On-Demand Microtransit Annual Report

October 2023

Glossary

Accessible: Able to be reached or connected to another mode of transportation from an existing mode of transportation or an individual property. Vehicles that do not restrict access, are usable, and provide allocated space and/or priority seating for individuals who use wheelchairs, and which are accessible using lifts or ramps.

Blended Model: Separate contracts for software, drivers, or vehicles with different entities.

Demand Response (DR): A transit mode comprised of passenger cars, vans or small buses operating in response to calls from passengers or their agents to the transit operator, who then dispatches a vehicle to pick up the passengers and transport them to their destinations.

Equitable: Fair and impartial use or access of transportation service without bias towards specific parties or groups. Equitable outcomes in transportation include:
- Minimization of transportation barriers and unmet needs
- Multimodal options that rival driving in terms of time, convenience, and cost
- Zero transportation-related fatalities or injuries
- Zero transportation-related greenhouse gas emissions

Fixed Route: Services provided on a repetitive, fixed schedule basis along a specific route with vehicles stopping to pick up and deliver passengers to specific locations; each fixed route trip serves the same origins and destinations, such as rail and bus; unlike demand responsive and vanpool services.

On-Demand Microtransit: On-demand microtransit is an emerging service option for public transit agencies utilizing an on-demand transportation solution that is flexible and responsive to the real-time needs of transit riders.

On-demand microtransit is similar to private rideshare services, allowing riders to book and pay for trips online, whether using personal computers or personal mobile devices connected to the internet. Riders are typically picked up at their preferred origin and taken to their preferred destination (curb-to-curb service). The ability to use transit for spontaneous trips similar to driving is fundamental to providing equitable mobility.

Operational Characteristics: The context in which transportation modes operate, including speed limits, safety conditions, or operating hours.

Software as a Service (SaaS): A service model where a transportation system provides microtransit services by purchasing software from a third-party. Third-party platforms typically include dynamic vehicle routing capacity, passenger aggregation, rider and driver apps, among other features. The agency directly provides drivers, vehicles, and operations management.

Temporal: Of or relating to time as distinguished from space.

Transportation as a Service (TaaS): A service model where a transportation system contracts with a microtransit vendor to provide a turnkey solution that includes both microtransit technology/software and drivers, vehicles, operations, and marketing.

Transportation Disadvantaged Populations: Demographic groups more likely to experience difficulty accessing transportation. Several demographic groups typically regarded as Transportation Disadvantaged include:
- Low-income populations
- Elderly (65 or older) populations
- Racial/ethnic minorities
- Disabled populations
- Limited English Proficiency populations
- Carless populations

Transportation Network Companies: Companies that utilize online platforms to connect passengers with drivers and automate reservations, payments, and customer feedback. Riders can choose from a variety of service classes, including drivers who use personal, non-commercial, vehicles; traditional taxicabs dispatched via the providers' apps, and premium services with professional livery drivers and vehicles.

Unbanked Riders: Transportation system riders who do not use or do not have access to a banking account and must use cash in the process of fare payment.

On-Demand Microtransit Annual Report 2023

Integrated Mobility Division
N.C. DEPARTMENT OF TRANSPORTATION

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

By the Numbers

Systems providing microtransit service	Residents served	Zero-vehicle households reached
9	**240K**	**5,200**

WHAT IS ON-DEMAND MICROTRANSIT?

A technology-enabled, public transportation system with flexible routing based on real-time trip demand and origin-destination patterns

1. "Requesting ride to doctor appointment."
2. "Request received. Your ride will arrive in 5 minutes."
3. Picked up by ride
4. Trip completed

Models

Software as a Service (SaaS)

Provides the software and the transit agency provides the drivers, vehicles, and operations management.

Blended Model

Separate contracts for software, drivers or vehicles with different entities.

Transportation as a Service (TaaS) / Turnkey

Provides the drivers, vehicles, software, and operations management as a turnkey solution on behalf of the transit agency.

Why Microtransit?

▷ Addresses **unmet needs** for transportation **disadvantaged populations**

▷ **Promotes transportation equity** by providing transit that is **comparable to driving** in terms of time, convenience and cost

▷ Can be a **more convenient and reliable** option than traditional pre-scheduled demand response or infrequent fixed route services

Overview

Benefits

▷ More efficient and responsive service to rider demands with shorter wait times

▷ Provides transit to rural, low density, hilly or otherwise difficult to serve areas

▷ Does not require advance reservations

▷ Flexible for serving late-shift workers and those with unpredictable schedules

▷ Generates robust data and insights on trip behavior

▷ Assists with providing paratransit services

▷ Improves customer service experience through scheduling apps and payment technology

Potential Challenges

▷ Implementing changes to transit agency staff and vehicle fleets

▷ Data gatekeeping by on-demand microtransit vendors

▷ Less control over cost increases

▷ More responsive service may require additional resources due to increased demand

▷ Equitable access for unbanked riders and those without mobile app access

▷ Rising costs of software vendor contracts

What has IMD learned from projects across the state and nationally?*

▷ **Plan for the increased ridership demand** potentially resulting from an on-demand service that is more convenient and efficient.

▷ **Establish level of service metrics** which may be different from those used for fixed-route or other demand-responsive services.

▷ **Design a service that is equitable and accessible** to diverse rider populations by operating a call center and accepting pre-paid debit cards.

▷ **Include an option for pre-booking** trips when designing the service.

▷ **Identify a local maintenance provider** to minimize vehicle downtime.

▷ **Provide flexible service** that includes curb-to-curb service for non-ambulatory passengers and virtual stops for ambulatory riders.

▷ **Identify priorities of service** by balancing wait times with the size of the service zone and the number of vehicles.

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* Selected National Examples

Sacramento, CA   Lubbock, TX
Los Angeles, CA   Dallas, TX
Detroit, MI   Austin, TX

How does on-demand microtransit support equity?

▷ **Reaches underserved communities** not served by fixed route public transportation or communities with high prevalence of carless households

▷ **Improves access** to essential services, healthcare and employment opportunities, which improves quality of life

▷ Provides **more responsive service with shorter wait times and a higher level of service**

▷ **Expands freedom** to riders to schedule their trips when they need them

▷ **Shortens walking** and waiting times
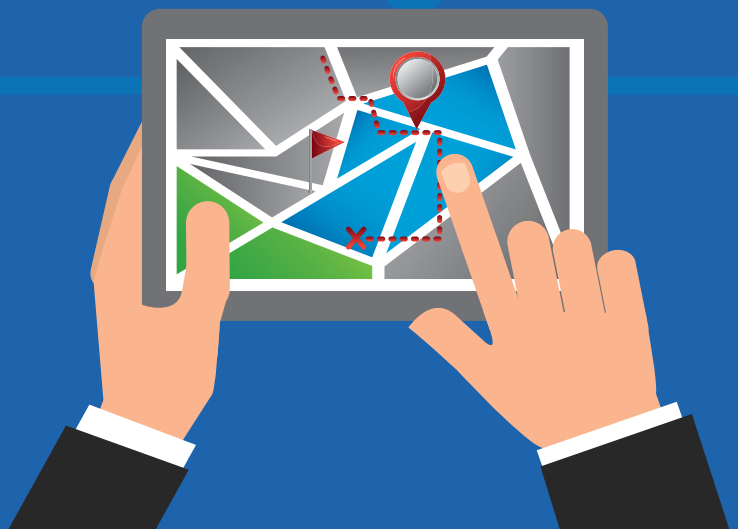
Community Impact

"**RIDE** is a great thing for Wilson. More convenient because you can get to more destinations than the city bus all around town. **I love it**."

"The **service was as easy** as taking my own car really. It's always fun to share a ride with others and reduce my impact...If Micro extended to where I live, I would use it far more often."

"Microtransit is an **innovative model** to serve those in our community who may not live or work near a dedicated bus route."

Mobility for Everyone, Everywhere

The U.S. Department of Transportation through the Rural Surfaces Transportation Grant Program awarded NCDOT $10.4 million for Mobility for Everyone, Everywhere in NC, or MEE NC.

The grant advances NCDOT's vision and strategy to partner with the state's rural transit systems to launch on-demand microtransit in 11 communities throughout the state. This program will accelerate the deployment of high-quality, on-demand transit services leading to more equitable mobility and improved access to opportunities, services, and resources from 2024 to 2026.

NCDOT will work with MEE NC communities on sustainable ways to continue on-demand service beyond the three-year grant window and engage with the public to evaluate the effectiveness of the service.

MEE NC Participating Communities
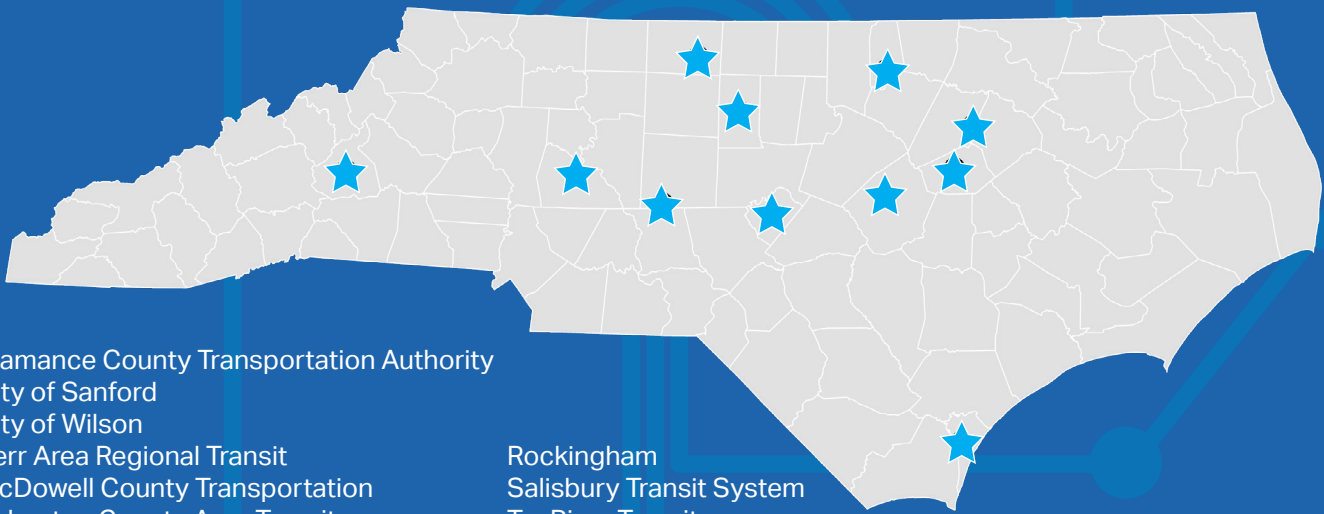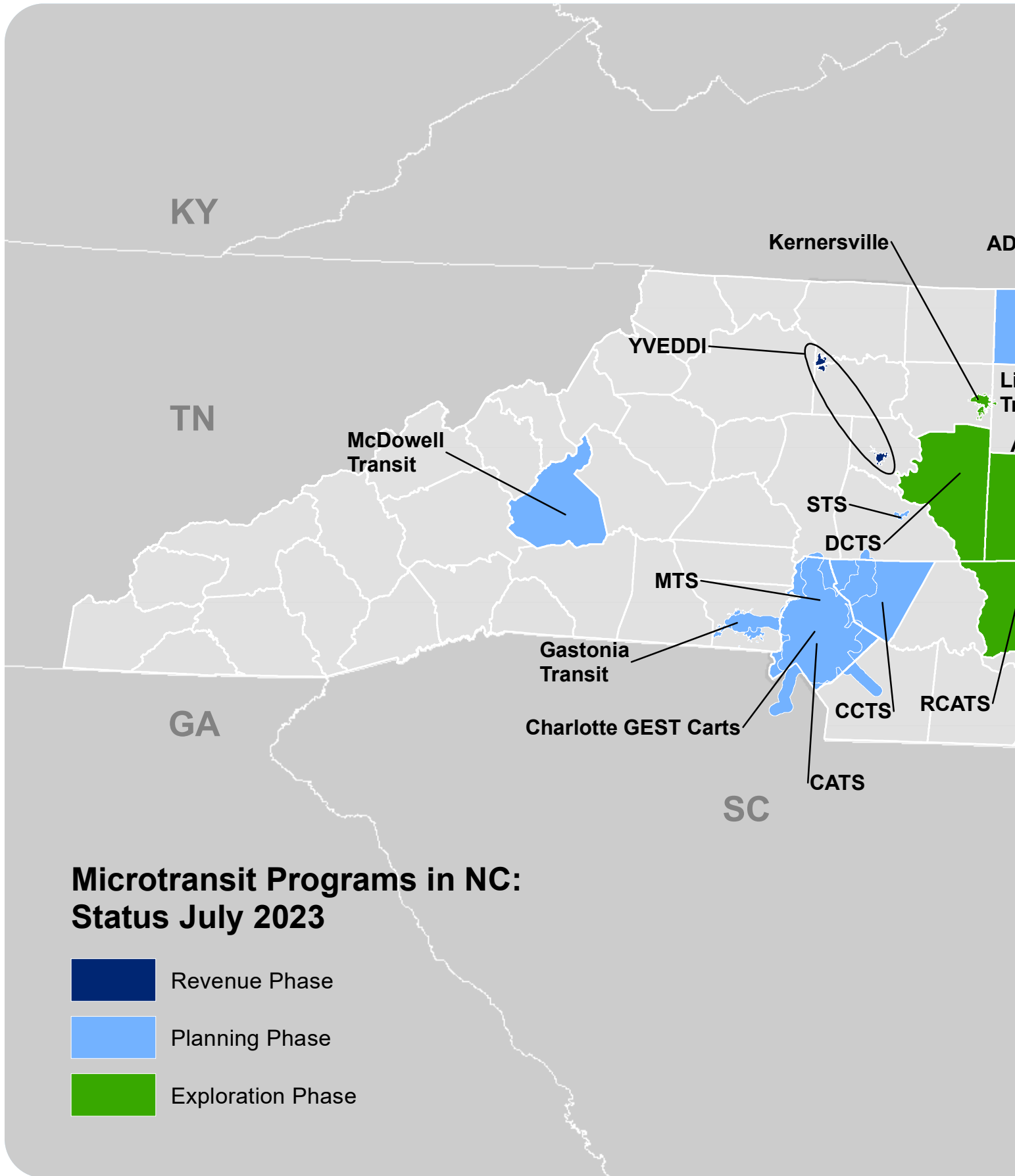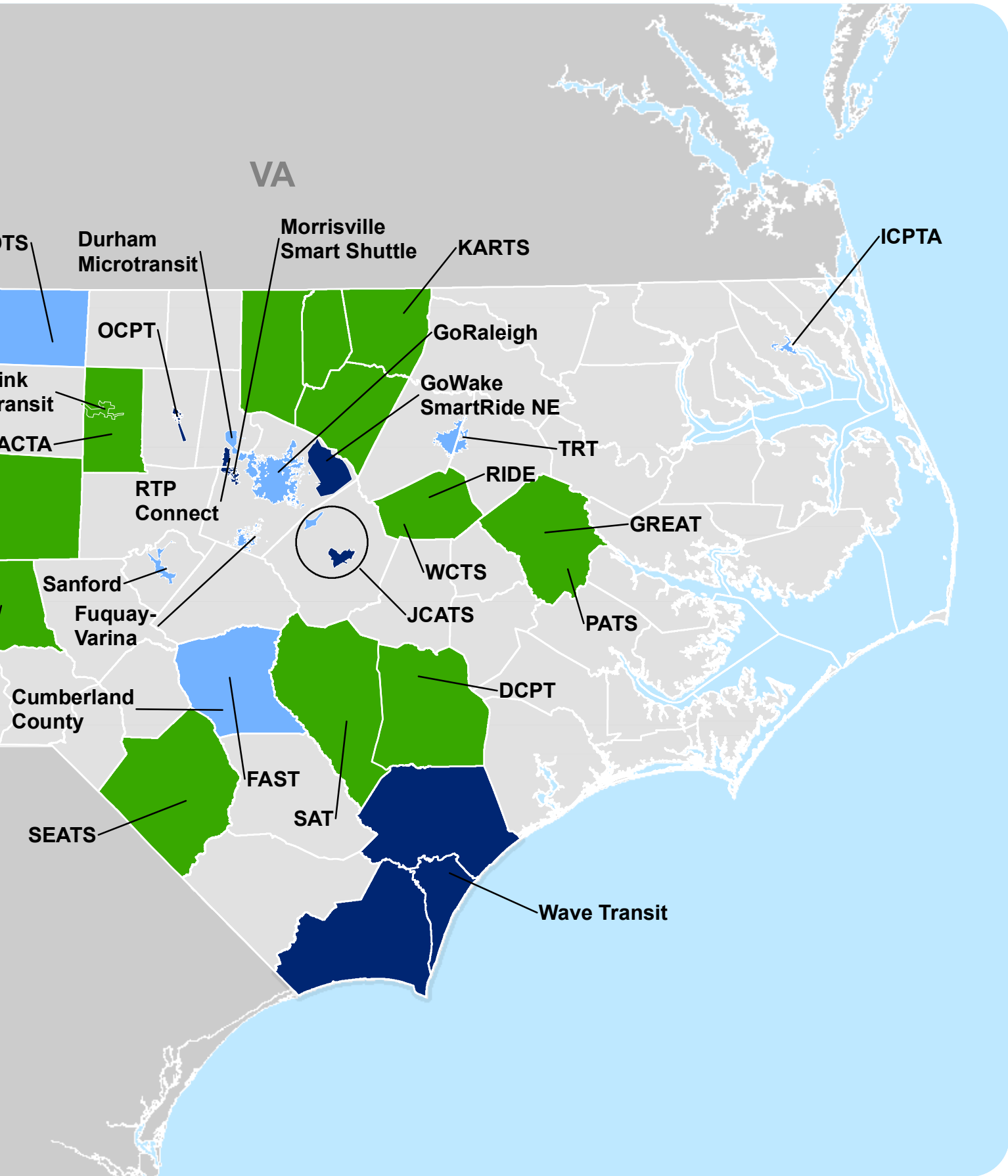
Alamance County Transportation Authority
City of Sanford
City of Wilson
Kerr Area Regional Transit
McDowell County Transportation
Johnston County Area Transit
Randolph County

Rockingham
Salisbury Transit System
Tar River Transit
Wave Transit

Where is on-demand microtransit being implemented?

Microtransit Programs in NC: Status July 2023

Labels on map: Kernersville, AD, YVEDDI, Li T, McDowell Transit, STS, DCTS, MTS, Gastonia Transit, Charlotte GEST Carts, CCTS, RCATS, CATS

KY, TN, GA, SC

Legend:
- Revenue Phase
- Planning Phase
- Exploration Phase

VA

OTS

Durham Microtransit

Morrisville Smart Shuttle

KARTS

ICPTA

OCPT

GoRaleigh

ink ransit

ACTA

GoWake SmartRide NE

TRT

RTP Connect

RIDE

GREAT

Sanford

WCTS

Fuquay-Varina

JCATS

PATS

Cumberland County

DCPT

FAST

SEATS

SAT

Wave Transit

Microtransit Service	Type	Primary Purpose						Vehicle Provider
		Connection	Replacement	Low-Density	Temporal	Convenience		
Orange County Mobility On-Demand	SaaS				🟡	🟡		Orange County Public Transportation
RideMICRO (Wave Transit)	TaaS	🟡	🟡					Bus.com
RIDE (City of Wilson)	TaaS		🟡					Buggy
Morrisville Smart Shuttle	Blended	🟡		🟡				GoCary
GoWake SmartRide NE	Blended	🟡		🟡		🟡		MV Transportation
GoDurham Connect	TaaS	🟡						Lyft driver
RTP Connect (GoTriangle)	TaaS	🟡						Lyft and Uber driver
YVEDDI (Elkin and Mocksville Microtransit)	SaaS		🟡					YVEDDI
Charlotte GEST Carts	TaaS				🟡			GEST
Johnston QuickRIDE) (JCATS)	SaaS			🟡				JCATS

* From Public Microtransit Pilots in the State of North Carolina: Operational Characteristics, Costs, and Lessons Learned, NCSU (see page 9 for more information)

Technology Provider	Driver Provider	Project Administration	Fleet Size	Pre-schedule availability	Wait Time	Funding Source
TransLoc	Orange County Public Transportation	Orange County Public Transportation	5	Not available	Within 15 minutes	Orange County Transit Plan (Sales tax, rental tax, vehicle registration fee)
Bus.com (Moovit)	Bus.com (Daniel's Tours)	City of Wilmington with Brunswick Transit System Inc and Pender County	5	Up to a week in advance	30 minute maximum	NCDOT ConCPT, Community Grant
Via	Via	City of Wilson	26	Not available	Within 15 minutes	FTA Section 5311, NCDOT ConCPT, Local funding
Via	GoCary	Town of Morrisville	2	Not available	Within 15 minutes	Town of Morrisville, Wake Transit Plan (Sales tax, rental tax, vehicle registration fee)
Uber	MV Transportation	Wake County Health and Human Services	3	Up to 14 days in advance	Within 30 minutes	Integrated Mobility Innovation grant, Wake County funds, Wake Transit Plan, GoWake
Lyft	Lyft	GoDurham	Dynamic	Extent of Lyft pre-scheduling availability	No wait time target set	Durham Transit Plan (Sales tax, rental tax, vehicle registration fee)
Lyft and Uber	Lyft and Uber	GoTriangle	Dynamic	Extent of Lyft and Uber pre-scheduling availability	No wait time target set	Research Triangle Foundation and GoTriangle General Funds
CTS Software	YVEDDI	YVEDDI	4 (2 per town)	Up to one day in advance	Within 15 minutes	FTA Section 5311, Rural Operating Assistance Program
GEST	GEST	GEST	10	Not available	No wait time target set	Paid sponsorships
CTS Software	JCATS	JCATS	5	Available	Variable, no wait time target set	Modivcare pilot, Local funding

Comparison to Other Transit Modes

The following table compares public on-demand microtransit services with private transportation network companies, demand response, and fixed-route transit service.

Service Element	Public On-Demand Microtransit	Demand Response	Fixed-Route	Transportation Network Companies
Curb to Curb Service	●	●		●
Operates within defined service zone	●	●	N/A	
Trips may be shared with other riders	●	●	●	
Trips must be booked	●	●		●
Reservations needed 24 hours in advance		●	●	●
Booking options for riders without access to internet and/or banking	●	●	N/A	
Accessible vehicle mandated	●	●	●	

Public Microtransit Pilots in the State of North Carolina:
Operational Characteristics, Costs, and Lessons Learned

North Carolina State University (NCSU) Institute for Research and Education (ITRE) provided an in-depth review of the various on-demand microtransit services across North Carolina, conducted a literature review, and provided a summary of lessons learned. Click here for more information.

▷ Need for feasibility studies to assess/inventory existing services and consider the applicability of microtransit service based on analysis and market.

▷ Diversify funding sources to expand service delivery. It is not recommended that funding from other coordinated demand response transportation be reallocated to microtransit as that may negatively impact existing riders.

▷ Decision-making process should involve multiple stakeholders from the beginning of the planning phase, especially focusing on disadvantaged groups to achieve more equitable service.

▷ Service delivery model selection depends on the resources available at the agency and their previous experience operating transit service. The study identifies the advantages and challenges of TaaS, SaaS, and technology acquisition.

▷ Service providers should be selected based on careful review of bids and be meticulous regarding details of the contract. It is important to clearly communicate expectations from microtransit service in the RFP process.

▷ Marketing is important to all service delivery models, and across all interviewed services with branded vehicles as a useful strategy to attract a larger population while adding to legitimacy of the service.

▷ Finding a balance between user convenience and system efficiency is critical to microtransit operations.

▷ Successful microtransit programs uncover latent demand for transit, which can be leveraged to become the foundation for future fixed-route services.
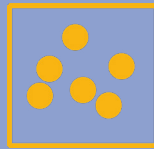
Primary purposes for operating on-demand microtransit:

Connection to fixed-route service

Replace an inefficient fixed-route

Transit service in low-density area

Temporal service (provide transit when other modes are not available)

Convenience beyond demand response

Awards

Smart Cities Connect Awards:

▷ Morrisville Connect Smart Shuttle App (2023)

▷ Connecting Communities: RideMICRO On-Demand (Wilmington, NC)

Southeastern Association of State Highway and Transportation Officials:

▷ Wilson RIDE 2021 Best Use of Innovation and Technology

NC Public Transportation Association:

▷ Wave Transit 2022 – Transit System of the Year

Forthcoming On-Demand Microtransit Feasibility Studies Funded by NCDOT:

▷ City of Greensboro / Greensboro Transit Agency (GTA)

▷ Davidson County Transportation

▷ Hoke County / Hoke Area Transit Service

▷ Onslow United Transit System

▷ Robeson County / South East Area Transit System (SEATS)

▷ Wilson County Transportation