PEER MICROTRANSIT CASE STUDIES REPORT

BALTIMORE METROPOLITAN COUNCIL

October 2024
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1. Introduction

Overview

The Peer Microtransit Case Studies Report examines twelve microtransit programs with characteristics most comparable to the Baltimore region. The report includes fact sheets for each microtransit program showing information on service areas and characteristics, as well as implementation methods such as partnerships, funding, marketing and education. Additionally, the report provides key takeaways on service design, technology integration, expansion efforts, equity considerations, procurement methods, driver recruitment, and performance monitoring from these microtransit programs. The purpose of the report is to use fundings from these case studies to inform the Baltimore Metropolitan Council (BMC)'s work on a regional approach to microtransit.

This report is organized into the following sections.

- ***Case Studies*** provides fact sheets from each selected example, highlighting the agency's service area, service characteristics, and implementation method.
- ***Takeaways*** delivers more extensive case study information and findings on key topics, underscoring principles that could be applied to the Baltimore region.
- ***Lessons Learned*** summarizes the most important considerations for BMC and its member jurisdictions when planning and implementing microtransit service.

Background

GENERAL

Microtransit is a flexible form of public transportation that provides on-demand service in specific areas. It combines features of fixed-route transit, such as being a shared-ride public transportation service with designated pick-up and drop-off areas, with the flexibility of on-demand ride-booking services. Many cities, transit agencies, and nonprofits use microtransit because of its adaptability and benefits (listed below).

1. Offers transit service in areas where fixed routes are not feasible or cost-effective, particularly in suburban or rural areas
2. Provides first-mile/last-mile connectivity by helping users reach fixed-route transit without lengthy walks, improving accessibility
3. Gives flexible service to users, especially during off-peak hours when other public transit options may not be available
4. Enhances equity by providing more transit options to those facing challenges navigating the current transit system

The benefits of microtransit can vary significantly, even within the same region or metropolitan area. Differences in service area, design, model, and implementation methods can all impact the final operation and experience of microtransit services. Two key decisions when designing services are service type and service model, which will be further described in the case studies fact sheets.

SERVICE TYPE

Service type defines the locations of microtransit pick-up and drop-off points. Service types may also be related to the objective of the service, such as providing mobility within a community or connecting people to other transit options. There are three predominant approaches to microtransit service types:

Door-to-Door		Transports the user from their chosen origin to the exact destination of their choosing within a designated zone, often involving assistance from the operator to get physically from the vehicle to the door. This service typically operates similarly to paratransit.
Curb-to-Curb		Transports the user to a "curb" at their exact drop-off location, but does not involve assistance to get from the drop-off location to the building door. A similar service type, corner-to-corner, instead transports the user to the nearest intersection of their drop-off location, sometimes requiring a short walk. These services can include virtual stops, locations designated on the application for pick-up or drop-off that may not have physical infrastructure like a bus stop, from which users can select. In the case study interviews, participants used curb-to-curb and corner-to-corner terms interchangeably so they are grouped together for the purposes of this memo.
Curb-to-Hub		Transports the user to predetermined points of interest, termed nodes in this report, such as transit stations or businesses. Agencies can require that one or both ends of the trips start at a designated location. This service typically operates to connect users to the broader transit network. These nodes can be within the defined zone or a few defined points outside of but near the zone.

SERVICE MODEL

The service model describes the contracting approach for the microtransit service, including the technology, vehicle, and operator. There are three types of service models:

Turnkey		The agency contracts one third-party vendor to secure appropriate technology, vehicles, and operators. This is sometimes referred to as “Transportation as a Service” (TaaS). **Example:** Company X provides microtransit technology, supplies vehicles, provides operators, and operates the service.
Hybrid		The agency either contracts separate third-party vendors to secure appropriate technology, vehicles, and operators or sources some of these components in-house. **Example:** Company X or the agency supplies vehicles; Company Y provides microtransit technology; the agency provides operators to operate the service.

Software Only		The agency contracts a third-party partner solely to provide technology but operates the service itself. This is sometimes referred to as "Software as a Service" (SaaS). **Example:** Company X provides microtransit technology and the agency supplies vehicles, provides operators, and operates the service.

Scheduling, fleet management, partnerships, marketing, and other capabilities can differ significantly between agencies and providers. Microtransit services can be tailored more specifically to an agency's capabilities and needs compared to other public transit options. The following sections will provide information about different microtransit services operating in the United States. These insights aim to identify best practices for implementing microtransit services in the Baltimore region.

Benefits and Drawbacks

Microtransit service is a useful transit service type for many agencies and organizations due to its flexible, accessible nature. Before implementing microtransit service, agencies should consider the potential benefits and drawbacks listed below.

Table 1: Benefits and Drawbacks of Microtransit

ASPECT	BENEFITS	DRAWBACKS
Cost Efficiency	Can be more cost-effective than traditional transit for low-demand areas.	Can have additional capital costs for purchasing new vehicles and technology, and additional operating costs if demand exceeds expectations.
Flexibility	Provides flexible routing and scheduling, responding to real-time demand.	Potential for longer wait times if demand exceeds supply or service is not well coordinated.
Accessibility	Can provide connection to the higher frequency transit network and points of interest and improve transit access in underserved areas.	Technology may be a barrier for less tech-savvy customers, and the need to book a trip in advance may be seen as a disadvantage compared to showing up at a fixed-route bus stop.
Environmental Impact	Potentially reduces the number of single-occupancy vehicles, lowering emissions.	May not be as environmentally friendly as high-capacity transit if vehicles are underutilized and rides are not shared.
User Convenience	Offers service closer to a customer's desired pick-up or drop-off location and potentially faster than infrequent fixed-route service.	Some users may be accustomed to the Uber/Lyft ride-hailing and dislike the rideshare component of public transportation.
Scalability	Easier to scale up or down based on demand compared to fixed-route services.	Can be challenging to maintain efficiency and service quality as demand increases.
Operational Complexity	Allows for dynamic routing, which can be more responsive to changing needs.	Agency may be unfamiliar with the capabilities of the technology that can improve operations.
Data and Analytics	Creates a data-rich service that produces several customer-focused measures that can be used to assess the performance of the service.	Service type differs from traditional fixed-route service, requiring new or different performance measures and a new understanding of "success."
Equity Considerations	Can bridge the gap in areas poorly served by traditional transit, improving social equity.	Risk of unequal access if services are concentrated in areas with less transit need.

2. Methodology

Case Study Selection

The regions selected for the case studies were chosen due to their similarity to the Baltimore region in terms of population, employment, land use, and transportation infrastructure. The peer regions initially considered included Atlanta, Denver, Minneapolis, Pittsburgh, Philadelphia, Cleveland, and Washington, D.C.

From these options and with input from the project's Steering Committee, Atlanta, Denver, Minneapolis, Philadelphia, and Cleveland were selected for inclusion in the study. Several of these regions have multiple microtransit services operated by different agencies. In addition, Wilmington, NC, was included to provide a more rural-to-suburban case study. Twelve case studies were ultimately chosen, highlighting various service types and models, among other factors (see **Table 2**). A diverse range of case studies offers insights into the potential applications of microtransit in the Baltimore region.

Table 2: Microtransit Case Studies

REGION	CASE STUDY	AGENCY / ORGANIZATION
Atlanta, GA	Ride Gwinnett Microtransit	Gwinnett County (Ride Gwinnett)
	CPACS Ride	Center for Pan Asian Community Services (CPACS)
	MARTA Reach	Metropolitan Atlanta Regional Transit Authority (MARTA)
Denver, CO	Denver Connector	Department of Transportation and Infrastructure (DOTI)
	FlexRide	Denver Regional Transportation District (RTD)
Minneapolis, MN	Metro Transit Micro	Metro Transit
	MVTA Connect	Minnesota Valley Transit Authority (MVTA)
	Click-and-Ride	City of Plymouth (Plymouth Metrolink)
	SouthWest Prime	SouthWest Transit
Philadelphia, PA	SEPTA On-Demand	Southeastern Pennsylvania Transportation Authority (SEPTA)
Wilmington, NC	RideMICRO	Wave Transit
Cleveland, OH	ConnectWorks	Greater Cleveland Regional Transit Authority (RTA)

Desktop Research and Interviews

Preliminary research was conducted to gather more information on the agency service area, service characteristics, and implementation methods of each case study. Sources for the preliminary research included articles, reports, budgets, mobile applications, websites, and previous research studies.

Based on this initial desktop research, five of the twelve case studies were selected for interviews to gather additional information and lessons learned relevant to the Baltimore region (see **Table 3**). The interview questions addressed various topics, including service objectives, service design, hiring process, financial sustainability, partnerships, and marketing. Each interview lasted one hour and was held virtually.

Table 3: Microtransit Implementation Interviews

REGION	MICROTRANSIT SERVICE	AGENCY	DATE	PERSONNEL
Atlanta, GA	MARTA Reach	MARTA	July 12, 2024	Manager of Customer Technology Products
Denver, CO	Denver Connector	Denver Department of Transportation and Infrastructure	July 16, 2024	Multimodal Development and Planning Supervisor
Denver, CO	FlexRide	Denver Regional Transit District	July 25, 2024	Senior Manager, Contracted Services Senior Alternative Service Planner/Scheduler
Minneapolis, MN	Metro Transit Micro	Metro Transit	July 18, 2024	Transit Planner
Cleveland, OH	ConnectWorks	Greater Cleveland Regional Transit Authority	July 11, 2024	Director of Planning Intergovernmental Affairs Officer

These case studies were chosen based on several factors, including the lack of readily accessible information, unique service designs and programs, and the regions they cover.

3. Case Studies

Atlanta, GA – Regional Case Study

RIDE GWINNETT MICROTRANSIT

Ride Gwinnett

Service Objective – Expand transit connections and mobility options.

AGENCY SERVICE AREA

- **Size:** 143 square miles
- **Area type:** Suburban, metropolitan
- **Population:** 702,116 people
- **Population density:** 4,910 people per square mile

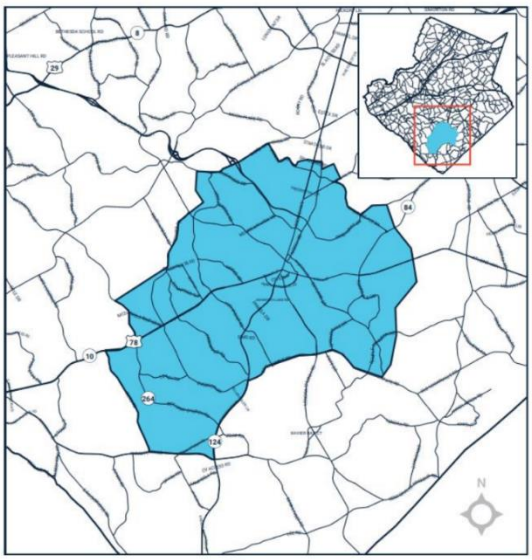
MICROTRANSIT SERVICE CHARACTERISTICS

General Information

- **Status:** Operational
- **Service type**: Curb-to-curb, curb-to-hub
- **Number of zones:** 2
- **Size:** 40 square miles
  - Lawrenceville: 18 square miles
  - Snellville: 22 square miles
- **Dates in service**:
  - Lawrenceville: August 2023 – Present
  - Snellville: August 2023 – Present
- **Service hours:** 6:00 a.m. to 8:00 p.m. from Monday through Saturday

Lawrenceville Microtransit Zone

Snellville Microtransit Zone



Source: Ride Gwinnett

- **Microtransit fare structure**:
  - Regular fare: $3.00
- **Fixed-route fare structure***:
  - Regular fare: $2.50
  - 65+: $1.25
  - People with disabilities: $1.25
  - People with Medicare: $1.25

*Only considers local fixed-route service

- **Transfer policy**: Yes, free with transit card
- **Payment options:** Cash, mobile application, transit card, credit card
- **Connections (transit and points of interest):**
  - Ride Gwinnett, local fixed-route operated by Ride Gwinnett—connects to local commercial districts, supermarkets, and heavy rail stations.
  - Xpress, regional commuter bus service operated by Atlanta-Region Transit Link Authority (The ATL) —connects to Midtown Atlanta

Service Model

Hybrid

- **Technology provider**: RideCo
- **Vehicle provider**: Transdev
- **Driver provider**: Transdev

Source: Ride Gwinnett

Scheduling

- **Booking method**: Mobile application and call center
- **Advance scheduling**: up to 1 day in advance
- **Target wait time**: 10 minutes

Fleet

- **Fleet size:** 4 total
- **Vehicle types**: 12-passenger vehicles (shuttles/vans)
- **ADA accommodations**: ADA-compliant**,** able to load mobility-aid devices

IMPLEMENTATION METHOD

Funding Sources

- **Lawrenceville and Snellville:** Total amount not available
  - Ride Gwinnett operating funds
  - The ATL: $1,600,000, 2024
- **Proposed Southwest Gwinnett Microtransit**: $1,300,000, 2024
  - Gateway 85 Community Improvement District: $572,000, 2024
  - City of Norcross: $572,000, 2024
  - Ride Gwinnett operating funds: $156,000, in 2024
- **Future zones:** 1% sales tax for transit investment to be voted on in fall 2024

Marketing and Education

Led by: Ride Gwinnett

- Local newspapers (North Gwinnett Voice, Gwinnett Daily Post, WSB-TV)
- Vehicle (Ride Gwinnett-wrapped)
- Social media (YouTube Videos, LinkedIn posts, Instagram posts)

CPACS RIDE

Center for Pan Asian Community Services (CPACS)

Service Objective – Expand transit connections and mobility options. Investigate ridership potential in new areas

AGENCY SERVICE AREA

- **Size**: 698 square miles
- **Area type**: Suburban, metropolitan
- **Population**: 1,738,173 people
- **Population density**: 2,489 people per square mile

Source: Defining Metro Atlanta - Issuu

MICROTRANSIT SERVICE CHARACTERISTICS

General Information

- **Status:** Not operational (pilot complete)
- **Service type:** Curb-to-curb, door-to-door (only available for customers with mobility challenges)
- **Number of zones**: 1
- **Size:** 698 square miles
- **Dates in service**: November 2021 – July 2022
  - Phase 1: November 2021 – December 2021
  - Phase 2: March 2022 – July 2022
- **Service hours**: 9:00 am to 4:00 pm from Monday to Friday. Weekend available on request.
- **Microtransit fare structure**:
  - 65+: Free
  - People with disabilities: Free
  - Not over 65 or disabled: $2:00 (Must be with someone of the targeted group)
- **Fixed-route fare structure***:
  - Regular fare: $2.50
  - 65+: $1.25
  - People with disabilities: $1.25
  - People with Medicare: $1.25

*Only considers Ride Gwinnett local fixed-route service

- **Transfer policy**: No, not applicable (no fare)
- **Payment options**: Cash (non-eligible rider)
- **Connections (transit and points of interest)**:
  - Ride Gwinnett, local fixed-route operated by Ride Gwinnett—connects to local commercial districts, supermarkets
  - Xpress, regional commuter bus service operated by Atlanta-Region Transit Link Authority—connects to Midtown Atlanta
  - MARTA, the regional metro system with bus, streetcar, and rail service operated by Metropolitan Atlanta Rapid Transit Authority—connects to Downtown Atlanta and Hartsfield-Jackson Atlanta International Airport

Service Model

Software

- **Technology provider**: Spare Labs
- **Vehicle provider**: CPACS
- **Driver provider**: CPACS, Spare Labs subcontracted to Lyft for additional drivers/vehicles

Scheduling

- **Booking method**: Mobile application and call center
- **Advance scheduling**: Up to 30 days in advance
- **Target wait time**: 25 minutes

Fleet

- **Fleet size**: 8
- **Vehicle types:** Sedans and vans
- **ADA accommodations:** Some wheelchair-accessible vehicles

IMPLEMENTATION METHOD

Partnerships

- **Atlanta Regional Commission (ARC)**, the regional planning agency for the Atlanta metropolitan region, partnered with CPACS to assist with the procurement and execution of CPACS Ride
- **Atlanta-Region Transit Link Authority**, a state agency focused on transit planning and funding in the Atlanta metropolitan region, partnered with CPACS to provide insight into better rider experience and program consideration for regional connections
- **Ride Gwinnett**, a transit system in Gwinnett County, partnered with CPACS to find potential collaboration opportunities in its rideshare service
- **Shared-Use Mobility Center**, a shared mobility nonprofit consultant, partnered with CPACS to provide technical planning and implementation support

Funding Sources

- Administration for Community Living (ACL), 2020

Marketing and Education

Led by: CPACS

- Vehicle (CPACS Ride-wrapped)
- Educational ride-alongs by staff with riders to flea markets and shopping centers
- Internal organization connections (CPACS)
- Internal meetings to discuss how the service works to CPACS
- Brochures and how-to guides

Source: Shared Use Mobility Center (SUMC)

MARTA REACH

Metropolitan Atlanta Regional Transit Authority (MARTA)

Service Objective – Expand transit connections and mobility options. Create first/last mile connections to fixed-route service. Partially replace inefficient and infrequent fixed-route service with more responsive service.

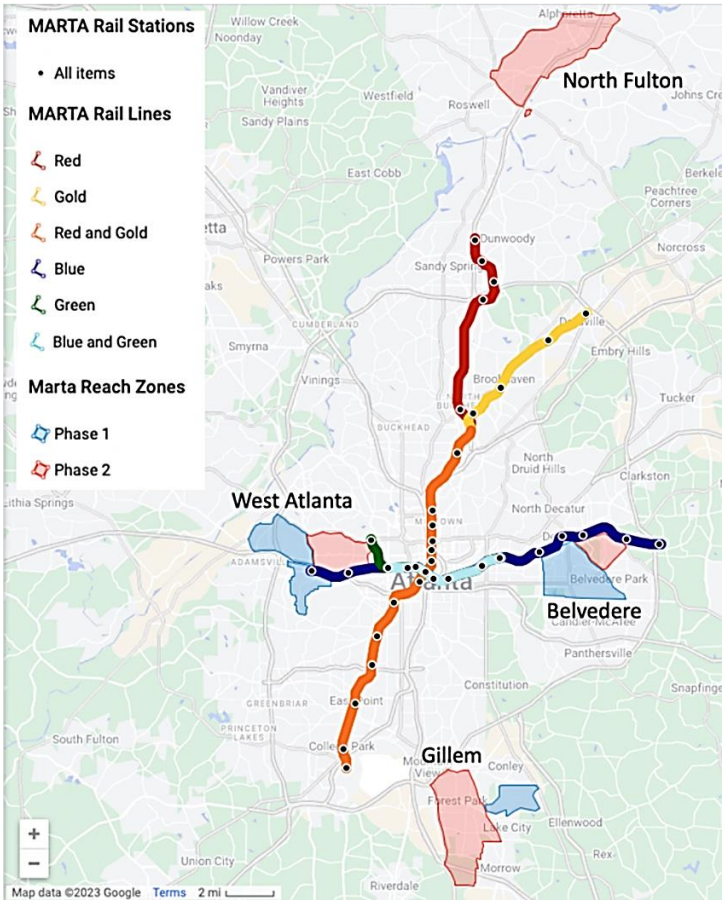
AGENCY SERVICE AREA

- **Size:** 949 square miles
- **Area type**: Urban, suburban, metropolitan
- **Population**: 2,128,687 people
- **Population density**: 2,243 people per square mile

MICROTRANSIT SERVICE CHARACTERISTICS

General Information

- **Status**: Not Operational (pilot complete)
- **Service type**: Curb-to-curb, curb-to-hub
- **Number of zones**: 4
- **Size:** 21 square miles (Phases 1 and 2)
  - West Atlanta: 5 square miles
  - Belvedere: 5 square miles
  - Gillem Logistics: 2 square miles
  - North Fulton: 8.5 square miles
- **Dates in service**: March 2022 – August 2022 (Phases 1 and 2)
  - West Atlanta: March 2022 – August 2022
  - Belvedere: March 2022 – August 2022
  - Gillem Logistics: March 2022 – August 2022
  - North Fulton: May 2022 – August 2022



Source: researchgate.net

- **Service hours**: 6:00 am to 7:00 pm from Monday to Friday
- **Microtransit fare structure**:
  - Regular fare: $2.50
  - 65+: $1.00
  - Children <46" height and <6 years old: Free (2 per adult)
  - People with disabilities: $1.00
  - People with Medicare: $1.00
- **Fixed-route fare structure***:
  - Regular fare: $2.50
  - 65+: $1.00
  - Children <46" and <6 years old: Free (2 per adult)
  - People with disabilities: $1.00
  - People with Medicare: $1.00

*Only considers local fixed-route service

- **Transfer policy**: Yes, four free transfers within a three-hour window. Cannot use for round-trip.
- **Payment options:** Cash, mobile application, transit card, credit card
- **Connections (transit and points of interest)**:
  - MARTA heavy rail and fixed-route bus service—connects to Downtown Atlanta and Hartsfield-Jackson Atlanta International Airport for West Atlanta and Belvedere

Service Model

Hybrid

- **Technology provider**: Ontra Mobility, developed by Anthony Trasatti (Georgia Institute of Technology)
- **Vehicle provider**: First Transit
- **Driver provider**: First Transit

Scheduling

- **Booking method**: Mobile application and call center
- **Advance scheduling**: None
- **Target wait time**: 15 minutes

Fleet

- **Fleet size**: 18 (2 are spares)
- **Vehicle types**: Eight-passenger cutaway vehicles
- **ADA accommodations**: Wheelchair accessible

Source: SaportaReport

IMPLEMENTATION METHOD

Partnerships

- **Georgia Institute of Technology,** a public research university in Atlanta, partnered with MARTA to provide the software and necessary research support for the MARTA Reach microtransit pilot
- **Proper ATL**, a nonprofit that advocates for sustainable and safe mobility in the Atlanta region, partnered with MARTA's Office of Stakeholder and Public Engagement and researchers at Georgia Institute of Technology to provide community engagement advice for the MARTA Reach microtransit pilot

Funding Sources

- **Pilot Phase 1**: National Science Foundation Civic Innovation Challenge Award, 2021

Marketing and Education

Led by: MARTA

- Bus station posters
- Vehicle (MARTA Reach-wrapped)
- Bus stop announcements
- Targeted mailing (fliers mailed to zip codes intersecting MARTA Reach zones)
- Town hall meetings
- Operational fliers
- Business canvassing
- Bus station pop-up events

Denver, CO – Regional Case Study

DENVER CONNECTOR

Department of Transportation and Infrastructure (DOTI)

Service Objective – Expand transit connections and mobility options. Create first/last mile connections to fixed-route service. Partially replace inefficient and infrequent fixed-route service with more responsive service.

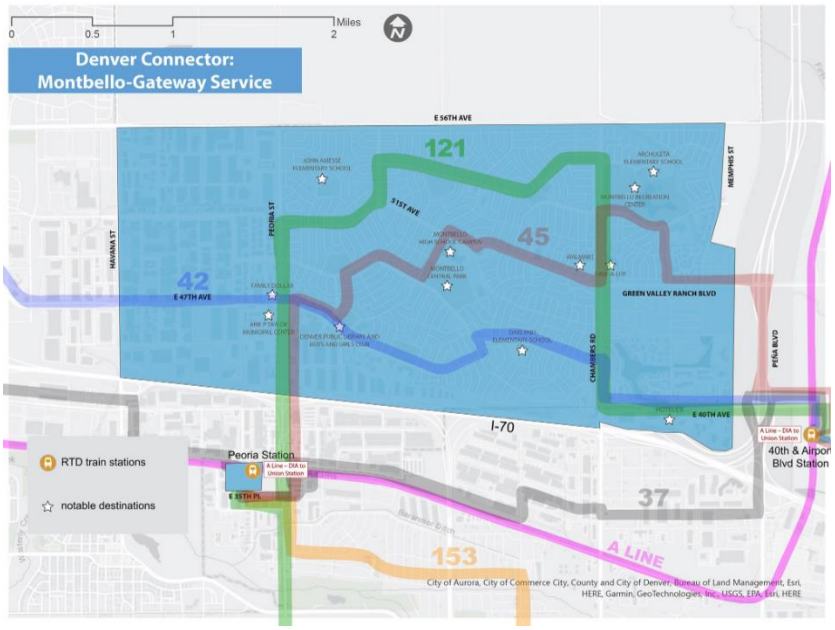
AGENCY SERVICE AREA

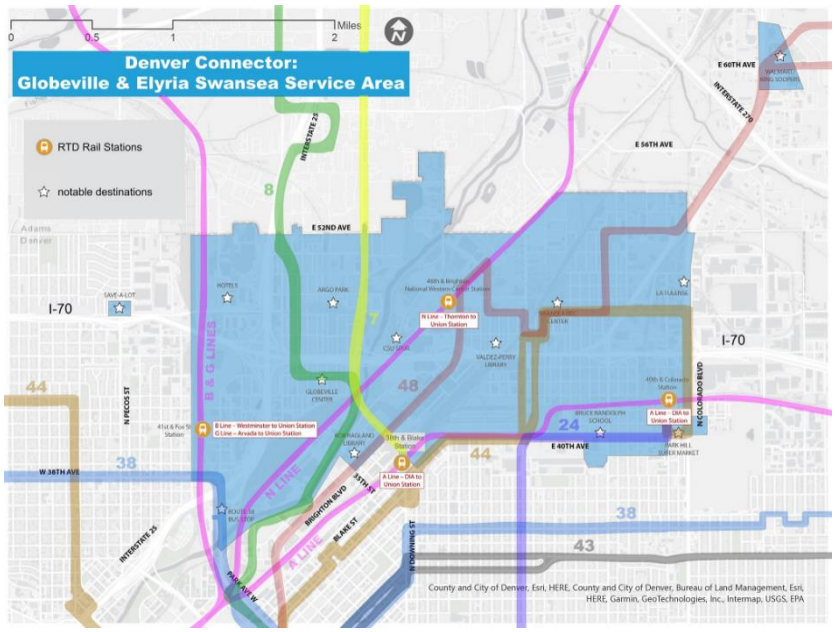
- **Size**: 153 square miles
- **Area type**: Suburban, metropolitan
- **Population**: 713,252 people
- **Population density**: 4,659 people per square mile

MICROTRANSIT SERVICE CHARACTERISTICS

General Information

- **Status**: Operational
- **Service type**: Curb-to-hub
- **Number of zones:** 3
- **Size**:
  - Montbello/Gateway: 6.6 square miles
  - Globeville and Elyria-Swansea: 12 square miles
  - Southwest: 11 square miles (Service has not started)
- **Dates in service**: October 2021 – Present (Phase 1, 2, 3)
  - Montbello/Gateway: October 2021 – Present
  - Globeville and Elyria-Swansea: November 2022 – Present
  - Southwest: Anticipated Fall/Winter 2024
- **Status**: Operational
- **Service hours**: 6:00 am to 8:00 pm from Monday to Friday



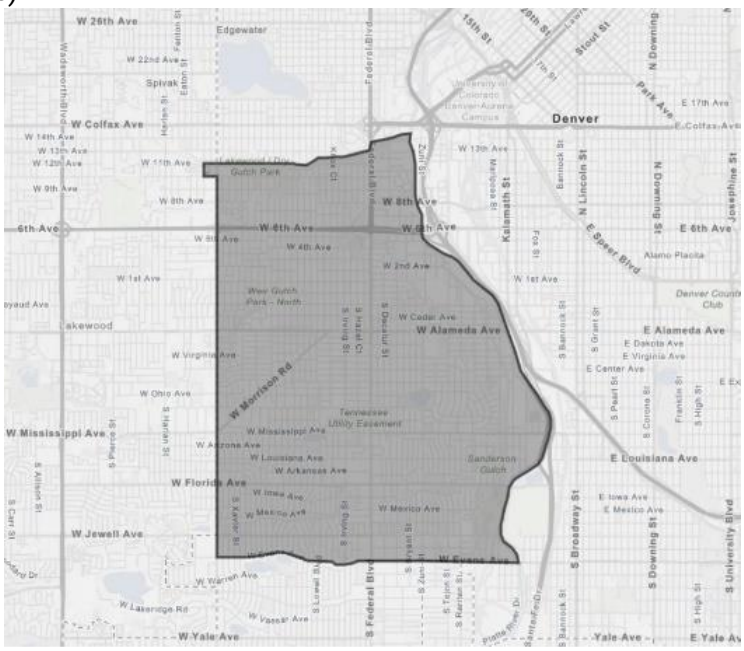


Source: Northeast Transportation Connections (NETC)

- **Microtransit fare structure**:
  - Regular fare: Free
- **Fixed-route fare structure***:
  - Regular fare: $2.70 (day pass)
  - 65+: $1.35 (Senior Special Discount Card)
  - <19: $0.81 (Youth Special Discount Card)
  - People with disabilities: $1.35 (Individuals with Disabilities Special Discount Card)
  - People with low income: $1.35

*Only considers Denver RTD local fixed-route service

- **Transfer policy**: No, not applicable (no fare)
- **Payment options**: Not applicable (no fare)
- **Connections (transit and points of interest)**:
  - Denver-RTD, the regional transit agency of the Denver metropolitan region with bus and rail service—Connects to Downtown Denver and larger transit stations like Union Station through local bus stops and rail stations



Source: City and County of Denver

Service Model

Turnkey

- **Technology provider**: Northeast Transportation Connections, subcontracted to Downtowner
- **Vehicle provider**: Northeast Transportation Connections, subcontracted to Downtowner
- **Driver provider**: Northeast Transportation Connections, subcontracted to Downtowner

Scheduling

- **Booking method**: Mobile application and call center
- **Advance scheduling**: None
- **Target wait time**: 30 minutes

Fleet

- **Fleet size**: 7
  - Montbello/Gateway: 4
  - Globeville and Elyria-Swansea: 3
- **Vehicle types**: Two vans, three hybrid minivans, and two electric sedans
- **ADA accommodations**: Vans are wheelchair accessible
  - Montbello/Gateway: 1
  - Globeville and Elyria-Swansea: 1

IMPLEMENTATION METHOD

Partnerships

- **Local nonprofit neighborhood organizations** partnered with DOTI to understand community needs and inform pilot design
- **Northeast Transportation Connections**, a transportation management association, partnered with DOTI to provide information on the local transportation needs of the area, and is in charge of procurement and operations for the pilot
- **Denver Public Schools**, the local school system of the service area, partnered with DOTI to advertise the Success Express service, a school bus circulator in the Montbello/Gateway region, to shift demand from the Denver Connector microtransit pilot

Source: Northeast Transportation Connections (NETC)

Funding Sources

- **Pilot Phase 1 – Montbello/Gateway:** DOTI's Operating Funds, 2021
- **Pilot Phase 2 – Montbello/Gateway and Globeville/Elyria-Swansea**: $3,200,000 from Denver's Climate Protection Fund, 2022
- **Pilot Phase 3 – Montbello/Gateway and Globeville/Elyria-Swansea:** $1,500,000 from a Denver RTD grant, 2023

Marketing and Education

Led by: DOTI

- Vehicle (Denver Connector-wrapped)
- News station articles (Denver Post, Denverite, Denver7, Colorado Community Media)
- Focus groups (separate youth-oriented and Spanish-speaking)
- Info session events
- YouTube videos (English and Spanish with City and County of Denver channel)

FLEXRIDE

Denver Regional Transportation District (RTD)

Service Objective – Expand transit connections and mobility options. Create first/last mile connections to fixed-route service. Partially replace inefficient and infrequent fixed-route service with more responsive service.

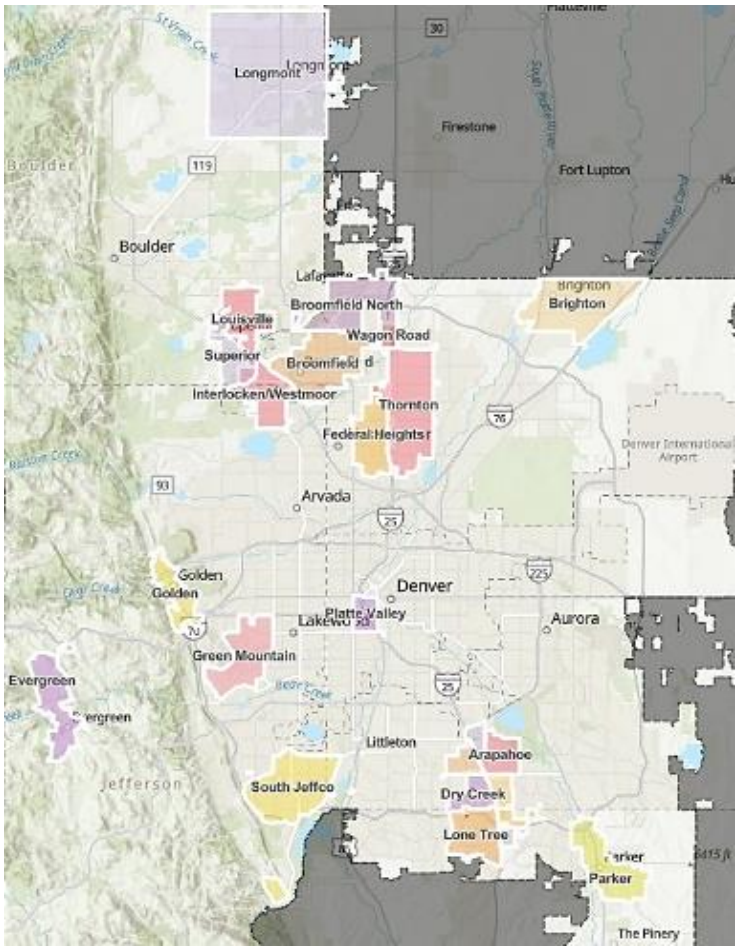
AGENCY SERVICE AREA

- **Size**: 2,342 square miles
- **Area type**: Suburban, metropolitan
- **Population**: 2,920,000 people
- **Population density**: 1,247 people per square mile

MICROTRANSIT SERVICE CHARACTERISTICS

General Information

- **Status**: Operational
- **Service type**: Curb-to-curb, curb-to-hub (depends on the area), door-to-door (if person has disabilities)
- **Number of zones**: 24
- **Size**: Variable among the 24 zones ranging from 2 to 84 square miles, with the total size of over 350 square miles
- **Dates in service**: Late 1990s/Early 2000s – Present (Rebranded from Call-n-Ride service to FlexRide in February 2019)
- **Service hours**: typically, 5:30 am to 7:00 pm from Monday to Friday and variable Saturday service (differences depend on zone)



Source: RTD-Denver

- **Microtransit and fixed-route fare structure***:
  - Regular Fare: $2.75
  - 65+: $1.35
  - <19: Free (one-year pilot program, otherwise 70% discount)
  - People with low income: $1.35
  - People with disabilities: $1.35
  - Active military members: Free

*Only considers local fixed-route service

- **Transfer policy**: Yes, free with a 3-Hour Pass
- **Payment options**: Cash, mobile application, transit card
- **Connections (transit and points of interest)**:
  - Denver-RTD, the regional transit agency of the Denver metropolitan region with bus and rail service—connects to Downtown Denver, Denver International Airport, and park-n-rides dependent on the zone

Service Model

Hybrid

- **Technology provider**: Demand Trans
- **Vehicle provider**: RTD, maintenance provided by Via Mobility Services
- **Driver provider**: Via Mobility Services

Scheduling

- **Booking method**: Mobile application and call center
- **Advance scheduling**: Up to 30 days in advance
- **Target wait time**: 10 minutes

Fleet

- **Fleet size**: 58
- **Vehicle types**: Cutaway vehicles
- **ADA accommodations**: Cutaways are wheelchair accessible

Source: RTD-Denver

IMPLEMENTATION METHOD

Partnerships

- **Local governments and transportation management associations** partner with Denver RTD to fund the operation of FlexRide service in their area

Funding Sources

- Denver-RTD's Operating Budget, Present
- Local governments, Present
- Transportation Management Association, Present

Marketing and Education

Led by: Denver RTD

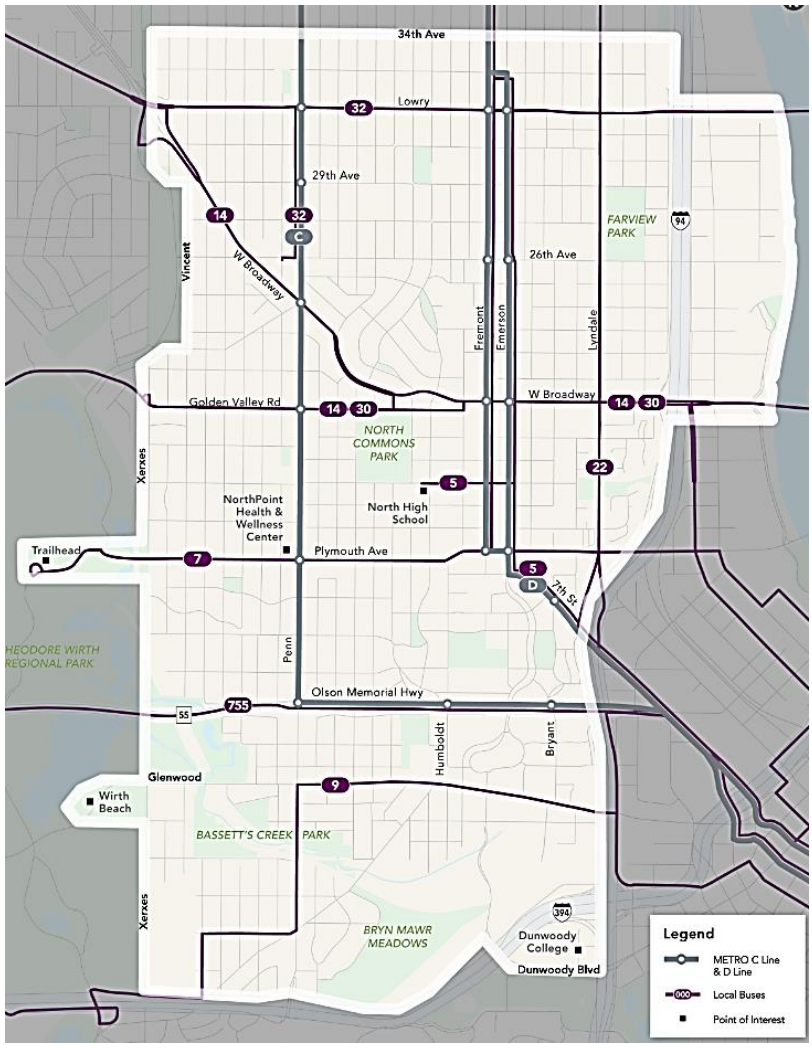
- Vehicle (FlexRide-wrapped)
- News articles (Streetsblog Denver, MassTransitMag, CBS News, The Denver Post)

Minneapolis, MN - Regional Case Study

METRO TRANSIT MICRO

Metro Transit

Service Objective – Create first/last mile connections to fixed-route service. Partially replace inefficient and infrequent fixed-route service with more responsive service.



Source: Metro Transit

AGENCY SERVICE AREA

- **Size**: 492 square miles
- **Area type**: Urban
- **Population**: 1,731,667 people
- **Population density**: 3,520 people per square mile

MICROTRANSIT SERVICE CHARACTERISTICS

General Information

- **Status**: Operational
- **Service type**: Curb-to-curb, curb-to-hub
- **Number of zones**: 1
- **Size**: 5 square miles
- **Dates in service**: September 2022 – Present
- **Service hours**: 5:30 am to 10:30 pm from Monday to Friday, 7:00 am to 10:30 pm from Saturday to Sunday
- **Microtransit fare structure**:
  - Non-Rush Hour fare: $2.50
  - Rush Hour fare: $3.25
  - 65+: $1.00 (rush hour will apply)
  - 6-12: $1.00 (rush hour will apply)
  - People with low income: $1.00
  - People with disabilities: $1.00
  - College Pass, Residential Pass, Student Pass (from transit card) – varies by participating organization
- **Fixed-route fare structure***:
  - Non-Rush Hour fare: $2.00
  - Rush Hour Fare: $2.50
  - 65+: $1.00 (rush hour will apply)
  - 6-12: $1.00 (rush hour will apply)
  - People with Medicare: $1.00 (rush hour will apply)
  - People with low income: $1.00
  - People with disabilities: $1.00
  - College Pass, Residential Pass, Student Pass (from transit card) – varies by participating organization

*Only considers local fixed-route service

- **Transfer policy**: Yes, free for 2.5 hours to local bus, microtransit, and light rail transit (LRT)

- **Payment options**: Cash, mobile application, transit card
- **Connections (transit and points of interest)**:
  - Metro Transit, the public transit operator in the Minneapolis-metro area that provides bus, light rail, and commuter rail service—connects to Downtown Minneapolis and other transit stations through Metro Transit C Line and/or D Line

Service Model

Hybrid

- **Technology provider**: Via Transportation
- **Vehicle provider**: Transit Team
- **Driver provider**: Transit Team

Scheduling

- **Booking method**: Mobile application and call center
- **Advance scheduling**: None
- **Target wait time**: 20 minutes

Fleet

- **Fleet size**: 5
- **Vehicle types**: Minibuses
- **ADA accommodations**: ADA accessible and include wheelchair lifts, bike racks, priority seating areas, and welcome service animals

IMPLEMENTATION METHOD

Partnerships

- **Ford Mobility** partnered with Metro Transit to initiate a pilot study for microtransit (later backed out but was the starting point for the initiative)

Funding Sources

- $1,500,000 from Metro Transit's operating budget for pilot, 2022
- Metro Transit's Operating Budget, 2023 - Present

Local Transit Agencies Mimic Uber and Lyft, and Gain Ridership - Streets.mn

Marketing and Education

Led by: Metro Transit

- Vehicle (Metro Micro-wrapped)
- News articles (MassTransitMag, Star Tribune, MPR News)
- Public announcements within buses
- Tabling events

MVTA CONNECT

Minnesota Valley Transit Authority (MVTA)

Service Objective – Expand transit connections and mobility options. Investigate ridership potential in new areas.

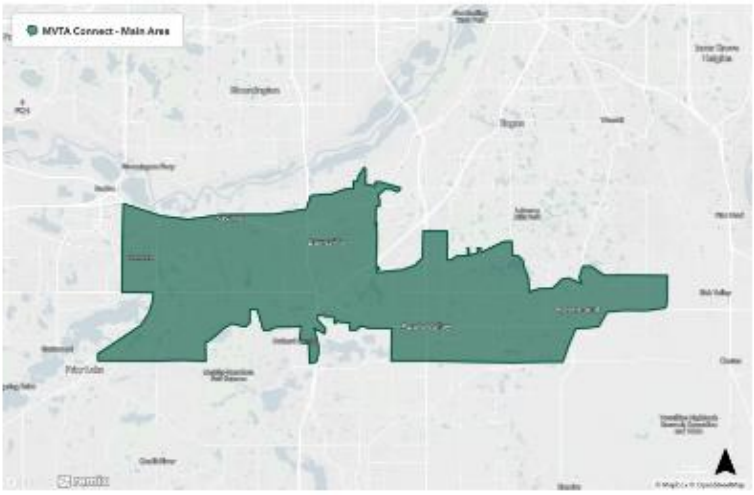
AGENCY SERVICE AREA

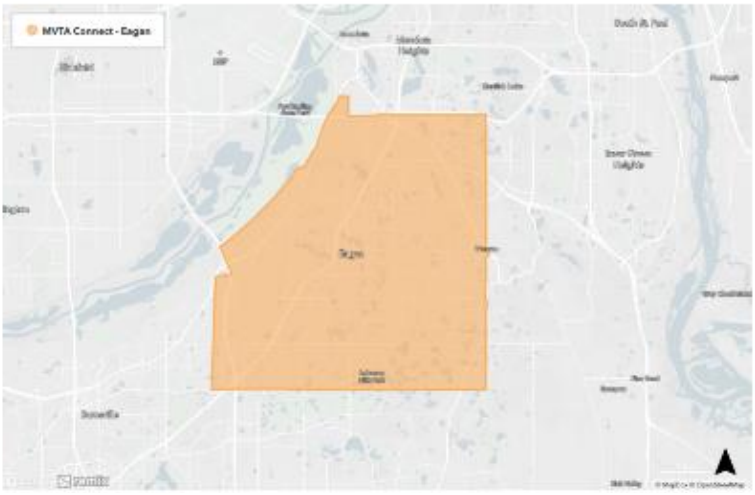
- **Size**: 139 square miles
- **Area type**: Suburban, metropolitan
- **Population**: 318,976 people
- **Population density**: 2,295 people per square mile

MICROTRANSIT SERVICE CHARACTERISTICS

General Information

- **Status**: Operational
- **Service type**: Curb-to-curb, curb-to-hub
- **Number of zones:** 2
- **Size**: 83 square miles
  - Main Zone: Approximately 60 square miles
  - Eagan Zone: Approximately 23 square miles
- **Dates in service**: June 2019 – Present
  - Main Zone: June 2019 – Present
  - Eagan Zone: October 2021 – Present
- **Service hours**: 6:00 am to 9:00 pm from Monday through Sunday





Source: MVTA

- **Microtransit fare structure**:
  - Regular fare: $3.00

- **Fixed-route fare structure***:
  - Non-Rush Hour fare: $2.00
  - Rush Hour Fare: $2.50
  - 65+: $1.00 (rush hour will apply)
  - 6-12: $1.00 (rush hour will apply)
  - People with disabilities: $1.00

*Only considers local fixed-route service

- **Transfer policy**: Yes, free 2-hour transfer to fixed-route
- **Payment options**: Cash, mobile application, transit card, credit card

- **Connections (transit and points of interest)**:
  - MVTA fixed-route service—connects to Downtown Minneapolis and the University of Minnesota through its local transit stations like Cedar Grove, Eagan, and Apple Valley Transit Station

Service Model

Hybrid

- **Technology provider**: Spare Labs
- **Vehicle provider**: Unknown
- **Driver provider**: Unknown

Scheduling

- **Booking method**: Mobile application and call center
- **Advance scheduling**: Up to 3 hours in advance
- **Target wait time**: 10 to 30 minutes

Fleet

- **Fleet size**: 25
- **Vehicle types**: Cutaway buses, full-size ADA vans
- **ADA accommodations**: Available upon request

IMPLEMENTATION METHOD

Funding Sources

- MVTA's operating budget, Present

Marketing and Education

Led by: MVTA

- Vehicle (MVTA Connect-wrapped)
- News articles (Minnesota Reformer, SWNewsMedia, MPR News)

Source: Car-Free MSP

PLYMOUTH METROLINK CLICK-AND-RIDE

Plymouth Metrolink

Service Objective – Expand transit connections and mobility options. Investigate ridership potential in new areas.

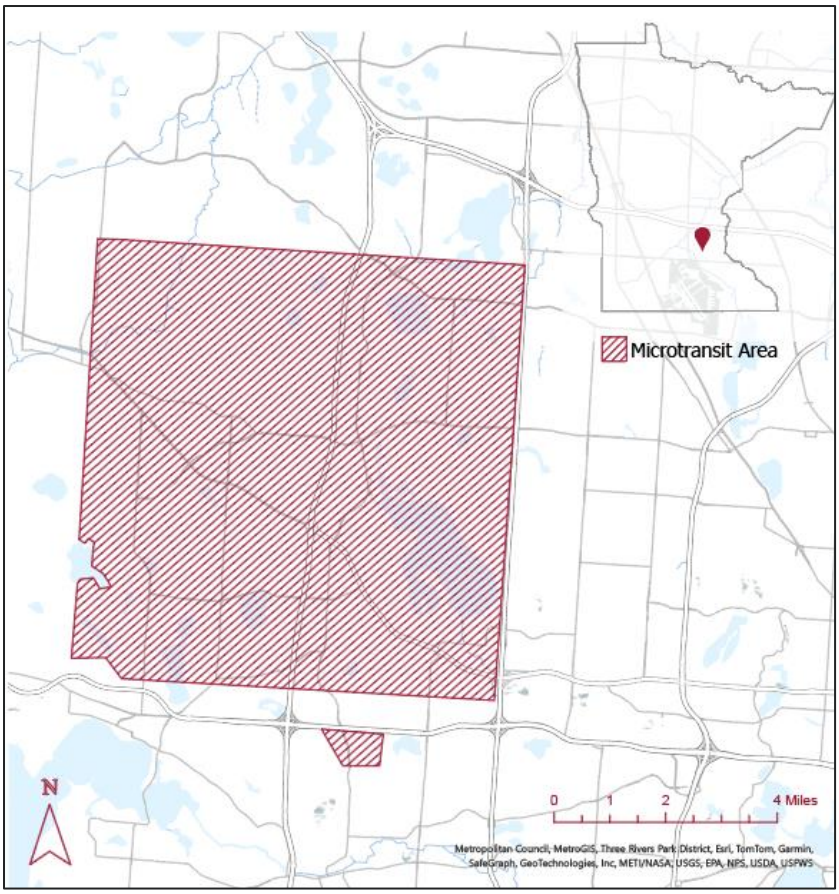
AGENCY SERVICE AREA

- **Size**: 35 square miles
- **Area type**: Suburban, small city
- **Population**: 81,026
- **Population density**: 2,315 people per square mile

MICROTRANSIT SERVICE CHARACTERISTICS

General Information

- **Status**: Operational
- **Service type**: Door-to-door
- **Number of zones**: 1
- **Size**:
  - Plymouth Zone: 32.7 square miles
- **Dates in service**:
  - Plymouth Zone: December 2021 – Present
- **Service hours**: 5:00 am to 8:30 pm from Monday through Friday, 6 am to 6:30 pm on Saturdays, 6:00 am to 5:00 pm on Sundays



Source: City of Plymouth

- **Microtransit fare structure**:
  - Regular fare: $3.00

- **Fixed-route fare structure***:
  - Non-Rush Hour fare: $2.50
  - Rush Hour fare: $3.25
  - 65+: $1.00 (rush hour: $2.50)
  - 6-12: $1.00 (rush hour: $2.50)
  - <5: Free
  - People with Medicare: $1.00 (rush hour: $3.25)
  - People with disabilities: $1.00

*Only considers local fixed-route service

- **Transfer policy**: Yes, to all regional transit services
- **Payment options**: Cash, mobile application, transit card
- **Connections (transit and points of interest)**:
  - Plymouth Metrolink fixed-route service—connects to Downtown Minneapolis through local bus stops in Plymouth
  - Maple Grove My Ride, shared-ride service provided by the City of Maple Grove—connects to Maple Grove downtown through the Maple Grove Transit Station

Service Model

Hybrid

- **Technology provider**: RideCo
- **Vehicle provider**: First Transit
- **Driver provider**: First Transit

Scheduling

- **Booking method**: Mobile application and call center
- **Advance scheduling**: Up to 30 days in advance
- **Target wait time**: 15 minutes

Fleet

- **Fleet size**: Not available
- **Vehicle types**: Minibuses
- **ADA accommodations**: All vehicles are ADA accessible and have bicycle racks

IMPLEMENTATION METHOD

Funding Sources

- Plymouth Metrolink's operating budget, 2019 - Present

Marketing and Education

Led by: City of Plymouth, MN

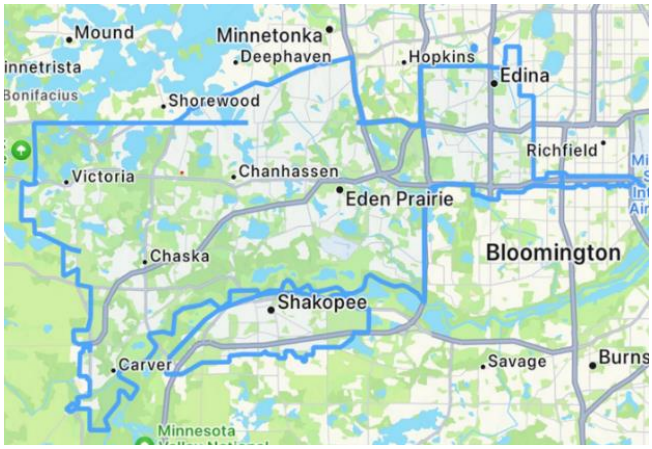
- Vehicle (Plymouth Metrolink Click-and-Ride-wrapped)
- News articles (Minnesota Reformer, CCX Media)

Source: CCX Media

SOUTHWEST PRIME

SouthWest Transit

Service Objective – Expand transit connections and mobility options. Investigate ridership potential in new areas.



Source: SouthWest Transit

AGENCY SERVICE AREA

- **Size**: 81 square miles
- **Area type**: Suburban, metropolitan, small town
- **Population**: 118,588 people
- **Population density**: 1,464 people per square mile

MICROTRANSIT SERVICE CHARACTERISTICS

General Information

- **Status**: Operational
- **Service type**: Curb-to-curb, Curb-to-hub
- **Number of zones**: 1
- **Size**: Not available
- **Dates in service**: July 2015 – Present
- **Service hours**: 5:30 am to 7:00 pm from Monday to Friday, 6:00 am to 5:30 pm on Saturdays
- **Microtransit fare structure**:
  - Regular fare: $5.00
  - 65+: $5:00 (Mondays 9:00 am to 3:00 pm are $2.50)
  - 6-12: $5.00
  - <5: Free
  - People with low income: $2.50 (TAP card)
  - People who are disabled veterans: Free
  - Other: SW Prime Edge, SW Prime Essential, SW Prime MSP Airport Service, and SW Prime MD (separate microtransit fare structure due to select location)
- **Fixed-route fare structure*:**
  - Regular Fare: $2.50
  - Rush Hour Fare: $3.25
  - 65+: $1.00 (rush hour: $3.25)
  - 6-12: $1.00 (rush hour: $3.25)
  - <5: Free
  - People with disabilities: $1.00
  - People who are disabled veterans: Free

*Only considers local fixed-route service

- **Transfer policy**: Yes, free for transit card users
- **Payment options**: Cash, credit card, transit card, mobile application
- **Connections (transit and points of interest)**:
  - SouthWest Transit fixed-route service— connects to Downtown Minneapolis though bus stops and light rail transit stations in the Eden Prairie area
  - Connects directly to local community assets like the Mall of America, Minneapolis Saint Paul (MSP) International Airport, grocery stores, and medical operators (these are under the special SW Prime programs)

Service Model

Hybrid

- **Technology provider**: Spare Labs
- **Vehicle provider**: Transdev, May Mobility, Lyft (depends on specific SW Prime service)
- **Driver provider**: Transdev, May Mobility, Lyft (depends on specific SW Prime service)

Scheduling

- **Booking method**: Mobile application and call center
- **Advance scheduling**: None listed but available
- **Target wait time**: 20 to 25 minutes

Fleet

- **Fleet size**: 33
- **Vehicle types**: Passenger vans and SUVs (small portion of fleet electric)
- **ADA accommodations**: Available upon request

IMPLEMENTATION METHOD

Partnerships

Source: SouthWest Transit

- **MSP International Airport** partnered with SouthWest Transit to provide employees and residents discounted microtransit fares
- **Mall of America and businesses in the I-494 corridor** partnered with SouthWest Transit to be the recipients of the SW Prime Edge microtransit service to identify pick-up/drop-off locations
- **Grocery stores** (Cub Foods, Lunds & Byerlys, Target, Wal-Mart, Aldi, Costco, Coopers, Kolwalski's, CVS, Walgreens) in the service area partnered with SouthWest Transit to be the recipients of the SW Prime Essential microtransit service and to provide discounted microtransit fares ($2.50)
- **Medical institutions** in the service area partnered with SouthWest Transit to be the recipients of the SW Prime MD microtransit service and to provide fully subsidizied microtransit fares for select trips.
- **Lyft,** a rideshare company, partnered with SouthWest Transit to provide its optional rideshare service for the SW Prime MSP Airport or SW Prime Edge service area
- **May Mobility**, an autonomous driving vehicle technology provider, partnered with SouthWest Transit to provide autonomous vehicles in the Eden Prairie area

Funding Sources

- SouthWest Transit's operating budget, 2015 – Present

Marketing and Education

Led by: SouthWest Transit

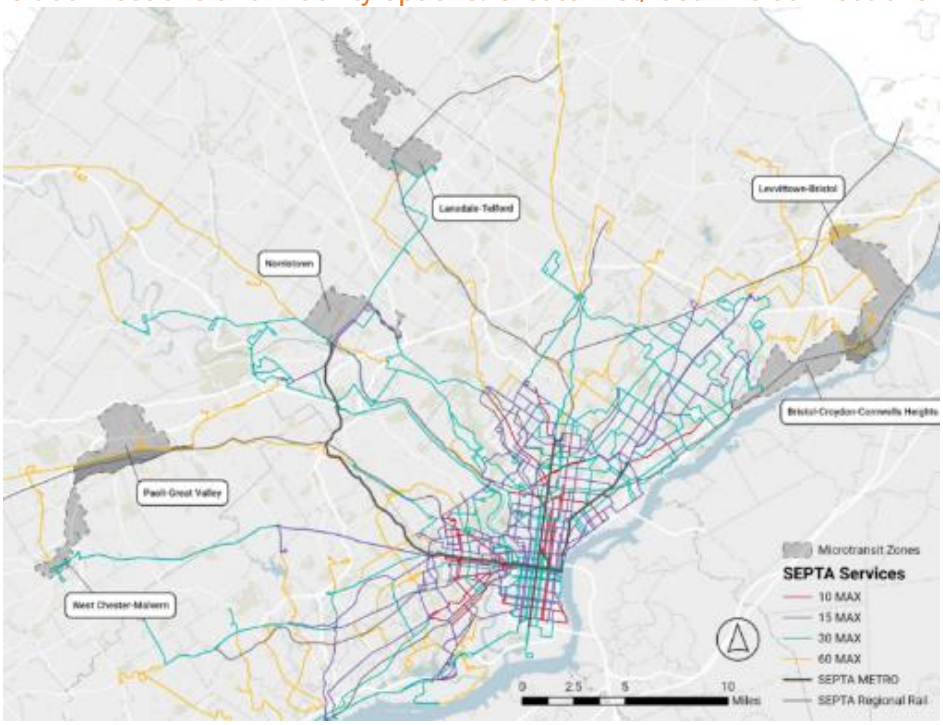
- Vehicle (SouthWest Prime-wrapped)
- News articles (Minnesota Reformer, MassTransitMag, Eden Prairie Local News, Star Tribune)

Philadelphia, PA – Regional Case Study

SEPTA ON-DEMAND

Southeastern Pennsylvania Transportation Authority (SEPTA)

Service Objective – Expand transit connections and mobility options. Create first/last mile connections to fixed-route service.



Source: SEPTA

AGENCY SERVICE AREA

- **Size**: 844 square miles
- **Area type**: Urban, suburban, metropolitan
- **Population**: 3,475,337 people
- **Population density**: 4,118 people per square mile

MICROTRANSIT SERVICE CHARACTERISTICS

General Information

- **Status**: Not yet operational (planning stage)
- **Service type**: Curb-to-curb, curb-to-hub
- **Number of zones**: 6
- **Size**: 51 square miles
  - Bristol-Croydon-Cornwells Heights: 8.5 square miles
  - Lansdale-Telford: 10.8 square miles
  - Levittown-Bristol: 11 square miles
  - Norristown: 5.3 square miles
  - Paoli-Great Valley: 9.3 square miles
  - West Chester-Malvern: 6.5 square miles
- **Dates in service**: Anticipated Winter 2024/Spring 2025
- **Service hours**: 6:00 am to 9:00 pm, with possible 11:00 pm extension, from Monday to Sunday

- **Microtransit fare structure**:
  - Regular fare: $2.50 ($2.00 if paying with transit card)
- **Fixed-route fare structure***:
  - Regular fare: $2.00
  - 65+: Free (with valid Senior Fare Card)
  - <12: Free (with fare-paying adult)
  - People with disabilities: $1.00 (with Reduced Fare Card)
  - Other: K-12 Student Pass, University Pass, Partner Employers/Agency – varies by participating organization

*Only considers local fixed-route service

- **Transfer policy**: No
- **Payment options**: Cash, credit card, mobile application, transit card
- **Connections (transit and points of interest)**:
  - SEPTA bus, light rail, and commuter rail service—connects to Philadelphia Center City and indirectly to other states since the goal will be to integrate the regional rail, metro, and bus network

Service Model

Software

- **Technology provider**: RideCo
- **Vehicle provider**: SEPTA (in-house)
- **Driver provider**: SEPTA (in-house)

Scheduling

- **Booking method**: Mobile application and call center
- **Advance scheduling**: To be determined
- **Target wait time**: 30 minutes

Fleet

- **Fleet size**: 48 (tentative)
- **Vehicle types**: Small buses, shuttles, vans
- **ADA accommodations**: To be determined

IMPLEMENTATION METHOD

Funding Sources

- $106,000,000 from SEPTA's annual operating budget, 2023 (for paratransit and microtransit)

Marketing and Education

Led by: SEPTA

- News articles (Philly Voice, MassTransitMag, PR Newswire, Inquirer)
- Additional strategies to be determined

Wilmington, NC – Regional Case Study

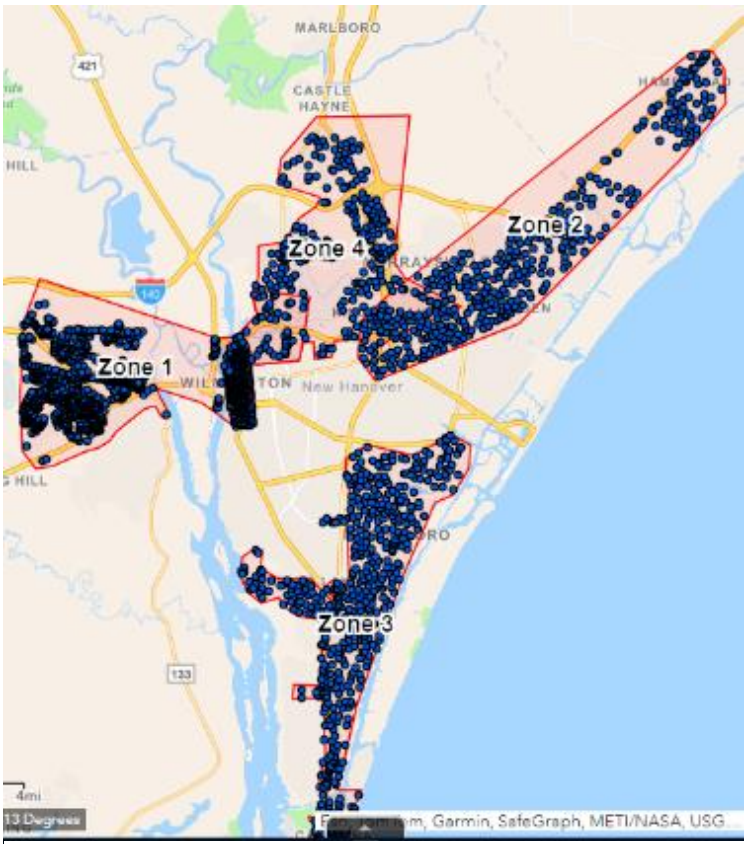
RIDEMICRO

Wave Transit

Service Objective – Expand transit connections and mobility options. Partially replace inefficient and infrequent fixed-route service with more responsive service.

AGENCY SERVICE AREA

- **Size**: 200 square miles
- **Area type**: Suburban, small-town
- **Population**: 230,310 people
- **Population density**: 1,152 people per square mile



Source: Wave Transit

MICROTRANSIT SERVICE CHARACTERISTICS

General Information

- **Status**: Operational
- **Service type**: Curb-to-curb
- **Number of zones**: 4
- **Size:** 95 square miles
  - Northern Brunswick: 22 square miles
  - Southeast Pender: 28 square miles
  - Southern New Hanover: 26 square miles
  - Northern New Hanover: 19 square miles
- **Dates in service**: October 2021 – Present
  - Northern Brunswick and Southeast Pender: October 2021 – Present
  - Northern and Southern New Hanover: December 2022 – Present
- **Service hours**: Varies by zone
  - Northern Brunswick: 6:30 am to 7:00 pm from Monday to Friday
  - Southeast Pender: 6:30 am to 10:30 am and 12:00 pm to 7:00 pm from Monday to Friday
  - Northern and Southern New Hanover: 6:00 am to 8:00 pm from Monday to Friday, 8:00 am to 6:00 pm on Saturday, 9:00 am to 5:00 pm on Sunday

- **Microtransit fare structure**:
  - Regular fare: $2.00
- **Fixed-route fare structure***:
  - Regular fare: $2.00
  - 65+: $1.00 (with valid photo ID or Medicare card)
  - <4: Free (with fare-paying adult for up to 3)
  - People in K-12 or college: $1.00 (with Student ID or Reduced Fare Card)
  - People with disabilities: $1.00 (with Medicare card or Reduced Fare Card)
  - People who are veterans: $1.00 (with Veteran ID)

*Only considers local fixed-route service

- **Transfer policy**: No
  Payment options: Cash, mobile application, ticket purchased at station
- **Connections (transit and points of interest)**:
  - Wave Transit fixed-route service—connects to Downtown Wilmington and other counties like New Hanover, Brunswick, and Pender through its transit stations and local bus stops

Service Model

Turnkey

- **Technology provider**: Bus.com, subcontracted Moovit
- **Vehicle provider**: Bus.com
- **Driver provider**: Bus.com, subcontracted Daniel's Tours

Source: Port City Daily

Scheduling

- **Booking method**: Mobile application and call center
- **Advance scheduling**: Up to 7 days in advance, highly preferred
- **Target wait time**: 30 minutes

Fleet

- **Fleet size**: 6
- **Vehicle types**: 14-passenger vans and full-size SUVs
- **ADA accommodations**: One ADA-compliant vehicle

IMPLEMENTATION METHOD

Partnerships

- **NC Department of Transportation** partnered with Wave Transit and has provided major funding for the program's operation. In 2024, it will potentially allocate more funding to Wave Transit to expand its first zone after infrastructure repairs increased commute times drastically
- **Brunswick Transit System**, a nonprofit community transit system in Brunswick County, partnered with Wave Transit and Pender Adult Services to establish the RideMICRO microtransit pilot
- **Pender Adult Services**, a community assistance nonprofit in Pender County, partnered with Wave Transit and Brunswick Transit System to establish the RideMICRO microtransit pilot

Funding Sources

- **Pilot :** $700,000, 2021
  - NC Department of Transportation's ConCPT Grant: $600,000, 2021
  - IMD Community Transportation Fund: $100,000, 2021

- **Current Operations:** Up to $500,000 from NC Department of Transportation, 2024

Marketing and Education

Led by: Wave Transit

- Vehicle (RideMICRO Ride-wrapped)
- News articles (MassTransitMag, Port City Daily, WHQR)
- Social media
- Press releases
- Community meetings

Cleveland, OH – Regional Case Study

CONNECTWORKS

Greater Cleveland Regional Transit Authority (GCRTA)

Service Objective – Expand transit connections and mobility options. Investigate ridership potential in new areas.

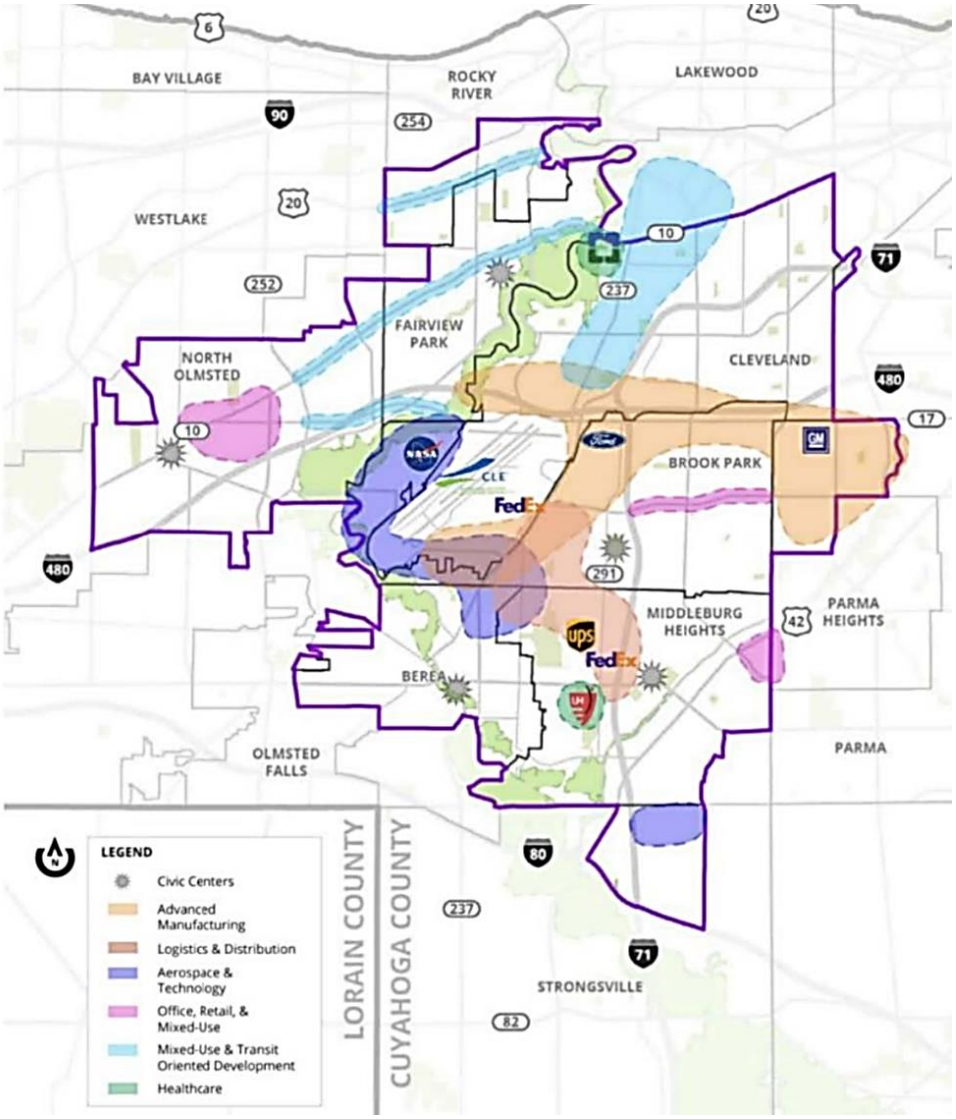
AGENCY SERVICE AREA

- **Size**: 457 square miles
- **Area type**: Urban, metropolitan
- **Population**: 1,412,140 people
- **Population density**: 3,090 people per square mile

MICROTRANSIT SERVICE CHARACTERISTICS

General Information

- **Status**: Operational
- **Service type**: Curb-to-hub
- **Number of zones:** 2
- **Size**: 52 square miles
- **Dates in service**: December 2022 – Present
  - Solon: December 2022 – Present
  - Aerozone: October 2023 – Present
- **Service hours**: 7:00 am to 6:00 pm from Monday to Friday



Source: GCRTA

- **Microtransit fare structure**:
  - Employee not signed up through partnered company: $2.50
  - Employee signed up through partnered company: Free (benefit purchased by company)

- **Fixed-route fare structure***:
  - Regular Fare: $2.50
  - 65+: $1.25
  - <12: $1.25
  - Student K-12: $1.75
  - People with disabilities: $1.25

*Only considers local fixed-route service for GCRTA

- **Transfer policy**: No
- **Payment options**: Mobile application
- **Connections (transit and points of interest)**:
  - GCRTA fixed-route bus, bus rapid transit, rail, and trolley—connects to Downtown Cleveland and Cleveland Hopkins International Airport through Brookpark Station

Service Model

Turnkey

- **Technology provider**: SHARE Mobility
- **Vehicle provider**: SHARE Mobility
- **Driver provider**: SHARE Mobility

Scheduling

- **Booking method**: Mobile application and call center
- **Advance scheduling**: Up to 12 hours in advance
- **Target wait time**: Not available

Fleet

- **Fleet size**: Not available
- **Vehicle types**: Not available
- **ADA accommodations**: Not available

IMPLEMENTATION METHOD

Partnerships

- **SHARE Mobility**, a smart mobility company, partnered with GCRTA to provide a turnkey solution for the ConnectWorks microtransit pilot
- **City of Solon** partnered with GCRTA and SHARE Mobility to establish the ConnectWorks microtransit pilot in Solon
- **Aerozone Alliance**, a collaborative network of aerospace and aviation public and private organizations, partnered with GCRTA and SHARE Mobility to establish the ConnectWorks microtransit pilot in the Aerozone region

Funding Sources

- **Pilot 1 (Solon)**: $600,000, 2022
  - GCRTA's operating budget: $300,000, 2022
  - SHARE Mobility: $300,000, 2022
- **Pilot 2 (Aerozone)**: $600,000, 2023
  - GCRTA's operating budget: $300,000, 2022
  - SHARE Mobility: $300,000, 2022

Marketing and Education

Led by: SHARE Mobility

- Ribbon cutting events
- Email blast to companies
- A networking breakfast at hotel
- Job opportunity open houses
- Virtual and in-person lunch-and-learns (city-sponsored)

4. Takeaways

This section summarizes key takeaways from the case studies. It is organized around several different topics, building upon the programs and policies documented in the case study fact sheets in the previous section, including:

- **Service design** – zone location and size, hours of operations, scheduling, fare structure, and vehicles
- **Finances** – alternative funding mechanisms, fare policy, transfer policy, and payment options
- **Technology integration** – application integration, data sharing, and trip planning enhancements
- **Equity considerations** – planning process, implementation process (customer education and marketing), fare structure, payment options, driver recruitment, data collection, and service design
- **Procurement methods** – service model selection and Request for Proposals (RFP) process
- **Driver recruitment, hiring, and training** – contractor selection and training protocols
- **Performance monitoring** – service adaption metrics and metrics of success
- **Expansion efforts** – program or service improvements during the pilot period, current zone expansion, new zone introduction, or establishment of new programs

Each topic is introduced, followed by noteworthy examples and best practices from the case studies.

Service Design

INTRODUCTION

Service design encompasses various elements, such as:

Zone location and size *Hours of operation* *Scheduling*

Fare structure *Vehicles*

The objective of microtransit service and the available agency and vendor resources inform decisions around these elements. Additionally, the service design is often adaptable, allowing for adjustments based on the area's evolving needs. The following section highlights three unique case studies from the research, focusing on their service design and criteria.

CASE STUDIES

FlexRide

Overview	In the late 1990s and early 2000s, Denver RTD launched its **Call-n-Ride** service. Unlike modern on-demand services that leverage ride-hailing technology, it was an advance scheduling service due to the technology available at the time. In 2019, the program underwent a rebranding, now branded as **FlexRide**.

SERVICE AREA

FlexRide serves as a unique case study, particularly in terms of its size and longevity, which consists of 24 zones that have evolved over the years. Initially, the criteria for selecting zones were based on

commuter travel patterns. Over time, various municipalities and transportation management associations (TMAs) expressed the need for microtransit services, which may fall outside RTD's available resources. Consequently, RTD began operating additional zones if municipalities or TMAs provided sufficient funding. Establishing a new microtransit zone is also based on the performance of existing fixed-route services. If a fixed-route underperforms in a specific area, it may be replaced by a microtransit service. RTD makes this decision on a case-by-case basis. Throughout FlexRide's history, some zones have been discontinued due to low ridership.

SERVICE TYPE

The FlexRide service covers a broad area of Denver, with service types varying by zone and funding source. Some zones use a curb-to-curb service type, while others employ a curb-to-hub service type. Generally, zones with higher ridership favor the curb-to-hub model, particularly when anchored by medical centers, local shops, and other popular destinations. The curb-to-curb model in lower-density suburban areas has been less productive in terms of cost and ridership. In addition, since the COVID-19 pandemic, the shift to remote work has led to a substantial decrease in commuter riders. As a result, RTD has observed a significant decline in ridership for some curb-to-hub models, especially those intended for commuting trips and for microtransit service areas dependent on park-n-ride facilities.

Figure 1: Underutilized RTD Park-N-Ride

Source: Denver RTD

Figure 2: Commuters using RTD's Light Rail Transit

Source: Denver RTD

Since the COVID-19 pandemic, travel patterns have shifted and RTD is working on adapting its microtransit service to focus less on commuter patterns and connections to transit service and more on connections to key destinations such as grocery stores and medical facilities.

MARTA Reach

Overview

In 2021, MARTA partnered with Georgia Tech on a new microtransit program, MARTA Reach. Their approach to the pilot mirrored a research study, from the design phase to the implementation. The goal was to understand the best method for microtransit in the region. MARTA Reach culminated in various published research papers, such as Piloting an On-Demand Multimodal Transit System and Measuring Transit Equity report.

SERVICE AREA

MARTA serves as a unique case study, particularly regarding the decisions behind its three original service areas and the fourth added midway through the pilot program. These four areas were selected based on their unique land use and shared lack of transit options within the MARTA system. All zones were developed to provide first-mile/last-mile connectivity to higher-frequency transit services.

Table 4: MARTA Reach Zone Overview

ZONES	SERVICE DATES	LAND USE/AREA TYPE
West Atlanta	Mar 2022 – Aug 2022	Low-density residential community
Belvedere	Mar 2022 – Aug 2022	Mixed-used community
Gillem Logistics	Mar 2022 – Aug 2022	Industrial, workforce area
North Fulton	May 2022 – Aug 2022	High-income population, ethnically diverse community

After completing the six-month pilot, MARTA and Georgia Tech evaluated each zone against various metrics. Passengers per hour was one of the criteria for measuring success. The poorest performing zone in terms of the various tracked metrics was Gillem Logistics, with its poor performance due to inadequate service hours rather than an issue with zone land use. Specifically, the hours of operation of MARTA Reach only covered one of the three available worker shifts in the area, making it impractical for workers. The success of the highest-performing zones, West Atlanta and Belvedere, was attributed to trip generation by large retail stores, such as Walmart.

SERVICE TYPE

MARTA Reach spans diverse areas of Atlanta, offering a hybrid service between curb-to-hub and curb-to-curb. The primary focus was transit stations, but MARTA also assigned virtual stops approximately every 1,200 feet and designated stops at existing bus stops. Each virtual stop was vetted for accessibility and safety. The primary goal of MARTA Reach was to enhance the connectivity of MARTA's transit network, particularly in neighborhoods where fixed-route services were not feasible. Marketing efforts promoted the curb-to-hub model, with announcements at bus stops and posters at stations.

Figure 3: Virtual Stops and Transit Card

Source: MARTA

Figure 4: MARTA Reach's Mobile Application

Source: MARTA

During the pilot, the average wait time was about 10 minutes. This was mostly due to operator idling because there were too many vehicles assigned to each zone. The fixed-route headway in these neighborhoods was 30 minutes to 60 minutes. For future implementation, MARTA aims for a 30-minute wait time to better align the service with the service previously provided in the area and to right-size the number of vehicles needed in one zone during periods of service.

Although successful, MARTA noted that the lower-than-expected demand for its microtransit pilot could be attributed to its short duration of six months and because the service in the industrial land use zone did not span an entire shift. For future pilots, MARTA recommended a pilot length of 12 to 18 months and ensuring service span covers an entire shift if the purpose is to serve commuters.

BEST PRACTICES

Key Ideas:

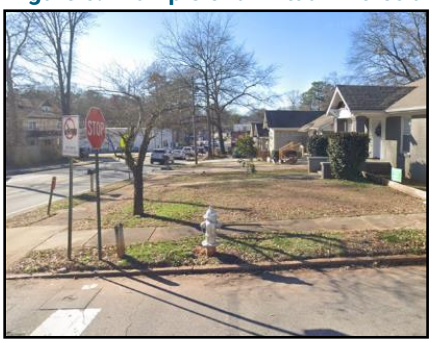
- Service design (service area, service type, and service hours) should align with the objectives of the transit agency, transit assets, and the specific community needs that microtransit is intended to address.
- Fleet size should be determined based on potential and expected demand, service area size, and the targeted average wait time.

Smaller transit agencies operating in less transit-dependent areas, like Wave Transit and Plymouth Metrolink, structured their microtransit services as door-to-door or curb-to-curb. Shopping centers and grocery stores are significant points of interest in these suburban areas. This focus influenced their service design, such as offering weekend service hours to meet essential needs. **Figure 5** shows an example of a designated stop which is colocated with a fixed route bus stop, while **Figure 6** is an example of a virtual stop—a location designated in the application for pick-up and drop-off.

Figure 5: Example of a Designated Microtransit Stop

Source: MARTA

Figure 6: Example of a Virtual Microtransit Stop



Source: MARTA

Areas with high-capacity transit (light rail, commuter rail, bus rapid transit) and more multimodal options (biking and pedestrian facilities) tend to adopt a curb-to-hub approach. For example, MARTA Reach and Metro Transit Micro aimed to integrate their microtransit customers with the broader transit network. MARTA Reach employed a hybrid model combining curb-to-hub service with designated nodes for pick-up/drop-off and curb-to-curb service with ADA-accessible virtual stops. However, in the future, MARTA plans to emphasize designated stops more, particularly those connecting to MARTA's high-frequency fixed-route services. These design choices also influenced service operations, with operating hours centered around commuter hours during the weekday and providing transfer opportunities. The number of vehicles deployed is another consideration driven by potential demand, desired wait time, and zone size. MARTA Reach initially overestimated its vehicle needs—starting with 18 but ultimately requiring only 6.

A large fleet may not be necessary when launching service, especially during the education phase of the microtransit pilot. Denver Connector determined the most effective configuration for its service design was to deploy 4 vehicles per 5 to 7 square mile zone. The number of vehicles needed for a zone should be based on the expected number of trips, length of trips, desired wait time, and desired amount of ridesharing.

Other considerations from the case studies include the following:

- If serving an industrial workforce area, ensure that service hours cover at least the entirety of one shift and, ideally, multiple shifts.
- If providing zone-based service rather than first-mile/last-mile connections, consider extending service span to include weekend days.

The Baltimore metropolitan region is unique, with varying counties, existing transportation infrastructure, and land uses. In general, service design should focus on available transit assets and the community's needs. Counties with MARC stations, such as Anne Arundel, Harford, and Howard County, might be better suited for curb-to-hub models. This includes areas served by light rail lines in Baltimore County, like Cockeysville and Timonium. In contrast, counties with fewer commuter-oriented assets, like Harford and Carroll, might benefit more from zone-based service designs, like curb-to-curb, with points of interest anchored on local shopping centers. Understanding the local area and its transit assets is crucial for making informed decisions and creating successful microtransit service design.

Finances

The financial portion of microtransit service consists of funding mechanisms for both the pilot program and any permanent service the agency implements, fare policy and transfer policy in comparison to other transit services provided by the agency or in the region, and available payment options for microtransit service. The sections below contain summary tables of the limited available information regarding financial elements.

Cost of microtransit service varies greatly depending on service design, geographic area, and service operations. As a result of this and lack of available information online and through the interview process, key takeaways could not be drawn regarding costs.

FUNDING MECHANISMS

The funding mechanisms used for the agencies discussed in the Case Studies section are summarized in the table below, **Table 5**. Many of the agencies receive funding from multiple sources, like from their agency operating budget or grants and awards. CPACS Ride and Ride Gwinnett received funding from different sources than others. The CPACS Ride was funded by the Administration for Community Living. For Ride Gwinnett, there will be a vote in fall 2024 to decide if it should receive its funding through a 1% sales tax for transit.

Table 5: Case Studies' Funding Mechanism Summary Table

MICROTRANSIT SERVICE	FUNDING MECHANISM
Ride Gwinnett Microtransit	• Agency operating budget
CPACS Ride	• Administration for Community Living (ACL)
MARTA Reach	• National Science Foundation Civic Innovation Challenge Award
Denver Connector	• Agency operating budget • Denver's Climate Protection Fund • Denver RTD grant
FlexRide	• Agency operating budget • Local governments • Transportation Management Association
Metro Transit Micro	• Agency operating budget
MVTA Connect	• Agency operating budget
Plymouth Metrolink Click-and-Ride	• Agency operating budget
SW Prime	• Agency operating budget
SEPTA On-Demand	• Agency operating budget
RideMICRO	• North Carolina Department of Transportation ConCPT Grant • IMD Community Transportation Fund • Up to $500,000 from NC Department of Transportation
Connect Works	• Ohio Department of Transportation grant • Participating employers

FARE POLICY AND TRANSFER POLICY

The fare and transfer policies for the agencies discussed in the Case Studies section are summarized in the table below, **Table 6**. Premium fare policy offers microtransit service at a greater cost than the fixed-route service fare. Fixed-route fare policy offers microtransit service at the same cost as the fixed-route service fare. Reduced fare programs offer free or reduced fare for certain groups of individuals like students, the elderly or low-income transit users. These programs are offered by all agencies in the Case Studies section. Furthermore, just over half of the agencies have both premium and fixed-route fare policies, as well as transfer policies.

Table 6: Case Studies' Fare and Transfer Policy Summary Table

MICROTRANSIT SERVICE	FARE POLICY	TRANSFER POLICY
Ride Gwinnett Microtransit	• Premium	✓
CPACS Ride	• Reduced Fare Program • Fare-Free	✗
MARTA Reach	• Fixed-Route • Reduced Fare Program	✓
Denver Connector	• Fare-Free	✗
FlexRide	• Fixed-Route • Reduced Fare Program	✓
Metro Transit Micro	• Premium • Reduced Fare Program	✓
MVTA Connect	• Premium	✓
Plymouth Metrolink Click-and-Ride	• Premium	✓
SW Prime	• Premium • Reduced Fare Program	✓
SEPTA On-Demand	• Premium	✗
RideMICRO	• Fixed-Route	✗
Connect Works	• Fixed-Route • Fare-Free	✗

PAYMENT OPTIONS

The payment options for the agencies discussed in the Case Studies section are summarized in the table below, **Table 7**. The icons within the "Payment Options" column represent the types of payment options that are accepted by the agencies (key shown below). Out of all the agencies that charge a fare, CPACS Ride and Connect Works are the only two to not offer multiple payment options. CPACS Ride only accepted cash, while Connect Works only accepts mobile app payments. This could be due to agencies tailoring the payment methods they offer to what users in their service area are most comfortable using.

- $ = cash
- = app
- = credit card
- = transit card
- = transit ticket

Table 7: Case Studies' Payment Options Summary Table

MICROTRANSIT SERVICE	PAYMENT OPTIONS
Ride Gwinnett Microtransit	$ app credit card transit card
CPACS Ride	$
MARTA Reach	$ app credit card transit card
Denver Connector	N/A: service is free
FlexRide	$ app transit card
Metro Transit Micro	$ app transit card
MVTA Connect	$ app credit card transit card
Plymouth Metrolink Click-and-Ride	$ app transit card
SW Prime	$ app credit card transit card
SEPTA On-Demand	$ app credit card transit card
RideMICRO	$ app transit ticket
ConnectWorks	app

Technology Integration

INTRODUCTION

Microtransit technology integration can take several forms. This integration can include (1) incorporating microtransit services into an agency's overall mobile application, (2) connecting data and services between different agencies' microtransit programs, and (3) continuously adapting trip planning to enhance service effectiveness. The following section highlights two unique case studies from the research, focusing on technology integration strategies.

CASE STUDIES

FlexRide

Denver RTD, which has the second-largest service area and the most zones among the twelve selected case studies, has heavily focused on intermodal mobility within its regional transit system. Denver RTD offers a wide variety of transit options, including:

Microtransit

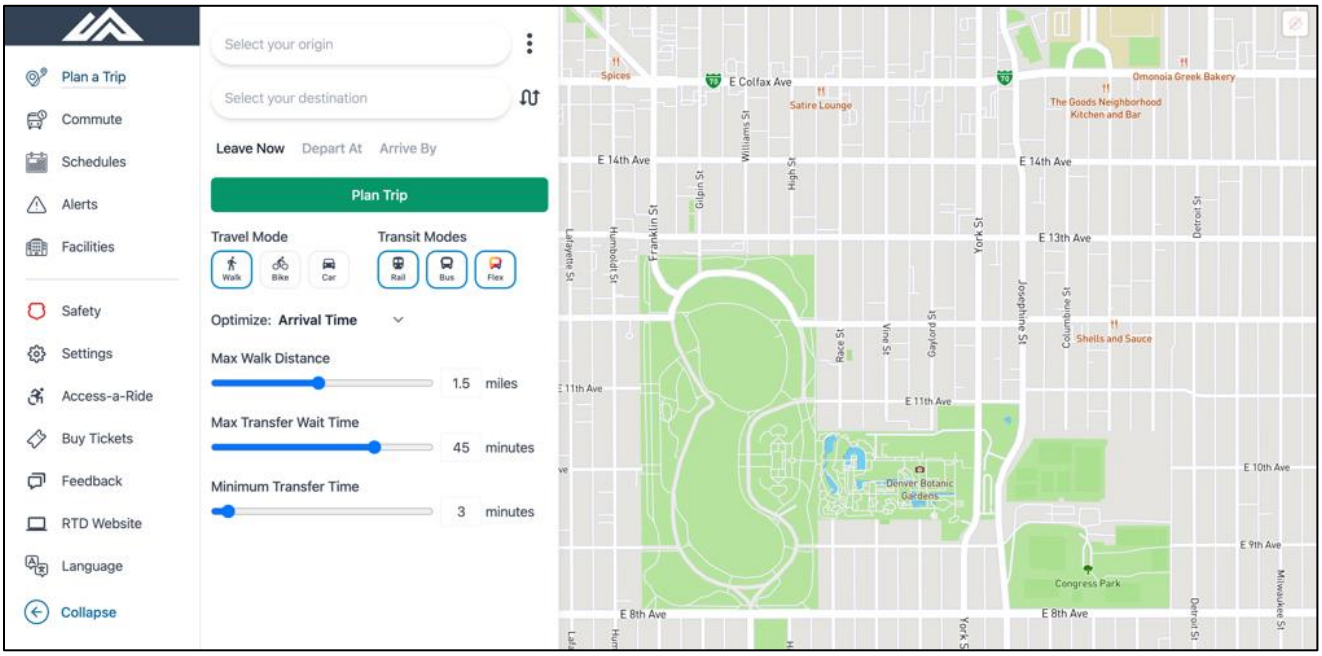
Fixed-Route Bus

Commuter Rail

Light Rail

Integrating first-mile/last-mile connectivity service was a priority for RTD, as several of its microtransit zones are oriented toward commuter trips. To facilitate easy customer trip planning between services, it developed a web application accessible on all browsers. *Plan Your Trip* displays all transit services in one location.

Figure 7: RTD's *Plan Your Trip* Web Application



Source: RTD Denver

By collaborating with a third-party contractor, RTD integrated data from its microtransit technology provider, Demand Trans, into the more comprehensive RTD application. The web version differs from the mobile ticketing application, MyRide. The web interface provides multiple features, such as walking distance, transfer wait times, and minimum wait times. The goal is to optimize the transit trip planning experience using the Mapbox web services application programming interface (API). It is the only transit agency in the selected case studies with a single trip planning platform displaying all transit options, including microtransit.

RTD is the only case study with full integration of all transit types on one trip planning platform. This integration allows for more comprehensive trip planning with microtransit service as part of the overall journey.

CPACS Ride

Overview In 2021, CPACS launched its CPACS Ride microtransit program to serve immigrants, low-income individuals, and people with disabilities. CPACS is unique as the only nonprofit in the case studies. Before CPACS Ride, CPACS operated a single transit service through a pre-scheduling, call-and-ride system without any technology integration.

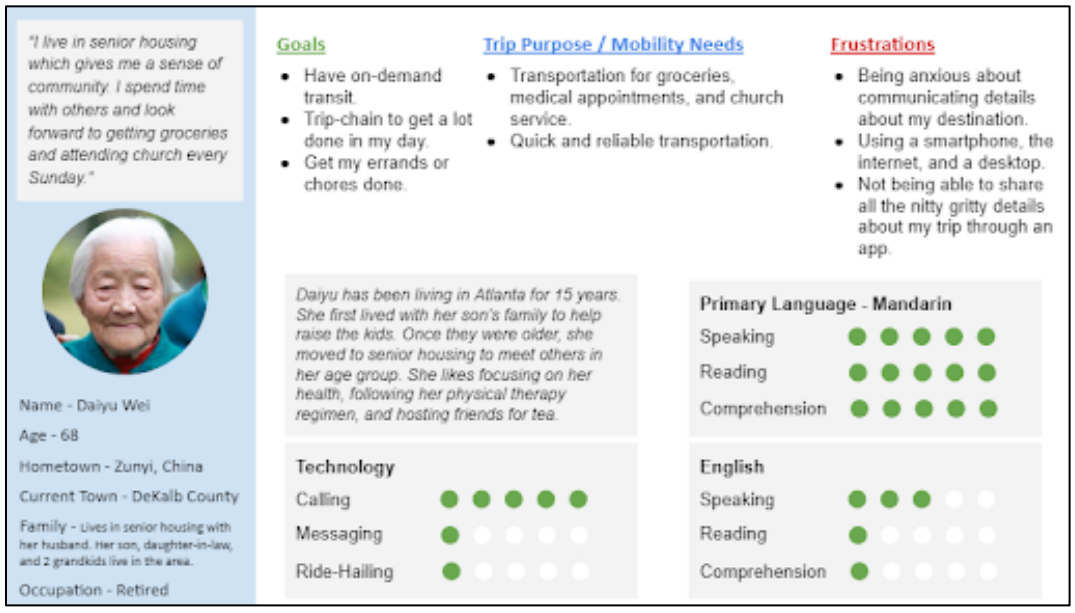
CPACS Ride's technology integration is notable for its (1) cross-compatibility with different agencies, specifically Ride Gwinnett, and (2) its continuous technological adaptation. Since it was relatively new to transit technology usage, CPACS sought two significant requirements in its request for proposals (RFP) for scheduling software:

1. To share data with Ride Gwinnett
2. To create a multilingual platform and collect personalized data on each user to determine the program's success

For the first objective, CPACS Ride's RFP included a "Transactional Data Specification," requiring its selected provider, Spare Labs, to provide technical assistance for sharing data with Gwinnett County's transit service, Ride Gwinnett. The technology provider had to follow the format outlined in the Transit Cooperative Research Program's (TCRP) "Development of Transactional Data Specifications for Demand-Responsive Transportation" report. Data sharing aims to allow one microtransit program to provide a transit option and facilitate transfers between services if the other cannot. Through Spare Labs, CPACS achieved data integration with Ride Gwinnett using this shared format. The challenge was not the technology but the coordination between the organizations, as they had different service areas, types, and operations. By the pilot's end, CPACS was able to share data but was not able to coordinate trips with Ride Gwinnett as this required additional coordination.

For the second objective, CPACS aimed to provide a tailored technology experience for users, specifically with translation capabilities for Korean, Burmese, Nepalese, and Chinese speakers. These languages are representative of the dominant communities CPACS serves. Additionally, CPACS sought to collect data tailored to each individual rider, such as trip purpose, age, hometown, living situation, and primary language. This qualitative data allowed CPACS to understand users of its service and to measure successful alignment with its mission. Using this data, it created individual activity profiles to gain a nuanced understanding of its rider pool and the rider experience. This insight led CPACS to expand language support to include Swahili and Mandarin during the pilot. Tailoring technology integration to an operator's needs and continuously adapting the service to better serve users is essential for a successful microtransit program.

Figure 8: Example of a CPACS Ride Persona



Source: Shared Use Mobility Center

CPACS's objectives were to provide necessary transit services to its community. Technology integration helped meet its objectives by data sharing with a neighboring transit agency, by ensuring a trip request could be fulfilled, ultimately through the partnerships with TNCs, and by providing multiple language options on the trip booking application.

Additional Examples:

MARTA Reach: Like FlexRide, MARTA is seeking a technology provider for its upcoming microtransit program that can integrate its fixed-route and new microtransit application into one mobile interface.

Metro Transit Micro: Like CPACS Ride, Metro Transit is looking for ways to integrate its service with the four neighboring transit agencies during the upcoming expansion of its microtransit program. This could require using the GTFS-Flex data format.

BEST PRACTICES

Key Idea: Technology integration should focus on cohesion within a transit agency's existing services and between services of neighboring transit agencies. Coordination among staff and partner organizations can sometimes be a larger barrier than technological capabilities.

Many interviewed agencies expressed a strong desire to integrate their microtransit applications with their broader transit system applications, particularly those using curb-to-hub models to enhance interconnectivity within their systems. Denver RTD successfully implemented this integration, allowing customers to find the best available services through its web application. However, challenges remain, especially in standardizing formats and ensuring the correct APIs are in place to facilitate communication between applications.

Technology integration can also extend across different agencies. For instance, CPACS Ride and Ride Gwinnett collaborated on data sharing and on integrating their microtransit scheduling software to allow shared trip requests between agencies. While the integration eventually faltered due to misalignment in service design priorities and TNC companies ultimately fulfilled this need, it offered a promising goal for other agencies to consider.

As microtransit is relatively new, especially in the Baltimore region, open communication between transit agencies planning to launch microtransit programs is crucial. Minneapolis transit agencies including Metro Transit, Plymouth Metrolink, MVTA, Maple Grove Transit, and Southwest Prime serve as a prime example of effective collaboration. The agencies established a bimonthly working group to share best practices and progress in microtransit. Establishing such coordination early on can lead to more consistent service designs across jurisdictions, facilitating greater technology integration in the future.

Technology customizability is also important, ensuring that a technology provider can effectively implement scheduling software aligning with the agency's objectives. Establishing a clear vision of the desired technology features is essential, particularly during the RFP process. Effective strategies include communication with other agencies regarding their experiences with particular software and communication with potential vendors to understand technology offerings before issuing an RFP.

Equity Considerations

INTRODUCTION

Equity considerations can be seen in the microtransit planning and implementation process, marketing, fare structure, payment options, driver recruitment, data collection, service hours, and the selected zones. The following section highlights two case studies that incorporated equity considerations.

CASE STUDIES

Denver Connector

Overview

The Denver Connector, operated by Denver's Department of Transportation and Infrastructure (DOTI), aims to address gaps in the regional transit network, particularly in underserved neighborhoods with poor transit options and disconnected street networks. Launched as the Montbello Connector in October 2021, the service has since expanded and will operate in three zones by the end of 2024.

Two years into service, the Denver Connector had achieved significant success, serving over 100,000 riders. This success can be primarily attributed to the equitable implementation process and design. The community engagement effort, for instance, was thorough and involved significant community participation:

1. DOTI fostered partnerships with three local neighborhood nonprofits, a crucial step in understanding the community's needs and gaining community credibility.
2. DOTI established focus groups, with some specifically focused on youth and Spanish-speaking communities, to gain input and help design the microtransit service, such as determining service hours and zone boundaries.
3. DOTI contracted with Northeast Transportation Connections, a local transportation management association, to understand transit needs through a more technical lens and for help with procuring and operating the service.

Figure 9: Community Engagement Event from Northeast Transportation Connections

Source: Denver Community Active Living Coalition

These equitable actions led to the development of a fare-free microtransit service tailored to residents' needs. For instance, the expansion to the Globeville and Elyria-Swansea zones is attributed to the community's need for transportation to the local Walmart. DOTI made marketing accessible in both English and Spanish, and drivers were primarily hired from within Denver to create a sense of community for the service. These processes and design decisions led to the program's success.

The Denver Connector service prioritized equity by establishing focus groups with community members to inform service design, contracting with a local company for vehicle and operator procurement, and providing information in both English and Spanish.

CPACS Ride

CPACS originally provided paratransit and employee transit services in DeKalb and Gwinnett counties. Desiring a transit service that serves more constituents, CPACS Ride was established in 2021 to provide free transit for immigrant and underprivileged populations. The program setup involved heavy stakeholder participation.

1. **Community Input**: CPACS engaged with riders and community members on shuttles to flea markets and shopping centers to learn about transit needs and concerns. At this stage, it learned the challenges many face when using smartphone applications—a key feature of a microtransit program.
2. **Leadership Group**: CPACS actively involved the community in decision-making by establishing a diverse community leadership group to gather input and tailor the service design to local needs.

Key procurement criteria for its RFP emphasized multilingual support, community engagement, and data exchange. Multilingual support and community engagement tied heavily into its initial outreach process since CPACS wanted this to continue throughout the pilot. Data exchange aimed to facilitate trip sharing between multiple agencies. Despite implementing the technology for trip sharing with Ride Gwinnett, operational challenges arose due to different service designs. Key equity considerations and inclusive features of the CPACS Ride program were:

1. Multilingual operators and web applications
2. Fare-free service focused on immigrant, disabled, and low-income populations, with others able to access the service if assisting a primary beneficiary
3. Door-to-door service tailored to individual needs
4. Community profiles of transit users to better understand and address local needs

CPACS is a unique case where the service design, implementation process, and operations were carried out to serve a targeted group of customers. This included extensive and inclusive stakeholder engagement to understand transit needs and gain input on service design.

BEST PRACTICES

Key Ideas:

- Equity considerations can be centered around thoughtful partnerships and innovative methods for engaging with stakeholders and targeted customers.
- Equity goals should periodically be assessed through data collection and analysis.

For most agencies, equity is a priority consideration in the decision to pilot or implement microtransit service. As such, it is important to track whether a service is meeting an agency's desired equity outcomes. Most agencies prioritize enhancing transit equity, particularly for underserved neighborhoods. Marketing prior to and at the beginning of the service is key to ensuring the success of the service. These marketing efforts include targeted efforts to disadvantaged populations in the service area. This can be done through many platforms including on social media, at community events, through the mail, and on news outlets. Agencies can also reach out directly to key community members to help them spread information about the new service as was done by Denver DOTI.

In addition to Denver Connector's fare-free policy being an equity consideration, many agencies including MARTA, Denver RTD, and Metro Transit replicated reduced fare programs from their existing fare structure for disadvantaged populations when implementing microtransit. Along with fare structure, offering several different payment methods can provide more equitable access to transit service. Offering a cash payment option allows unbanked people to pay and use the service. In addition, offering a transit funds payment option can allow agencies to enact a transfer policy that could reduce overall costs for customers incorporating microtransit service into their transit trip.

In addition, SEPTA On-Demand and MARTA Reach exemplify services that include service zones for underserved areas. Similarly, Denver Connector utilized an equity index analysis to define service zones, ensuring alignment with community needs. Service design should consider other aspects like service hours and tailor microtransit to the community's specific needs. This requires detailed local knowledge, which can be challenging to obtain. Partnering with local nonprofits can help with local knowledge, such as Denver Connector's collaboration with a TMA, or RideMICRO's partnership with Pender Adult Services. Education and promotional materials should be provided in all primary languages in the community, similar to Denver Connector, to help increase awareness and accessibility.

For the Baltimore region, organizations with extensive community connections could be partners in developing equity-oriented service design. While the importance of such partnerships may vary depending on the microtransit service, the value of these types of partner organizations should not be underestimated. Many successful programs attributed their achievements directly to these strategic collaborations.

Procurement Methods

INTRODUCTION

During the planning phase for microtransit programs, agencies may have varying procurement processes depending on their service model. A hybrid service model requires sourcing different contractors to provide technology versus vehicles and operators. The software only model requires an agency to contract out its technology provider and use in-house drivers and vehicles. The turnkey service model requires the agency to contract out the entire service to one provider for technology, vehicles, and operators. Each service method has different procurement processes and potential advantages for an agency. The following section highlights three unique case studies from the research and their procurement methods.

CASE STUDIES

Metro Transit Micro

Overview	Metro Transit Micro began its service following the implementation of microtransit by other jurisdictions in the region, and interest from elected officials. Metro Transit used lessons from these other agencies as the framework for its service, though its comparatively larger size led to a longer implementation timeframe. The agency primarily runs microtransit service as a feeder to the high frequency transit network.

Metro Transit operates with separate providers for technology and operations. This hybrid model was selected because the leadership of the Metropolitan Council, the regional policy-making body of the Minneapolis-St. Paul metropolitan area, desired unionized operators. This approach allowed for more direct control of who the operators are, preferring directly employed workers over subcontracted workers. Additionally, there were concerns about the ability of a turnkey provider to supply enough operators. The approach also allowed for more bids from local contractors, creating stronger community connections and a greater ability to hire local operators.

Metro Transit released two separate RFPs in the procurement process: one for the technology and the second for vehicles and operators. For its vehicle and operator provider, it selected the region's paratransit provider for its Metro Mobility service, Transit Team—a Minnesota-based company. For its technology provider, Metro Transit chose Via Transportation, a software provider company for microtransit and paratransit services. In the future, Metro Transit will focus on data standardization in technology provider RFPs, especially since the agency works closely with the other microtransit providers in the Minneapolis region. This includes having providers utilize GTFS-Flex and having standards for data reporting.

Metro Transit chose to operate its microtransit service with a hybrid service model using separate providers for operators and technology rather than turnkey because of the agency's preference to have local, unionized operators. As a result, it was able to have more direct control over who its operators are.

ConnectWorks

Overview	Greater Cleveland Regional Transit Authority (GCRTA) formed ConnectWorks after a political push for more transit services for essential workers during the COVID-19 pandemic. GCRTA wanted collaboration from an experienced, equal partner and pursued a public-private partnership in which the agency funded half the cost of the program, and the private partner was required to fund the other half.

GCRTA selected a turnkey model for its microtransit service because of limited staff resources and the inability to take away from/repurpose existing services due to union agreements. GCRTA issued an RFP and received responses from multiple interested parties. It evaluated responses based on experience, proposed implementation processes, financial backing, and technology capabilities. The selected vendor, SHARE Mobility, was responsible for funding its portion of the service by securing investment from local employers. Any revenue generated from the service went directly to the vendor.

GCRTA learned many lessons from experimenting with this nontraditional method of contracting microtransit service. The service had low ridership and many employers were unwilling to spend money on a transit benefit package for their employees. In addition, its turnkey provider experienced a significant change in leadership during the first year of the service. As a result, there were several changes to fare structure and service, which likely contributed to the low ridership. Given the results of the pilot program, GCRTA is not planning on continuing this type of public-private partnership, but is interested in implementing other microtransit service in the future.

ConnectWorks selected a turnkey solution due to limited staff resources, inability to use existing contracts for this service, and limited initial knowledge about microtransit service operations.

SEPTA On-Demand

Overview	SEPTA planned SEPTA On-Demand as part of its larger bus redesign plan, Bus Revolution. The microtransit service will provide more transit options for less dense suburbs, connecting them to the more extensive regional transit network.

SEPTA plans to operate this service with a software only model and utilize the same software for microtransit and paratransit. SEPTA selected RideCo as its technology provider due to its experience in improving ridership, efficiency, and proposed operation cost. Unlike other microtransit services, SEPTA On-Demand is unique because the same technology will support both microtransit and paratransit services, which could enable the commingling of trips. Commingled trips can allow more flexibility for passengers and lead to cost savings for the transit agency. SEPTA also leveraged a paratransit vehicle procurement, which is acquiring approximately 411 vehicles for its extensive paratransit fleet, to procure 48 microtransit vehicles.

SEPTA's unique approach of using common software across microtransit and paratransit led to a three-phase procurement. In summer 2023, SEPTA procured paratransit vehicles. In winter 2023, SEPTA released its technology RFP and chose RideCo to modernize its paratransit technology to allow for integration with microtransit service. Finally, SEPTA procured microtransit vehicles in summer 2023 with vehicle delivery anticipated in winter 2024. SEPTA plans to launch the microtransit service in summer 2025.

By procuring one technology for both paratransit and microtransit, SEPTA hopes to achieve better interoperability between services. This could also allow for commingled trips with SEPTA On-Demand.

BEST PRACTICES

Key Idea: Procurement methods should be tailored to fit the objectives and goals of the new microtransit service, taking into account variations in service model, service design, and available agency resources, such as the existing fleet or contracts.

The procurement method depends heavily on the selected service model, whether turnkey solution, hybrid solution, or software only solution. The selection process is unique to each agency based on the needs and available resources like staff time, knowledge, and existing contracts that could be leveraged.

Turnkey Solution

Turnkey solutions are popular among agencies with no prior experience in operating microtransit or on-demand service and those with a lack of staff resources. However, a turnkey solution may result in less agency flexibility and control compared to in-house operations. For example, GCRTA expressed a desire for more involvement in education and promotion during the initial implementation and believed more focused promotion and additional on-the-ground outreach by the turnkey provider could have increased ridership. Flexibility in RFP requirements and understanding which tasks best suit the transit agency are important. Another challenge with a turnkey solution is the potential need for unionized drivers. ConnectWorks, for instance, faced pushback, which led to signing a Memorandum of Understanding with its union to prevent conflicts with other programs and solidify a plan to bring future operations of microtransit in-house.

Hybrid

The choice of a hybrid model is influenced by various factors, primarily the need for contracted local drivers and connections to paratransit services. Metro Transit Micro opted for a hybrid model where the agency sourced drivers from an existing local contractor, believing turnkey providers could not meet this need. Denver Connector, focusing on equity, prioritized contracting with a local operator provider. Additionally, some agencies, like MARTA Reach, utilized existing paratransit providers for ease of contract modification under tight deadlines for its pilot. The choice of a technology provider often depends on which technology offering best meets the agency's needs.

Software Only

A software only model was used by CPACS Ride and will be used by SEPTA when it deploys microtransit service. This model is typically chosen by agencies with prior experience in similar services, such as call-and-ride programs. It is appealing if capital costs for in-house vehicles are minimal and the agency can supply a sufficient number of drivers to operate the service. For example, some agencies may have the capacity to repurpose vehicles from the existing fleet for microtransit service. This approach can also be beneficial when commingling with paratransit.

Overall Considerations

Clear communication with service contractors is critical for successful microtransit service, especially regarding service design, understanding technology capabilities, and adapting the service to respond to performance. ConnectWorks, for instance, faced challenges due to frequent changes in fare structure by its contractor, which affected employer recruitment and program implementation. Another consideration is integrating micromobility within microtransit services, such as requiring bike racks in vehicle procurements. Furthermore, when selecting a technology provider, it is important to discuss its capabilities, data formatting, API integrations, and customizability early to ensure alignment with the agency's objectives. Finally, after the pilot phase, it may be beneficial to reevaluate the technology provider using pilot data to determine the potential of different providers for future service, as MARTA did.

Driver Recruitment, Hiring, And Training

INTRODUCTION

During the implementation and operating phase of microtransit programs, the recruiting, training, and hiring process may differ significantly between agencies. Some may leverage existing programs like paratransit service to provide the operators. For others, agencies may select a third party provider to provide local operators. For the operating phase, the agency may look at specific drivers' metrics to ensure the continued success of the microtransit service. The following section highlights two unique case studies from the research that relate to driver recruitment, hiring, and training.

CASE STUDIES

MARTA Reach

After securing a partnership with Georgia Tech, MARTA wanted to quickly launch its microtransit service. With experience and resources from its paratransit service, MARTA Mobility, MARTA modified the existing paratransit contract to secure microtransit drivers. MARTA contracted these drivers from First Transit and Transdev. The only additional training needed for the drivers was on the microtransit software, developed by Georgia Tech. The vehicles from the paratransit service were also repurposed for microtransit service.

Georgia Tech developed three online applications: a rider mobile application, a driver application, and a web application. The most significant challenge MARTA and Georgia Tech identified was delayed driver response to trips, leading to canceled trips or long wait times for users. Georgia Tech developed the automatic vehicle removal feature for its driver application that changes the driver if it takes longer than four minutes to respond to a customer's request. The driver application could also track the status of all drivers present, broken down into categories including Regular (driving without a passenger, waiting for departure, waiting for passenger, idling), With Riders, and Incorrect Location.

Figure 10: MARTA Reach Driver Tracking Application from Georgia Tech

(a) Monitor only shows idle stops.

(b) Monitor shows all stops and a polyline.

Source: MARTA

Driver application data allowed for better dispatching and usage of MARTA's service. This was particularly important as MARTA Reach required drivers to adjust to an on-demand service since MARTA Mobility was an advance-scheduled paratransit service. In the future, MARTA expressed a goal of having unionized in-house drivers, given the current atmosphere of labor relations.

By using operators from the existing paratransit contract, MARTA was able to minimize the amount of training needed for microtransit operators. In addition, MARTA worked with its software developer to reduce driver idling and passenger delays.

SouthWest Prime

Overview

Beginning in 2015, SouthWest Transit began operating one zone in the southwest Minneapolis-St. Paul metropolitan area, the first microtransit service in Minnesota. In total, there are five separate microtransit programs under SouthWest Prime (SW Prime):

- SW Prime (Regular): Provides microtransit service in the general area
- SW Prime MSP Airport: Provides microtransit service in the area directly to the MSP Airport with different fares and hours
- SW Prime Edge: Provides microtransit service directly to popular destinations like the Mall of America
- SW Prime Essential: Provides microtransit service directly to grocery and pharmaceutical stores
- SW Prime MD: Provides microtransit service directly to medical appointments at selected medical institutions

All five of the program services' drivers are contracted to Transdev. These drivers are W-2 workers and are not subcontractors. For each service program, SouthWest Transit provides real-time driver feedback and training modules to drivers to standardize user experience across programs. Additionally, due to the high demand in SW Prime Edge and SW Prime MSP Airport, SouthWest Transit partnered with Lyft to provide more drivers.

Finally, Southwest Transit partnered with May Mobility to deploy a microtransit service using autonomous technology in the coming months. The technology will be deployed in a limited area of Eden Prairie. Initially, operators will be present to ensure the safety of riders. In the future, Southwest Transit hopes to utilize fully autonomous vehicles without operators present. This new service is due to the general labor shortage for drivers in the Minneapolis-St. Paul metropolitan region.

Figure 11. Self-Driving Vehicles from May Mobility

Source: Bring Me the News

SouthWest Transit has used innovative approaches to obtaining operators for its microtransit service including partnering with Lyft, a transportation network company, and by planning an autonomous technology deployment.

BEST PRACTICES

Key Ideas:

- Develop a standardized training process for all operators for both the technology and interaction with customers.
- Consider the local atmosphere of labor relations when selecting a service model and operator contractor.
- Mitigate the driver shortage challenge by sourcing operators from local companies with existing networks of drivers or exploring emerging vehicle technology options.

Ensuring a standardized training process is crucial regardless of how drivers are sourced. For example, SW Prime implements standardized training modules and provides real-time feedback to maintain service consistency across zones, a practice also followed by Denver RTD. The technology provider typically handles software training. In the MARTA Reach program, Georgia Tech was responsible for training and retraining contracted paratransit drivers transitioning to microtransit. MARTA was able to customize training by adding features like an automatic vehicle removal function, thanks to its unique partnership with the university.

An important consideration and challenge for microtransit implementation is the potential conflict with local unions, a common issue for many transit agencies. The current atmosphere of labor relations and expectations or requirements of governing bodies can influence which service model and approach to use when hiring drivers.

Finally, the national driver shortage remains a significant challenge. Agencies like Denver RTD view this as a critical issue, while others, such as SW Prime, are exploring autonomous vehicles as a potential solution. Metro Transit Micro preferred a local separate provider for operators over a turnkey provider because of the driver shortage. CPACS Ride also experienced driver shortage issues, attempting to address this by partnering with Lyft and by partnering with a neighboring agency to help fulfill trip requests. Nevertheless, the most important aspect between both the contracted and in-house approaches to acquiring drivers is open communication of responsibilities and clearly defining recruiting, hiring, and training in any agreements.

Performance Monitoring

INTRODUCTION

During the planning and operating phase of microtransit programs, agencies need to use data and performance metrics to understand what is working well and what adjustments may need to be made to improve the service. Data and performance metrics can differ significantly between microtransit programs due to the service objectives, the expectations of the general stakeholders and funding partners, and the service design. The following section highlights three case studies that relate to performance monitoring.

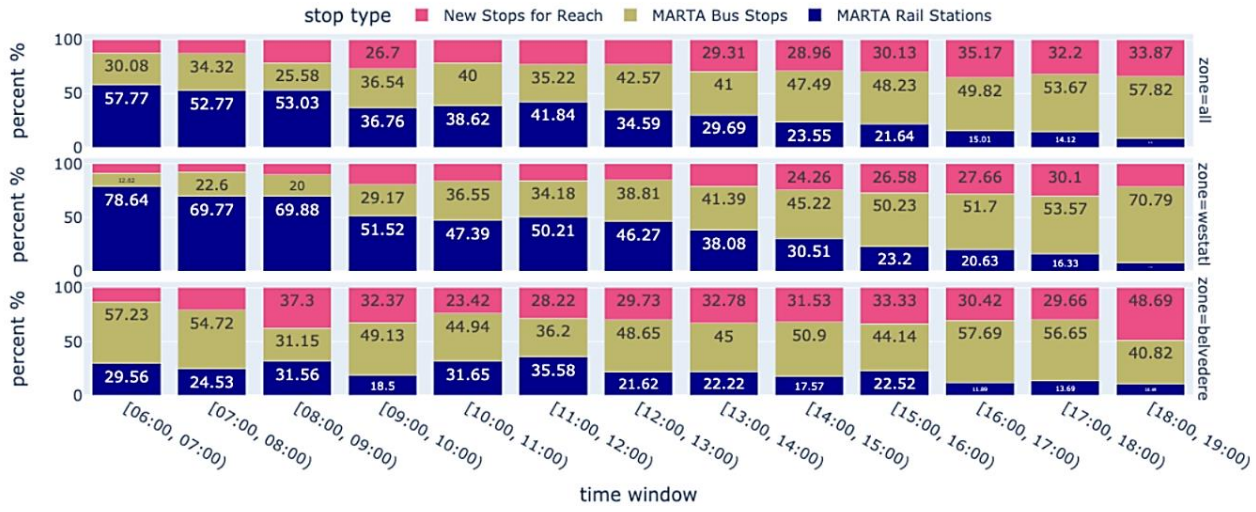
CASE STUDIES

MARTA Reach

MARTA and Georgia Tech used data to monitor demand and to adjust the zones and service during the MARTA Reach microtransit pilot. Performance monitoring was important to assess potential ties between zone characteristics and performance. Throughout the study, the most important performance indicators for MARTA were:

- Average wait time
- Average trip length
- Average passengers per vehicle per mile
- Operator productivity
- Origin-destination data

Figure 12: MARTA Reach Destination Data for West Atlanta and Belvedere Zones by Hour of Day



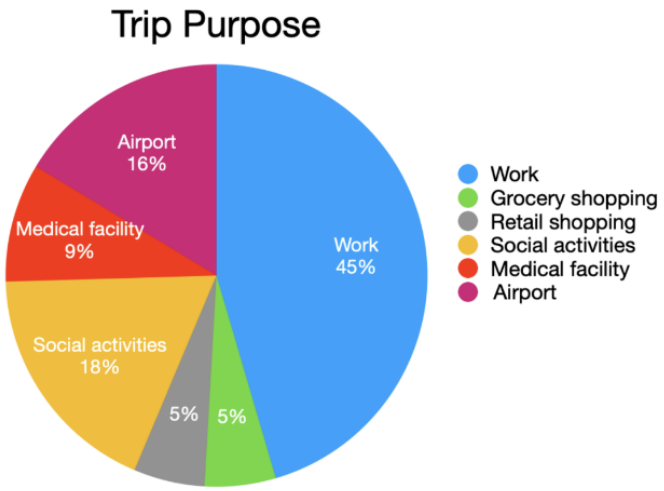
Source: MARTA

In addition to these metrics, MARTA also conducted customer surveys for the following information:

- Type and frequency of transit service used
- Demographics
- Where they heard about the service

- How they would make the trip without the service
- Trip purpose
- Satisfaction level

Figure 13: Trip Purpose from MARTA Reach Survey Responses



Source: MARTA

Using all the data above, MARTA was able to analyze the effectiveness of the service and how to move forward when launching a permanent microtransit program. For instance, survey and ridership data helped MARTA discover that underperformance in the Gillem Logistics zone, an industrial area with many warehouse and factory jobs, was tied to limited service span. Another practical implication it learned through its performance monitoring was the need for fewer vehicles than the simulation model predicted. On average, MARTA found wait times to be very short, at approximately 8 minutes, because an idling vehicle would pick up riders instead of batching multiple trips together. While this benefits users, it also means higher costs when many vehicles are in operation.

MARTA used the extensive data analysis done by Georgia Tech to adapt its service throughout the pilot and are using this analysis as guidance when implementing a permanent microtransit service.

Denver Connector

As mentioned earlier, Denver Connector is a microtransit service built on the idea of equity, being a fare-free service. As such, Denver's performance metrics differ from traditional fixed-route metrics. DOTI meets with its technology partner Downtowner every week to discuss recent performance and receives reports on the following performance metrics:

- Passengers per vehicle revenue hour
- Percentage of shared rides
- Wait times
- Average trip satisfaction ratings
- Number of Spanish-speaking riders
- Number of declined rides
- Number of rides that are more than a minute late

DOTI believes the optimal wait time for its service is approximately 30 minutes, especially since the program is fare-free. It sees the number of shared rides as one of the most critical considerations for microtransit and a way to measure the utilization of the service. DOTI views metrics like cost per passenger or cost per vehicle as more advantageous for fixed routes and less useful for microtransit. For this reason, DOTI focuses on improving a few metrics rather than focusing on all traditional fixed-route metrics.

DOTI also targets a Spanish-speaking audience due to the large Spanish-speaking community in the Denver region. They track the number of Spanish-speaking riders to ensure ongoing outreach efforts are fruitful. This outreach includes Spanish-speaking videos and ensuring the application is bilingual in English and Spanish. Using performance metrics to evaluate microtransit success, especially metrics focused on equity, is one way to leverage data successfully.

Denver's DOTI closely tracks its metrics with its technology provider. It focuses on a few metrics and prioritizes utilization as well as outreach instead of comparing microtransit performance metrics with those of fixed-route transit.

Metro Transit Micro

Metro Transit operates its microtransit service in an urban environment near extensive transit connections. It chose the current microtransit zone based on anticipated high ridership in that location, which would help justify continuing the pilot. Therefore, Metro Transit emphasized more traditional metrics observed in fixed-route services like:

- Ridership
- Passengers per hour
- Average wait time
- Subsidy per passenger
- Origin-destination data

Metro Transit emphasized these metrics since they expected high usage, specifically to connect to the extensive regional transit system. However, Metro Transit discovered that many microtransit trips were local, with customers opting for direct curb-to-curb service to their final destinations. Grocery stores and medical institutions were the focal points for users.

Metro Transit faced challenges with the selected performance metrics, particularly in distinguishing trip purposes. For example, it was difficult to discern whether customers actually transferred to high-capacity transit since many high-demand stops, like those near a Walmart, were also close to transit stations. Regardless, ridership met expectations, and Metro Transit plans to expand the service to a less dense area. Metro Transit is currently working to determine the best performance indicators for success in a lower-density area since the service will have fewer potential riders. Metro Transit is communicating with the other four transit agencies in the metropolitan area to understand better indicators of success for more exurban or rural areas.

Metro Transit originally implemented microtransit service as a first/last mile connection to the high frequency transit network. However, through performance monitoring, it noticed that customers were often using microtransit to connect to necessities. As a result, Metro Transit is looking to expand its microtransit service to less dense areas as well.

BEST PRACTICES

Key Idea: Agencies should be cautious when applying comparing microtransit service performance metrics to those of fixed-route service. Moreover, agencies should tailor data and performance monitoring towards the agency's goals and continuously scrutinize performance data to improve the microtransit program.

Performance metrics are essential for evaluating the success of a microtransit program. However, best practices suggest that metrics for microtransit should not be directly compared to those for fixed-route services, as their goals and effectiveness differ. Microtransit typically targets areas with lower ridership potential, where traditional fixed-route services may not be viable, while fixed-route services are designed to maximize ridership in areas with higher demand. For example, Denver Connector emphasizes metrics like ridesharing percentage and passengers per vehicle hour to assess microtransit utilization. The objective is to measure how effectively the service is being used.

For optimal performance evaluation, a pilot program should ideally span one to two years. Another key aspect of evaluation is observing how performance across zones varies. MARTA and Georgia Tech used this analysis to determine which zones to include in future programs based on land use. This analysis can also examine passengers per hour and trip origins to understand trip purposes and whether service hours should be adjusted. Data and performance metrics should be continuously used to refine and improve the program. For instance, CPACS Ride utilized demographic and qualitative information to ensure it was reaching the intended population, while RideMICRO used origin-destination data to adjust zone boundaries, shrinking its first zone due to a lower density of trips.

By integrating these performance metrics and data insights, microtransit programs can become robust and successful, particularly when observed and adapted continuously throughout the program.

Expansion Efforts

INTRODUCTION

During or after successfully piloting a microtransit program, many agencies expand their service. All selected case studies extended their microtransit service by either improving programs during the pilot period, expanding current zones, introducing new zones, or establishing new programs (see **Table 8**). The timeline, reasoning, and type of expansion vary greatly between regions and agencies. The following section highlights three unique case studies from the research that explore their expansion.

Table 8: Expansion Efforts of Case Studies

Transit Agency	Improved Programs	Expanded Zones	Introduced Zones	Established New Programs
Ride Gwinnett	X		X	
CPACS Ride	X			
MARTA Reach		X	X	
Denver Connector		X	X	
FlexRide	X	X	X	X
Metro Transit Micro		X		
MVTA Connect	X	X	X	X
Plymouth Metrolink	X	X		
SouthWest Prime	X			
SEPTA On-Demand				
RideMICRO	X	X	X	
ConnectWorks			X	

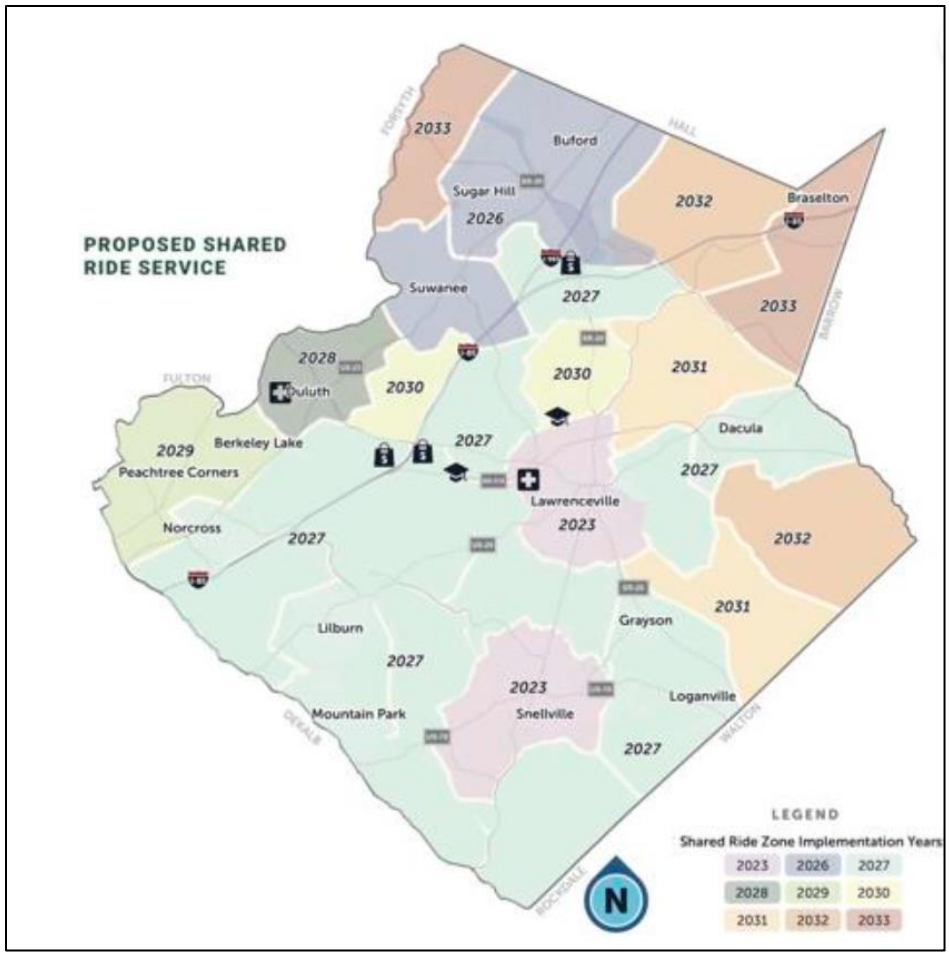
CASE STUDIES

Ride Gwinnett Microtransit

Ride Gwinnett introduced new zones as part of its expansion efforts. The planned expansion method was established in September 2023 when the Gwinnett County Board of Commissioners approved their county-scale transit development plan. The overarching goal was strengthening transit connections in the Atlanta metropolitan region and providing more service within Gwinnett County. By 2033, they plan for Ride Gwinnett to cover all of Gwinnett County.

The plan separates Gwinnett County into 24 zones to make the project more feasible. Each zone has a different planned expansion date for microtransit service, dependent on the zone's population density, jobs, and current fixed-route service. Alongside the planned service expansion, Gwinnett County's goal is to increase the number of hours the service runs to 18 hours daily, seven days a week. The project will complement other proposed transit expansions in Gwinnett County, such as new direct airport rides, new bus rapid transit service, and increased routes for fixed-route service. This plan and funding for these expansions are contingent on the success of a future Transportation Special Local Option Sales Tax (TSPLOST) vote, which proposes a one percent dedicated sales tax for transit.

Figure 14: Future Microtransit Expansion



Source: Gwinnett Daily Post

Figure 15 New Connections and Extensions

Source: Gwinnett Daily Post

Gwinnett County has begun the implementation process by partnering with the City of Norcross and Gateway 85 Community Improvement District to fund the expansion in the Norcross area. In September 2024, it expects to launch the expanded service through Ride Gwinnett. The goal is to connect economic drivers and businesses like the Amazon Distribution Center and a local shopping plaza. Their partnership is aligned with the city's 2040 Comprehensive Plan regarding transit and economic development.

Gwinnett County is leveraging partnerships with different types of organizations to slowly implement expansions of its microtransit service. Remaining expansion efforts are contingent on future funding and the implementation of its long-range transit plan.

RideMICRO

RideMICRO has introduced and expanded the microtransit program, expanded specific zones, and added new zones.

- **Planned Implementation Method**: RideMICRO's expansion was pre-planned in four phases, which were gradually implemented throughout the pilot rather than at its conclusion. RideMICRO was launched in October 2021, initially covering two zones in Northern Brunswick and Southeast Pender. After a successful three-month pilot, the service expanded to include two additional zones in northern and southern New Hanover.
- **Replacement of Underperforming Fixed Routes**: RideMICRO strategically expanded microtransit to replace low-ridership fixed routes in an attempt to shift towards more efficient service for the area.
- **Zones' Flexibility**: RideMICRO's zones were designed to be flexible, adapting to changes in demand and the transit plan. In partnership with the Wilmington Urban Metropolitan Planning Organization (WMPO) and funded by NCDOT, RideMICRO temporarily extended its service to mitigate traffic congestion from the Cape Fear Memorial Bridge construction. This three-month extension resulted in a more than 50 percent increase in ridership compared to previous years.

After finishing its one-year pilot of the four zones, RideMICRO was deemed successful and was given continued investment from NCDOT, as well as from New Hanover County to fund the two zones within its boundary. Since its launch, RideMICRO has increased daily passenger numbers by 800 percent and lowered the service cost per passenger by 85 percent.

RideMICRO has undergone several expansion efforts including adaptations to its existing service during pilot periods, implementing new service to replace underperforming fixed-route service, and providing flexibility in microtransit service to adapt to major events such as bridge construction.

Plymouth Metrolink Click-and-Ride

Before launching its microtransit service in 2019, Plymouth Metrolink Click-and-Ride used to be a dial-a-ride service. Dial-a-ride services allow passengers to request demand-response trips by phone or online, similar to microtransit. However, these services traditionally must be scheduled in advance, leading to less user flexibility. Expanding the service to be on-demand and providing a mobile application by RideCo allowed Plymouth Metrolink Click-and-Ride to reach a larger audience and increase ridership. These changes stemmed from program modifications rather than extending service.

In February 2023, Plymouth Metrolink Click-and-Ride expanded its service to the Maple Grove Transit Station, which connects to other cities in the northwest Minneapolis metropolitan region. Plymouth Metrolink Click-and-Ride allows riders to request transfers from the Maple Grove Transit Station to My Ride, Maple Grove's microtransit service. The partnership between these two microtransit services stems from their intentional, continual collaboration. Every other month, operators of all five microtransit services in the Minneapolis metropolitan region—Plymouth Metrolink Click-and Ride, Maple Grove My Ride, Metro Transit Micro, MVTA Connect, and SouthWest Prime—meet to discuss best practices and challenges faced in their implementation process. All five microtransit services also receive yearly funding from the Metropolitan Council through its annual budget. This close collaboration led to the possibility of connecting two separate microtransit services.

Plymouth Metrolink Click-and-Ride, like FlexRide, stemmed from dial-a-ride demand response service that was later adapted to be more technology focused. This effort was done in part because of the agency's collaboration with other regional agencies on best practices.

5. Conclusion

Through the process of desktop research and interviews with the five agencies, there was a lack of information on capital and operating costs of microtransit service, the option to commingle service with paratransit, and cross-jurisdictional implementation. Due to the variety in service design and service operation provided by each agency as well as differences in service models, costs varied and detailed information could not be given. Paratransit commingling was not a service model employed by the case study agencies, so there was not sufficient information to develop key takeaways on that service model. Lastly, cross-jurisdiction coordination was commonly discussed by case study agencies in regard to integrating microtransit services within one region. However, cross-jurisdictional implementation was limited to microtransit service by one agency connecting to another transit type operated by another agency. For this reason, key takeaways regarding cross-jurisdictional implementation were not developed.

The case study and agency interviews revealed several common challenges and lessons learned that should be considered when establishing microtransit service in the Baltimore region. Furthermore, the research underscores several benefits and drawbacks of microtransit service.

Common Challenges

Transit service inherently comes with challenges, particularly when exploring something new. There were several challenges that were expressed by several transit agencies. Below are the most relevant ones to the Baltimore region:

- There is limited precedent for multijurisdictional collaboration between jurisdictions, agencies, and overarching entities like transit authorities, and collaboration initiated by MPOs have been limited in regions with multiple microtransit services operating.
- The lack of collaboration has led to a lack of standardization within regions, resulting in different technology providers and inconsistent policies, which can create an inconsistent customer experience.
- Partly due to the infancy of microtransit service and the post-pandemic ridership recovery, many agencies report poor microtransit performance (e.g., passengers per revenue hour) but still view microtransit service as a valuable transportation option. Agencies attribute poor performance to the need for service design adjustments, having limited operational knowledge, or inadequate customer education and promotion.
- While microtransit services can aim to connect workers to employment sites, agencies have faced challenges in securing investments directly from employers to support microtransit for their employees.
- Agencies can experience demand surges and struggle to meet trip requests during peak times, especially in areas with many schools or higher-density urban areas.

Lessons Learned

The information presented in this report, particularly within the case study fact sheets and key takeaway examples, is distilled into the following 13 lessons learned organized into service design, procurement, coordination, and service launch categories. These lessons learned should be considered when establishing microtransit service in the Baltimore region.

SERVICE DESIGN

1. **Service Objective:** When planning a microtransit service, define the service objective based on the community's needs and desired destinations, while considering land use, population density, and employment density. Consider whether the desired destinations are points of interest within the zone or if there are connections to higher-frequency transit.
    - Given Baltimore's established high frequency bus and rail network, microtransit could enhance access to these high-frequency services, particularly in areas where fixed-route service is less frequent or harder to access.
    - Like the models in Atlanta and Denver, microtransit could effectively serve Baltimore's suburban and exurban communities, by connecting residents to essential destinations like grocery stores and healthcare facilities.
2. **Service Hours:** If the service is intended to serve work trips, ensure service hours align with commuter peak times or, in industrial areas, cover both ends of work shifts, which may exceed a typical eight-hour workday.
3. **Wait Time:** When setting a target wait time for microtransit, consider the level of service of the surrounding transit options or, if replacing fixed-route service, consider the previous frequency provided.
4. **Fleet Size:** Determine fleet size based on expected usage, zone area, target wait times, and trip length. During the early stages of service promotion and initial education, fewer vehicles may be needed. Additional vehicles can be added as demand grows.

PROCUREMENT

5. **Service Model:** The choice of service model and contracting approach should align with an agency's resources and capacity. Many microtransit programs have utilized a turnkey solution or leveraged existing paratransit contracts to simplify implementation, especially when the agency has limited experience with microtransit, does not currently operate transit service, or lacks the staff capacity to manage a new service type in-house.
6. **Technology Provider Procurement:** Engage with technology providers before the formal procurement process to better understand available technology solutions. Use insights from partner agencies to shape RFP requirements, ensuring the right features are delivered. This includes requiring APIs if technology integration between services and between agencies is a priority.
7. **Operator Procurement:** In response to the national driver shortage, consider contracting with local companies with larger driver networks and a better understanding of the community, or consider collaborating with peer agencies to fulfill trip requests.

COORDINATION

8. **Regional Coordination:** Schedule regular meetings with all regional jurisdictions to coordinate the progression of microtransit services, technology providers, challenges or lessons learned, fare policies, driver training, and other key areas. Establish a regional working group for ongoing collaboration.
9. **Partnerships:** When middle or high schools are within the service area, consider coordinating with school systems to better serve students, especially those living too close to be covered by fixed-route or school bus service. Also, consider proximity to the school when designating pick-up/drop-off points, as these can become a source of congestion.
10. **Funding Sources:** Leverage a diversity of funding sources when implementing microtransit service. Most funding of the case study microtransit services came from one-time federal grants, consistent state funding, or from an agency's local operating funds.
11. **Technology Integration:** Integrate microtransit with existing transit apps for a cohesive user experience, enhancing convenience and accessibility for Baltimore riders, especially given the number of different transit services available in the region.

SERVICE LAUNCH

12. **Marketing and Outreach:** Implement robust marketing strategies, including bilingual outreach and partnerships with local organizations, to ensure broad community awareness and adoption. Effective tactics include direct mailers to all zip codes within the service zone, giving operators flyers to hand out when asked about the service, printing a QR code or including the website on the vehicle wrap, and using bright, attention-getting vehicle wraps.
13. **Performance Monitoring:** Conduct a pilot microtransit program for one to two years to allow for adequate promotion, customer education, service adjustments based on feedback, sufficient data collection to assess viability, and customer adoption. During the end of the pilot phase, evaluate the program's success and determine whether to continue it or not.

These lessons learned draw from case study desktop research, interviews, and national best practices and are tailored to Baltimore's unique transit landscape, aiming to maximize the impact of microtransit in enhancing regional mobility. Although a majority of the pilots saw poor performance, all agencies gathered valuable insights from the pilot to apply to future service plans and still considered microtransit a valuable transit service option. It is important to acknowledge that even the most productive microtransit will rarely be as productive as a typical fixed route. Service objectives will vary by agency, and it's important to clearly define these during service planning to establish a clear benchmark for measuring success.