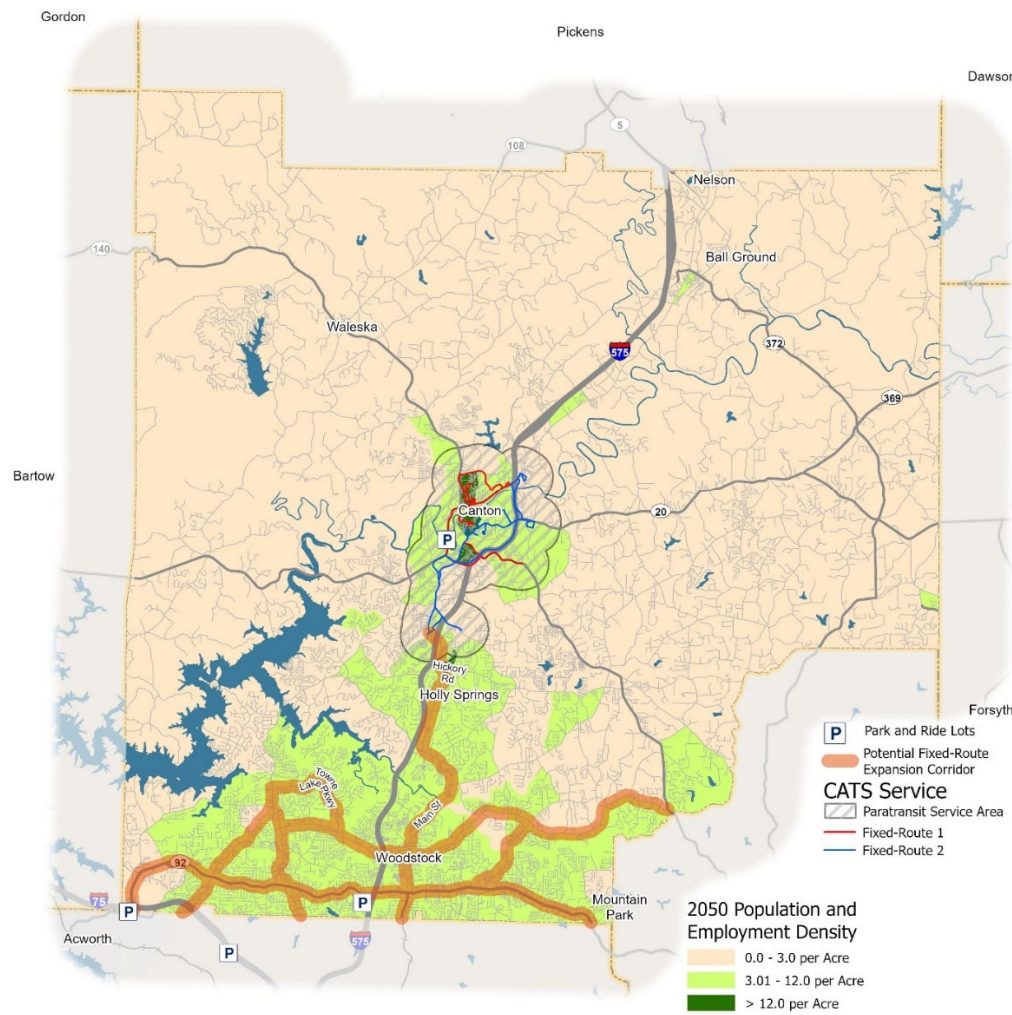


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The transit warrant analysis in Chapter 5 identified large areas within southern Cherokee where existing and projected population and employment densities are supportive of fixed-route local bus service. **Figure 6.1** depicts these transit warrants in light green and also potential corridors suitable for the expansion of fixed-route service to address the service gaps identified through the overlay gap analysis. Potential fixed-route expansion corridors include the following:

- SR 92
- Main Street
- Woodstock Road/Victory Drive
- Bells Ferry Road
- Towne Lake Parkway
- Arnold Mill Road
- Trickum Road/Barnes Road
- Eagle Drive

Figure 6.1: Potential CATS Fixed-Route Expansion Corridors



BUS STOP IMPROVEMENTS

Data Tripper's bus stop analysis feature was used to identify bus stops on Routes 1 and 2 with the highest average daily activity (ons and offs). The highest ridership locations have been identified as priority locations for bus stop amenity enhancements. Stop amenities include shelters, benches, and trash cans. The recent CATS-led Fixed-Route Study inventoried bus stop amenities and deficiencies at each stop. **Table 6.1** provides a detailed list of the priority bus stops for amenity enhancements based upon stop ridership.

Table 6.1: Top 20 Priority Bus Stops for Amenity Improvements

Stop Name	Route	Total Daily Activity	Amenity Needs
1220 - Canton Wal-Mart	1,2	16.9	Needs Shelter, Bench, Trash Can
1000- Canton Police Department	1,2	6.9	Has Shelter, Bench, Trash Can
2060 – Must Ministries/Library/DDS	2	3.1	Needs Shelter, Bench, Trash Can
1100 - Ingles	1	3.1	Needs Shelter, Bench, Trash Can
1210 – Publix (Riverstone Pkwy)	1	3	Needs Shelter, Bench, Trash Can
1170 – River Ridge & Heritage Apartments	1	2.7	Has Shelter & Trash Can – Needs Bench
2140 - Holly Springs Wal-Mart	2	2	Needs Shelter, Bench, Trash Can
2170 – Chamber of Commerce	2	1.9	Needs Shelter, Bench, Trash Can
1230 – Spring Street	1	1.7	Needs Shelter, Bench, Trash Can
1250 – Juniper Street	1	1.4	Has Shelter, Bench, Trash Can
2070 – Dicks Sporting Goods	2	1.3	Has Bench & Trash Can, Needs Shelter
1140 - Oakside Apartments 2	1	1.3	Needs Shelter, Bench, Trash Can
1070 – North Cherokee Apartments at North Street	1	1.3	Has Bench – Needs Shelter & Trash Can
1080 – North Street (Old Court House)	1	1.3	Needs Shelter, Bench, Trash Can
1010 – Hearthstone Landing Apartments	1	1.3	Needs Shelter, Bench, Trash Can (Covered Gazebo w/ Benches On-Site)



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2150 – Prominence Point	2	1.3	Has Shelter & Trash Can – Needs Bench
1280 – Canton Corners at Goodwill	1	1.3	Has Bench & Trash Can, Needs Shelter
1180 – Riverstone Medical	1	1.2	Has Trash Can - Needs Shelter & Bench
2080-Northside Hospital Cherokee	2	1	Needs Shelter, Bench, Trash Can
1270 – Shoal Creek Road	1	1	Needs Shelter, Bench, Trash Can

Bus stop amenities make transit use more comfortable and are positively associated with higher transit ridership. Bus stop amenities like shelters, benches and trash cans can be worthwhile public investments that encourage transit use by making it a more attractive option and improving the quality-of-life of transit-reliant populations. When weighing the benefits of investments in public infrastructure it is important to consider the size of the population that may benefit. Investments should be prioritized for locations with the highest ridership levels. The bus stop activity detailed in **Table 6.1** is for the COVID-19 impacted time period between July 2021 and February 2022 and unsurprisingly activity is quite low. It may be prudent to wait for healthier ridership levels to return before making significant investments at bus stops with low activity. While ridership differences between CATS and large urban transit agencies are to be expected for comparison MARTA has used thresholds of average weekday boardings of 50 to warrant investments in bus shelters and 25-50 to warrant benches.

REGIONAL CONNECTIVITY IMPROVEMENTS

As detailed in Chapter 3, a number of service recommendations have been made to improve connectivity between CATS fixed route and Xpress commuter service. To connect these services a stop should be added at the Canton Park-and-Ride to permit direct transfers. CATS local buses should start operation at least one hour before the first morning Xpress departure and continue at least one hour past the last afternoon Xpress return to enable riders at downstream stops to transfer from local to express bus. Expanding fixed-route service in southern Cherokee County to serve the Xpress Park-and-Ride in Woodstock is another opportunity that would greatly enhance regional connectivity.

DEMAND RESPONSE AND MICROTRANSIT SERVICE

An analysis of DHS-contracted trips to the Senior Center and Empower Cherokee Training Centers has determined that these trips are well scheduled and efficiently served. No changes were identified to improve service provision of DHS and non-DHS demand response trips. In 2019, the operating costs per passenger trip was \$18.46, which is very efficient for demand response service. The average trip length per



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passenger trip was 5.1 miles, which given Cherokee County's significant size of 421.1 square miles, is also suggestive of well-scheduled and efficient service.

While demand response trips are being efficiently served that fact that DHS trips comprise 75% of all trips puts a significant burden on the agency's ability to meet the community's demand for other general population trips. Trip reservations are often required one or two weeks in advance. Community input has indicated the need to increase service capacity to better align with demand and allow a shorter reservation window. Replacing or upgrading existing demand response with microtransit is a viable alternative CATS should consider to provide a higher-level of service and additional vehicle capacity for county residents.

Microtransit is a new and innovative form of demand response transit that has been successful in replacing traditional Dial-a-Ride and underperforming fixed-route bus in low-density suburban environments. A regional example of this being Gainesville-Hall County which discontinued its underperforming fixed-routes after unsuccessfully trying to increase ridership through a series of enhancements. Hall County also replaced their Dial-a-Ride service with microtransit. They have stopped providing DHS contracted trips and microtransit has been very successful alternative to serving these trips. The DHS contract did not allow for flexibility in the requirements, was not vendor friendly, very punitive and the model was not working for the county. Hall County discussed the need communicate consistently and work with DHS customers and care givers to give riders adequate time to prepare for the service change. Should CATS decide to pursue microtransit Gainesville-Hall County provides a successful local example to emulate.

In addition to demand response service, CATS should also consider replacing its underperforming fixed-route local bus service with microtransit. The ridership analysis in Chapter 5 illustrates a historic pattern of low productivity making fixed-route service an ideal candidate for replacement with microtransit service. Reallocating the vehicle capacity and operating costs from fixed-route service towards microtransit would greatly assist in better meeting the general population's demands for demand response service.

Microtransit systems may be implemented through a wide variety of service designs. These may include community-wide many-to-many service, zone-based service, point deviation (flex route) with regularly scheduled checkpoints, and first mile/last mile transit feeder service. Some important considerations for Cherokee County related to microtransit service design include the following:

- At 421 square miles the large geographic size of the county would likely make a county-wide many-to-many service inefficient resulting in low vehicle capacity utilization and longer wait times.
- A zone-based system, as shown in **Figure 6.2**, would better serve the dense areas of trip demand in southern Cherokee County through a highly responsive and cost-effective service. Within the zone-based model trips would begin and end in each service zone. Common transfer points in overlapping areas would accommodate riders whose final destinations are within other zones. Requiring a transfer to access destinations in other geographic areas of the county can have a

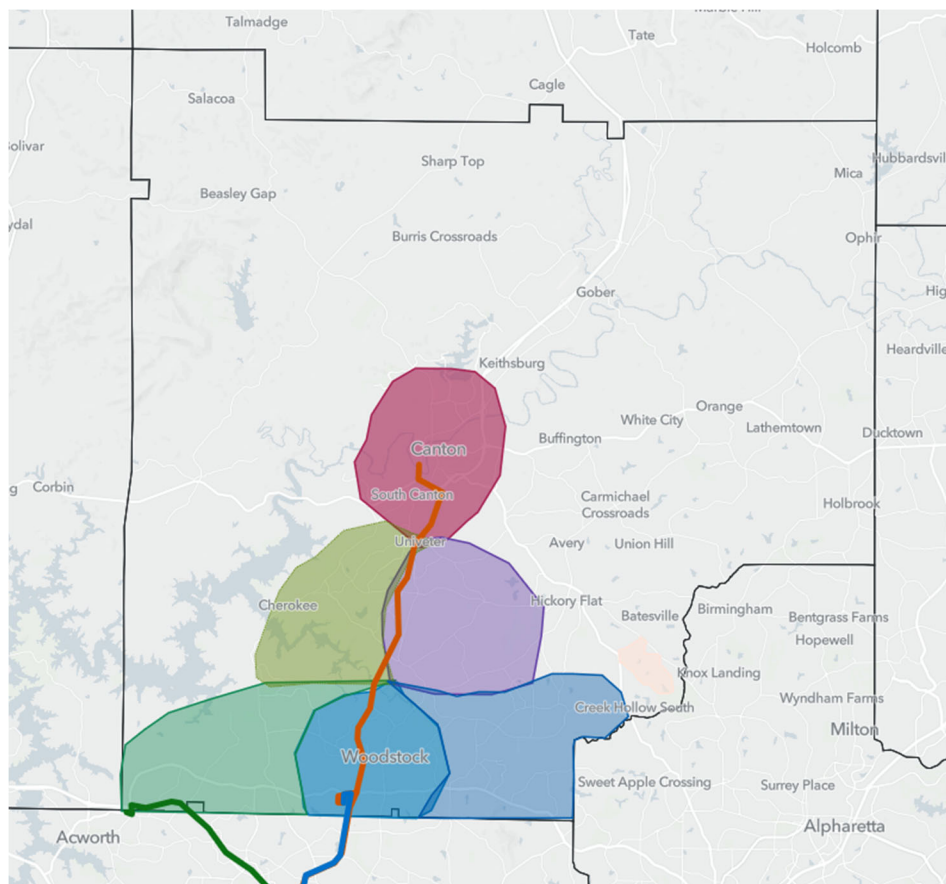


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corrective effect on excessive ridership demands. It is important to note that the goal of microtransit should not be to approximate individualized taxi or TNC (Uber, Lyft) service but rather a shared public transit service that may require transfers when appropriate.

- There is the potential for three first mile/last mile transit feeder zones to regional Xpress services at the Acworth, Woodstock and Canton Park-and-Rides. Service in these zones may be designed to operate as collector-distributors in the a.m. and p.m. peak periods and transition to many-to-many service in the off-peak periods within each zone.
- Gainesville-Hall County has two service tiers for microtransit responsiveness where wait time within the city of Gainesville average 15-minutes and wait times within the unincorporated county average 45-minutes. Hall County doesn't utilize rigid service zones, but they do station vehicles geographically to achieve these response times. A similar system may be appropriate for Cherokee County where wait times in the Canton, Holly Springs, and Woodstock areas with high trip demands have considerably shorter wait times than areas outside of this.
- Should Cherokee County decide to pursue microtransit service it is recommended that additional study is conducted determine the appropriate service design that meets the community's goals related to geographic coverage, service responsiveness, and transit markets served.

Figure 6.2: Example of Zone-Based Microtransit System in Cherokee County.



MICROTRANSIT SERVICE COSTS

Microtransit service costs vary based upon a number of factors including wait times, passenger loads, geographic service area and system design. Efficient microtransit serves 3-5 passengers per vehicle revenue hour and achieves operating costs of \$15-20 per rider. Microtransit makes the most economic sense in lower density areas where fixed-route service is inefficient and upgraded demand response is desired. Service costs per trip are often similar to traditional demand response (i.e. Dial-a-Ride) but provide a considerably higher level of service.

The cost structure of microtransit varies considerably by operating model. The contract terms for Valdosta On-Demand, which utilizes the turn-key transportation as a service (TaaS) model, are provided in **Table 6.2** below. The City contracts with Via at a total cost of \$1,965,000 to operate and deliver service at approximately \$20.68 per passenger trip.

Table 6.2: Valdosta On-Demand Service Contract Terms

Fiscal Year 2023 - July 1, 2022 through June 30, 2023	
Vehicle Fleet	10
Fixed Upfront Costs	\$29,500
Fee per Vehicle Hour	\$65.08
Vehicle Revenue Hours	29,740
Estimated Trips Served	95,000
Total Cost	\$1,965,000
Estimated Cost per Trip	\$20.68
Estimated Passengers per Vehicle Hour	3.2

Source: Valdosta Daily Times

Gainesville-Hall County utilizes the software as a service (SaaS) model and pays an annual fee of \$130,000 for software licensing and technical support from Via. **Table 6.3** below details WeGo's service costs and characteristics. WeGo's operating costs in 2021 were \$535,736 and with a cost per rider of \$12.76. When the WeGo pilot launched it replaced three underperforming fixed routes, cutting operating costs in half. The previous Gainesville Connection routes had costs per trip of \$25.27.



Table 6.3: Gainesville-Hall County WeGo Service Costs

WeGo Service Characteristics and Costs - 2021	
Annual Software Licensing Fee	\$130,000 per year
Approximate Annual Service Trips	42,000
Operating Costs	\$535,736
Vehicle Revenue Hours	9,585
Vehicle Fleet	17 (12 operated at maximum service)
Cost per Rider	\$12.76
Passengers per Vehicle Hour	4.4

Source: National Transit Database, Gainesville-Hall County

The operating costs for CATS fixed-route and demand response services are provided in **Table 6.4** below. The cost and ridership data indicate very high costs per rider for both demand response and fixed-route services. This suggests that microtransit could better serve these trips more efficiently and at significantly lower operating expenses.

Table 6.4: CATS Operating and Service Costs (2021)

CATS Fixed-Route and Demand Response Service Costs	
Fixed-Route Operating Costs	\$382,969
Fixed-Route Ridership	7,027
Fixed-Route Costs per Rider	\$54.50
Demand Response Operating Costs	\$695,910
Demand Response Ridership	23,038
Demand Response Costs per Rider	\$29.86

Source: National Transit Database



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Estimating ridership demand for microtransit services is notoriously the most difficult part of the service planning process, due to the large number of variables involved. Demand is affected by factors including demographics, land use, commute patterns and service characteristics, such as wait times, fares, service hours and system design. A rough estimation or rule-of-thumb is that within microtransit zones with frequent service a combined population and jobs of 1,000 equates to 11 weekly riders. A high-level assessment of microtransit demand within the county suggests a potential demand of 400 daily trips. This level of ridership could be accommodated by a service fleet of 12-14 microtransit vehicles, which is comparable to CATS existing service fleet.

If CATS replaces fixed-route and Dial-a-Ride with microtransit, operating costs could be reduced significantly if kept to \$15-20 per ride or less. Continuously monitoring costs per rider and adjusting services to maximize efficiency will be critical. The agency's existing operating budget of \$1.1M, could serve approximately twice the current annual ridership through the efficient provision of microtransit services. Preliminary estimates suggest providing microtransit could induce significant demand that would be roughly four times that of current ridership demands. To meet demands at this level the agency's operating budget would need to nearly double to keep pace. Implementing tools to manage demand like increasing maximum wait times, dynamic pricing, requiring zone transfers and limiting access to priority users (seniors, disabled and low-income) could be warranted to maintain capacity.

MICROTRANSIT FUNDING

Microtransit is typically financed through a mix of funding sources, which may include federal, state and local sources. Since 2016, the Federal Transit Agency (FTA) has recognized microtransit as public transportation eligible for federal formula funding. For microtransit operators who implement the software as a service model (SaaS) the annual licensing fee is considered to be a capital costs that is eligible for FTA 5307 federal formula funding. For jurisdictions who choose the transportation as a service model (TaaS) the operating expenses for turnkey services can be funded using money traditionally reserved for capital expenses through FTA's "capital costs of contracting" policy. This may fund up to an 80% match for half of a turnkey contract's cost or 40% of the overall contract.

Federal COVID-19 financial relief made available through the Coronavirus Aid, Relief, and Economic Security Act (CARES Act) and Health and Economic Recovery Omnibus Emergency Solutions Act (HEROES Act) were major funding sources of microtransit funding in 2020 and 2021. Restrictions on federal formula funds were relaxed during this time to allow for 100% capital and operations awards without requiring a local contribution. Gainesville-Hall County utilized CARES Act funding to purchase WeGo's microtransit vehicle fleet and fully fund operations. The City of Valdosta also funded 100% of Valdosta On-Demand's operating contract through the CARES Act. These COVID-19 funding programs are no longer available and local match requirements have returned.

The US Department of Transportation's competitive grant programs have served as another major funding source for microtransit. These programs include the FTA's Mobility on Demand (MOD) Sandbox Program, Integrated Mobility Program (IMI), and Accelerating Innovative Mobility (AIM). Some other funding sources have included the



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Congestion Mitigation and Air Quality Improvement Program (CMAQ) and the Advanced Transportation and Congestion Management Technologies Deployment Program (ATCMTD). The Infrastructure Investment and Jobs Act (IIJA) also includes a series of discretionary grant programs available to fund microtransit that focus on equity and combatting climate change.

In Georgia, state funding for transit has historically been limited. However, in recent years more state funding sources have become available. These sources include the Georgia Transit Trust Fund, Georgia Transportation Trust Fund, State General Fund Allocations, and State General Obligation Bond Proceeds. Historically state transit funding has been reserved for high-profile transit projects and has yet to be awarded for microtransit services.

Local funding sources include transit fares, government budgets, general funds, sales tax referendums, and local partnerships. Sales tax ballot measures, which are available to fund microtransit include general Transportation Special Local Option Sales Tax (TSPLOST) or designated Transit SPLOSTs. Transit agency revenues, such as fares, advertising, concessions, or parking fees can serve as another potential funding source.

FARE POLICY

Key fare policy recommendations include:

Increasing fares to meet regional standards. CATS should consider increasing fares for fixed-route local bus service from \$1.25 for a regular one-way fare to the regional standard of \$2.50 per trip. Increasing reduced rate fares for seniors, Medicare recipients, and individuals with disabilities from \$0.60 to \$1.00 to meet regional standards is also warranted. Increasing demand response fares from the variable rate of \$1.50 with \$0.30 for every mile over 5 miles to better match regional peers, ranging from \$2.00 to \$4.00 should also be considered at this time.

Facilitate a seamless regional fare payment system.

To improve the ease of use and customer experience for CATS riders making regional transfers CATS should facilitate seamless fare payments between CATS and regional service providers. It is recommended that CATS utilize the ATL's fare policy study's working group to advocate for fare payment technologies in AFC 2.0, that could be beneficial for CATS' customers seeking regional transfers. This may involve mobile application and/or web-based fare payment options available to MARTA riders and the riders of other regional services.

Adopt a complimentary regional transfer policy.

To encourage regional transit connectivity, CATS should consider adopting a complimentary transfer policy between regional operators. To align with the ATL's fare policy guidance, CATS may consider implementing the transfer policies of regional peers to ensure a seamless transfer experience for riders among public transit services in metro Atlanta.



Appendix A-1

CATS Fleet Vehicle Inventory



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Service Type	ID	Type	Year	Model	Seats	Wheel-chair Stations	Physical Condition*	Mechanical Condition**	Odometer Reading (May 2022)	Projected Year of Replacement Request
Fixed-Route	3378	Cutaway	2016	IMPULSE	20	2	P	P	163,501	2022
Fixed-Route	3379	Cutaway	2016	IMPULSE	20	2	P	P	183,924	2022
DRT	2019	Cutaway	2018	SENATOR II	14	2	N	G	54,616	2024
DRT	2020	Cutaway	2018	SENATOR II	14	2	N	G	61,618	2024
DRT	3376	Cutaway	2013	GCI	13	0	P	P	171,833	2022
DRT	3446	Cutaway	2014	E3	8	2	P	P	158,218	2022
DRT	3447	Cutaway	2014	E3	8	2	P	P	149,903	2022
DRT	3776	Cutaway	2017	SENATOR II	16	2	F	G	107,784	2023
DRT	3777	Cutaway	2017	SENATOR II	16	2	F	G	118,593	2023
DRT	3893	Cutaway	2018	SENATOR II	16	2	F	G	97,786	2023
DRT	3894	Cutaway	2018	SENATOR II	16	2	F	G	91,394	2023
DRT	4029	Cutaway	2019	SENATOR II	16	2	G	G	73,220	2024
DRT	4030	Cutaway	2019	SENATOR II	16	2	G	G	65,117	2024
DRT	4043	Cutaway	2019	E-450	10	2	G	G	35,161	2024
DRT	4086	Cutaway	2020	E-450	16	2	N	G	40,753	2025
DRT	4087	Cutaway	2020	E-450	16	2	N	G	43,184	2025
DRT	4088	Cutaway	2020	E-450	16	2	N	G	34,301	2025
DRT	4199	Cutaway	2021	E-450	16	2	N	G	27,831	2027

*Physical Condition – **N** - Like New, **G** - Like new, almost no signs of wear, **F** - General appearance is satisfactory but is beginning to show signs of wear and aging, **P** - Poor appearance, upholstery is coming apart, body has dings and scratches, needs painting and/or has other damages due to wear and aging

** Mechanical Condition – **G** - Good working order requiring only nominal minor repairs, **P** – Requires frequent major repairs, **F** – Requires frequent minor repairs

