BRTB

Microtransit Guidebook

for the Baltimore Region

January 2025

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WHERE DOES MICROTRANSIT MAKE SENSE?

In many areas throughout central Maryland, fixed-route transit is not suitable due to factors such as low population and job density or an inhospitable built environment. At the same time, many people who live in or travel to these areas have significant transportation needs. Microtransit is a privately or publicly operated technology-enabled transit service that typically uses multi-passenger shuttles or vans to provide on-demand service.

Microtransit service provides the opportunity to connect residents and communities by offering a transit service that can be flexible to the changing demand of an area. Additionally, microtransit is better equipped to navigate circuitous roads found most commonly in suburban areas. Existing suburban and exurban development patterns have historically incentivized personal automobile dependence and often hinder a fixed-route system's performance, which can be better served by a more dynamic and flexible service like microtransit. **Microtransit is usually most suitable in locations where there is a combination of residents who are more likely to use public transportation service and the right level of land use density.** The land use should be dense enough that transit can be useful to take people where they want to go, but not so dense that fixed-route buses would be a more efficient way to provide service.

However, technical planning driven by travel and demographic data is not everything. While data is an extremely valuable guide for the identification of areas suitable for microtransit, public and stakeholder feedback, funding considerations, and political will and support are just as important. Data does not always paint a full picture and requires fine tuning based on local knowledge of an area.

Figure 1: Three Lenses for Microtransit Success

What factors influence microtransit success?

From a quantitative perspective, areas with the greatest likelihood for success with microtransit can be found by looking at data through three lenses: **transit need and potential** (microtransit suitability), **transit productivity,** and **trip demand**.

The overlap of these three lenses, shown in Figure 1, points agencies to areas where microtransit can be most successful. It also points agencies to potential use cases for microtransit, described in detail in the following section: What are Microtransit Use Cases?

TRANSIT NEED AND TRANSIT POTENTIAL (MICROTRANSIT SUITABILITY):

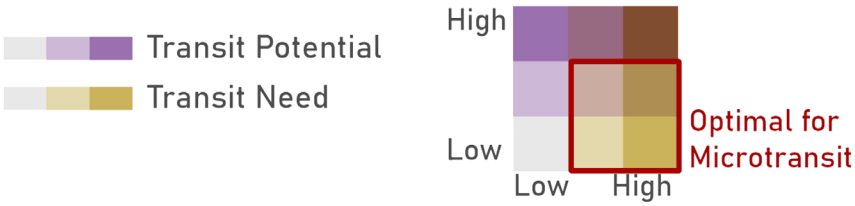
Research suggests that **specific population groups are more likely to use public transit** due to a variety of factors such as **socioeconomic conditions, access to a vehicle, and ability to drive.** The concentration of these populations can be quantified and referred to as **transit need.** These groups include:

- Minority populations
- Low-income populations
- Zero-to-one-car households
- Senior populations
- Populations with disabilities
- Youth populations

Areas with moderate to high transit need are most suitable for microtransit, compared to areas with low transit need. However, transit need represents one half of overall microtransit suitability.

The second component of microtransit suitability is **transit potential,** which is a **measure of density of residents and jobs in an area.** Areas with low to moderate transit potential are most suitable for microtransit. Bringing together both transit need and transit potential paints a clearer picture and helps identify locations where microtransit would be a suitable transit option to meet people's mobility needs.

Figure 2: Optimal Potential and Need for Microtransit



For details on where these three lenses converge in the Baltimore region, see page 10 of the Enhancement Opportunities report.

TRIP DEMAND:

Understanding where people are traveling to and from is also a critical factor to consider when assessing whether to implement microtransit. Data showing where people are traveling to (destinations) and from (origins) tells agencies where people need and want to go and gives insight into:

- **Trip taker demographics:** Trips by populations that are more likely to use transit.
- **Trip purpose:** Trips that could be better serviced by microtransit if they have a mix of purposes such as to work, retail destinations, and medical appointments, as well as if trip origins and destinations are either unserved or underserved by existing transit service.

Trip demand data provides more information about the travel needs that microtransit may be able to serve and can inform identification of microtransit service area (or "zone") boundaries, for example.

TRANSIT PRODUCTIVITY:

Transit productivity can be measured as the total number of transit trips served by an area in a normal day, providing a high-level overview of the quantity of transit options available to residents. Where there is low transit productivity, meaning a limited number of transit trip options, microtransit may be a potential solution for meeting unmet need and demand. An area's transit productivity can reveal potential use cases for microtransit zones depending on how productivity aligns with transit need, transit potential, and trip demand. These use cases are described in the following section.

WHAT ARE MICROTRANSIT USE CASES?

Understanding the need and purpose for microtransit service is essential for agencies and localities when designing a program. Agency and local priorities, combined with the results of the three lenses for microtransit success, will drive the use case for each zone.

Although most microtransit zones are developed to serve areas with a specific set of similar characteristics, zones can be created to serve different purposes. For example, microtransit zones can be designed to provide opportunities for passengers to transfer to fixed-route services that can take them beyond the microtransit service area. **The following highlights three prevailing use cases: expanding service for internal circulation; replacing inefficient fixed-route service; and connecting to other transit infrastructure, commonly known as solving the first-and-last mile problem.**

Service Expansion for Internal Circulation:

An internal circulation zone refers to a designated geographic area within a community where microtransit service operates, primarily focused on connecting points within that area. This allows residents to easily travel between different locations within the zone, such as homes, businesses, and community centers, using on-demand, flexible routes rather than relying on fixed-route services.

Service Coverage: In rural or suburban areas, transit agencies commonly face the challenge of providing service to places that do not have the density or roadway characteristics to support productive fixed-route transit. Microtransit has the potential to serve these areas by providing flexible on-demand service which can adjust based on community needs, and can provide important connections to points of interest within a specific neighborhood or community such as grocery and retail stores, medical facilities, parks, and other services. By adding service in an area that previously did not have it, people can have enhanced access to a variety of destinations and opportunities. This can allow transit agencies to expand their footprint and serve more people, while maintaining efficiency and limiting fixed-route services to the areas that are most suitable and cost effective.

Service Hours: The flexibility of microtransit service can also cover gaps in service hours that fixed-route transit cannot easily or efficiently cover. Fixed-route transit typically has the highest ridership on weekdays between the hours of 7 a.m. and 6 p.m., serving the needs of commuters with "traditional" work hours. However, this service span may not meet the needs of service industry and third shift workers who may work before 7 a.m. and after 6 p.m. Some agencies have experimented with providing microtransit service in key areas with concentrations of service industry and third shift employees after or before peak operating hours to fill service gaps. This allows agencies to continue to provide service, especially to customers reliant on transit, while avoiding the cost of running fixed-route service that may underperform at non-peak hours.

Replacement for Underperforming Fixed-Route Transit Service

Microtransit has emerged as a potential solution to provide more efficient transit service in areas where other forms of fixed-route transit service are underperforming. Agencies can evaluate their service on a route level basis and identify routes or segments that are not meeting performance standards for fixed-route service. While these routes may lack efficiency, this does not mean that the connections provided are unnecessary, but rather that they could be served by a different type of service. Microtransit provides agencies the ability to provide a service that can replace underperforming transit, connecting people to where they want to go. The following resource, **How Can Microtransit Support or Complement Fixed-Route Service?**, details additional considerations for agencies looking to replace underperforming routes.

Microtransit also has the potential to supplement or enhance Americans with Disabilities Act (ADA) paratransit service. Microtransit provides an opportunity to enhance vehicle scheduling and dispatching for ADA paratransit trips by integrating microtransit software services. This would not change the type of service provided but would instead offer new technological capabilities for trip booking and payment for passengers and trip scheduling for agencies. To learn more about commingling paratransit service with microtransit service, see **Commingling** in Section B.

Solving the First-and-Last Mile Problem

First-mile and last-mile connection refers to the beginning or end of a trip made using public transportation. (In other words, the travel distance between your origin location and the bus, metro, or light rail stop.) In places with low intersection density or poor sidewalk connectivity, the difficulty accessing a transit stop can place a significant burden on vulnerable populations and even act as a barrier to transit use entirely. In neighborhoods with an important regional connector, such as fixed-route or rail service, microtransit can serve as an important first-mile and last-mile feeder, directly connecting residents to the larger transit network. This use case is commonly applied to residential areas with one or more significant transit stops or hubs, helping riders overcome a lengthy walk or bike ride, or a trip that in some cases would otherwise have been made by car.

Figure 3: MARTA Reach Aims to Address 'First-Mile/ Last-Mile' Issue[1]

MARTA Reach was designed to close the first-and-last mile transportation gap for transit riders, particularly around rail stations and dense, congested corridors.

For jurisdiction-level potential use cases in the Baltimore region, see page 30 of the Enhancement Opportunities report.

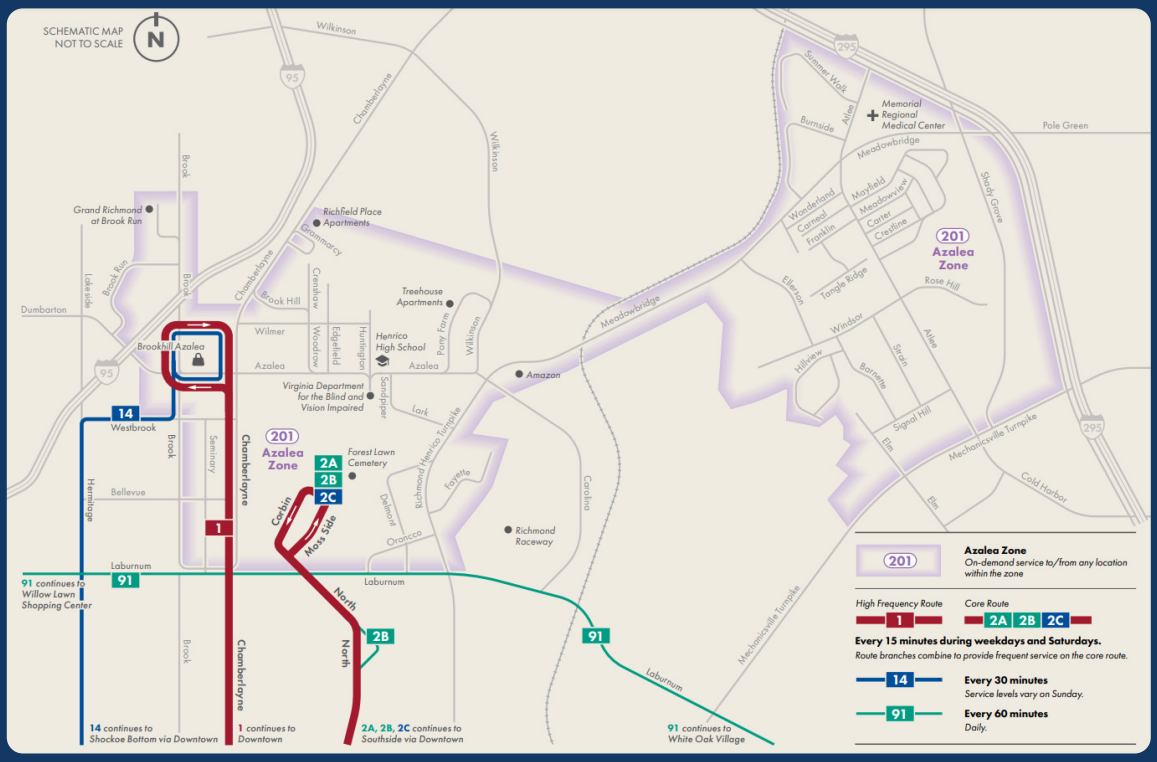
1 https://atlantaregional.org/whats-next-atl/articles/marta-reach-aims-to-address-first-mile-last-mile-issue/

GRTC LINK

CASE STUDY

The Greater Richmond Transportation Company (GRTC) provides fixed-route, bus rapid transit, ADA complementary paratransit, and newly implemented microtransit service throughout the Richmond, Virginia region. In fall 2022 through spring 2023, GRTC conducted a regional microtransit study which identified high suitability areas for microtransit implementation in the area. The study identified 12 candidate zones for implementation, five of which were chosen for pilot implementation in 2023. One of the identified locations was the Washington Park/Azalea Avenue area, a moderate density zone in the north of the city which exhibited a high transit-oriented population percentage, as well as important key destinations such as grocery and retail stores and a large medical center nearby. At the time, the area was served by Route 93, a limited-service route which provided connections between key destinations, high density residential areas, and the Azalea Avenue corridor. However, Route 93 was among GRTC's lowest performing routes, requiring passengers to travel through hard-to-reach residential neighborhoods just to access destinations along Azalea and Chamberlayne Avenues. **GRTC decided to develop a microtransit zone that would replace Route 93, providing connections to important destinations in the area without the need to venture into hard-to-access neighborhoods. GRTC provided over 18,000 trips in its first six months of service.**

Figure 4: GRTC's Azalea Zone Replaced Route 93



93 (Azalea Connector) – Fixed route discontinued and replaced with LINK microtransit service. LINK offers more hours of operation continuously Monday through Friday from 5:00 am to 8:00 pm instead of peak-only service. All points served by Route 93 are accessible in the Azalea Zone.

HOW CAN MICROTRANSIT SUPPORT OR COMPLEMENT FIXED-ROUTE SERVICE?

Transit agencies have the potential to optimize the allocation of fixed-route resources and reach people who are unserved or underserved by their current network through microtransit. This section details best practices for integrating microtransit with a fixed-route network to either replace or expand service, and highlights key metrics that agencies can utilize to understand performance.

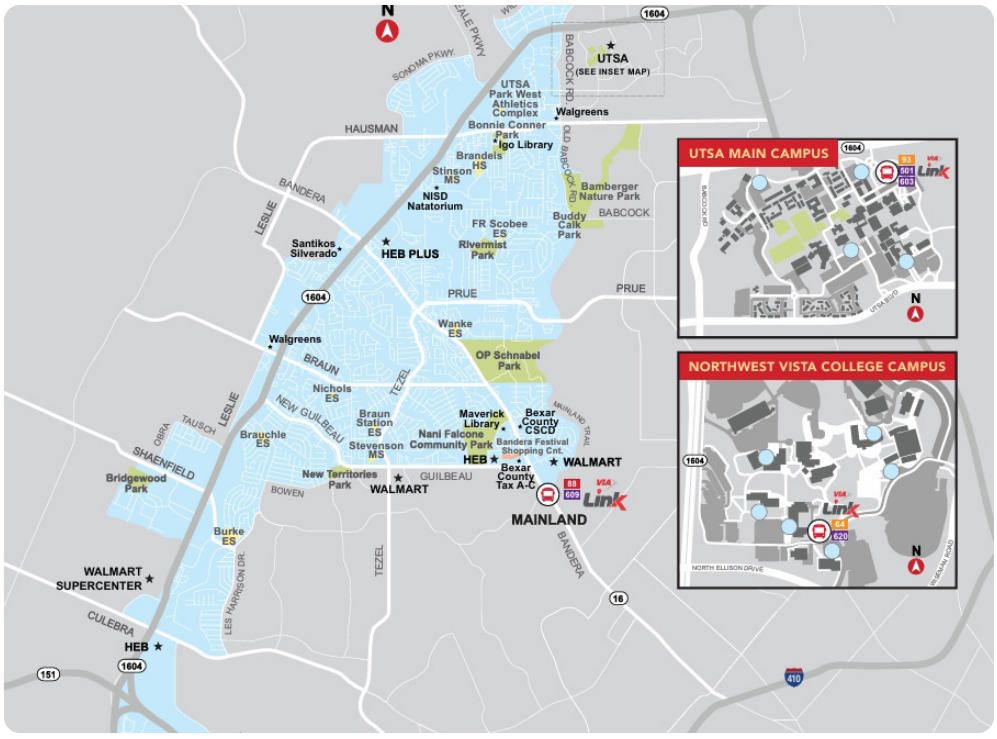
Replacing Fixed-Route Service

When determining if microtransit should replace fixed-route service, there are several variables to consider regarding a fixed route's function and performance.

ROUTE FUNCTION

If the goal is to replace a route with microtransit, routes that have circulator or feeder functions are commonly suitable candidates. Circulator or feeder routes focus on connecting residential areas to a specific major destination or a higher frequency transit connection. They also tend to be shorter in length compared to other routes in an agency's network. These routes tend to align well with a best practice recommendation to size microtransit zones between five to seven square miles for efficiency, although the size should be customized to the context. Agencies across the country have used microtransit as a tool to partially or completely replace routes with this function (see **Figure 5**).

Figure 5: Microtransit Replacing Circulator/Feeder Service[2]



Via (San Antonio) replaced two of their fixed-routes with Via Link to cover the Mainland area, which includes multiple shopping destinations, parks, residential neighborhoods, and two college campuses.

2 https://www.viainfo.net/wp-content/uploads/2024/01/VIA24_LINK_English-V2.pdf

ROUTE PERFORMANCE

Ridership data is critical for assessing the performance of existing fixed-route services and determining potential candidates for microtransit conversion. Ridership data can be collected in a variety of ways, such as automatic passenger count (APC) data, manual observations, and buttons that operators press for each boarding and alighting at a stop. Ridership data provides a lot of useful information for fixed-route service. However, there are other route performance metrics that are also pertinent to microtransit.

PASSENGER METRICS

The following passenger metrics can help agencies understand where fixed-route performance may be struggling and opportunities for microtransit to reverse those trends:

- **Passengers per Trip:** The average number of passengers per transit trip indicates the overall utilization and efficiency of a route. A low number indicates inefficiency. If a route with low productivity primarily operates in areas suitable for microtransit and has a relatively short route length, this may be a good case for microtransit service.
- **Passengers per Revenue Hour:** The average passengers per revenue hour provides a similar comparison as passengers per trip by comparing ridership to levels of service. This measure also accounts for factors such as trip duration and recovery time. Recovery time is the time intended to compensate for the vehicle running behind schedule. A lower passenger per revenue hour figure indicates potential inefficiency. Ideally, candidate routes for microtransit will have low-to-moderate passengers per revenue hour compared to other routes in the network.
- **Cost per Passenger:** The operating cost per passenger is a measure of the financial efficiency of a fixed route. A lower value indicates more productive performance. Routes with low passengers per trip and revenue hour tend to also have a high cost per passenger, which may make the case for microtransit as an economical replacement.
- **Ridership by Stop:** Ridership is a measure of the average number of boardings and alightings at stops. Low ridership numbers indicate low transit activity, which could be attributed to the surrounding area having limited transit suitability or reliability of the fixed-route service. Depending on the distribution of low ridership stops (e.g., consistent low-to-moderate stop activity or low-to-moderate stop activity with notable activity at certain land uses and destinations), this can also influence the purpose of the potential microtransit zone.

Expanding Service Area via Microtransit

Referencing the results of the three lenses for microtransit success (**Figure 1**) is a strong, guiding foundation for agencies when determining if microtransit is the right mode to meet their service goals. Travel flows and trip characteristics are especially helpful in identifying where shorter single-occupancy vehicle (SOV) trips and trips that link to other transit services are taking place most often.

TRANSIT ORIGIN-DESTINATION DATA

Transit agencies can view their internal Origin-Destination (O-D) data by collecting survey responses from current riders in their network. If a significant amount of transit travel flows across a relatively short distance, and within a microtransit suitable area, this is an indicator that the service is likely to be useful to riders. While this information is helpful for making the case for adjusting an agency's service area, O-D data collected by an agency would not reflect travel patterns across all modes in an area.

ALL MODES ORIGIN-DESTINATION DATA

For a more holistic view of O-D trends and to capture other modes, especially the greatest mode share within the Baltimore region, it is important to analyze SOVs, carpooling, and trips made on foot or by bike. To view and analyze this data, agencies can utilize third-party data sources. O-D data by all modes can reveal new places of interest to serve with microtransit that may not have been previously captured by an agency's transit O-D data alone.

Additional Considerations for Both Scenarios

WHERE TO INTEGRATE MICROTRANSIT INTO THE FIXED-ROUTE NETWORK

Many microtransit zones are anchored by one or several nodes that connect to activity-generating land uses (e.g., shopping centers, colleges or universities, and business districts) or mobility hubs where several fixed-route services converge. When assessing where to facilitate potential transfers between microtransit and fixed-route services, agencies should consider whether the location has enough capacity to facilitate the additional vehicle(s) without disrupting current operations.

In the Baltimore region, connecting to fixed-route networks may work best at park and ride lots, light rail or commuter rail stations, college and university campuses, and shopping centers. Figure 6 identifies potential microtransit zones in the region that are suitable for first-mile and last-mile connectivity to higher transit levels of service (shown in green) or zones suitable for connecting to a regional rail or bus service, even if the level of service is moderate to low (shown in yellow). **Table 1** lists sites in the Baltimore region that are in or near microtransit suitable areas and are good candidates for facilitating transfers to existing fixed-route service.[3]

3 In January 2025 the Maryland Transit Administration (MTA) released the BMORE BUS plan. The plan presents a visionary bus network for the Baltimore region, including recommendations for microtransit zones. Both this Guidebook and BMORE BUS have identified overlapping areas of suitability for microtransit in the Baltimore region. Local transit agencies are not precluded from advancing on-demand service in any of these areas. (https://www.mta.maryland.gov/bmorebus)

Figure 6: Areas to Integrate Microtransit into the Baltimore Region's Fixed-Route Network

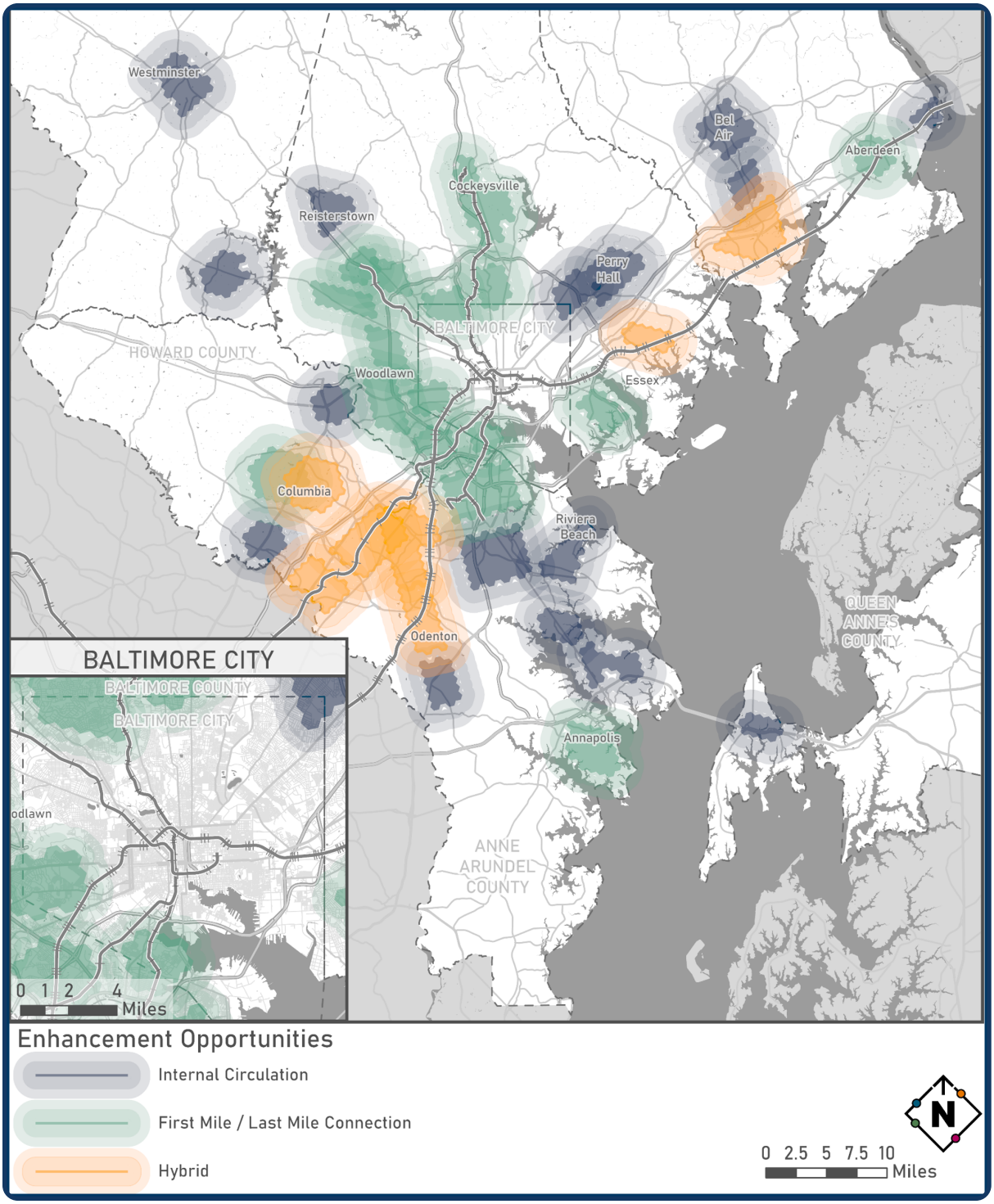


Table 1: Potential Sites for Fixed-Route Transit and Microtransit Integration in the Baltimore Region

LOCATION	LAND USE(S)	JURISDICTION	FIXED-ROUTE SERVICE(S)
Walmart at Russett Green East - Laurel	Shopping Center	Anne Arundel County	RTA
Cromwell/Glen Burnie Light Rail Station	Light Rail Station	Anne Arundel County	MTA (Core Bus, Light Rail)
I-70 Park and Ride	Park and Ride, *Planned Light Rail Station* [4]	Baltimore City	*Planned MTA (Core Bus, Light Rail)*
South Baltimore Park and Ride	Park and Ride	Baltimore City	MTA (Core Bus)
White Marsh Mall	Park and Ride, Shopping Center	Baltimore County	MTA (Core Bus, Commuter Bus), Intercity Bus
Timonium Fairgrounds	Park and Ride, Light Rail Station	Baltimore County	MTA (Core Bus, Light Rail)
Cromwell Bridge Park and Ride	Park and Ride	Baltimore County	MTA (Core Bus)
Carney Park and Ride	Park and Ride	Baltimore County	MTA (Core Bus)
Walmart at Catonsville	Shopping Center	Baltimore County	MTA (Core Bus)
Milford Mill Metro Station	Metro Station	Baltimore County	MTA (Core Bus, Metro)
Owings Mill Metro Station	Metro Station	Baltimore County	MTA (Core Bus, Metro)
Patapsco Light Rail Station	Light Rail Station	Baltimore County	MTA (Core Bus, Light Rail)
Sykesville Park and Ride	Park and Ride	Carroll County	Carroll Transit System
Westminster Shopping Center	Shopping Center	Carroll County	Carroll Transit System
College Square	Shopping Center	Carroll County	Carroll Transit System
Marywood Park and Ride	Park and Ride	Harford County	MTA (Commuter Bus)
Boulevard at Box Hill	Shopping Center	Harford County	Harford Transit, MTA (Commuter Bus)
Woodbridge Station	Shopping Center	Harford County	Harford Transit, MTA (Commuter Bus)
Aberdeen Shopping Plaza	Shopping Center	Harford County	Harford Transit
Belcamp Park and Ride	Park and Ride	Harford County	MTA (Commuter Bus)
Havre de Grace (Juniata & Otsego) Park and Ride	Park and Ride	Harford County	Harford Transit, MTA (Commuter Bus)
Columbia Snowden River Parkway Park and Ride	Park and Ride, nearby Shopping Center	Howard County	MTA (Commuter Bus), RTA
Walmart at Ellicott City	Shopping Center	Howard County	RTA
Joseph Square Shopping Center	Shopping Center	Howard County	RTA

4 Information in Italics is in anticipation for the planned MTA Red Line in Baltimore City and Baltimore County.

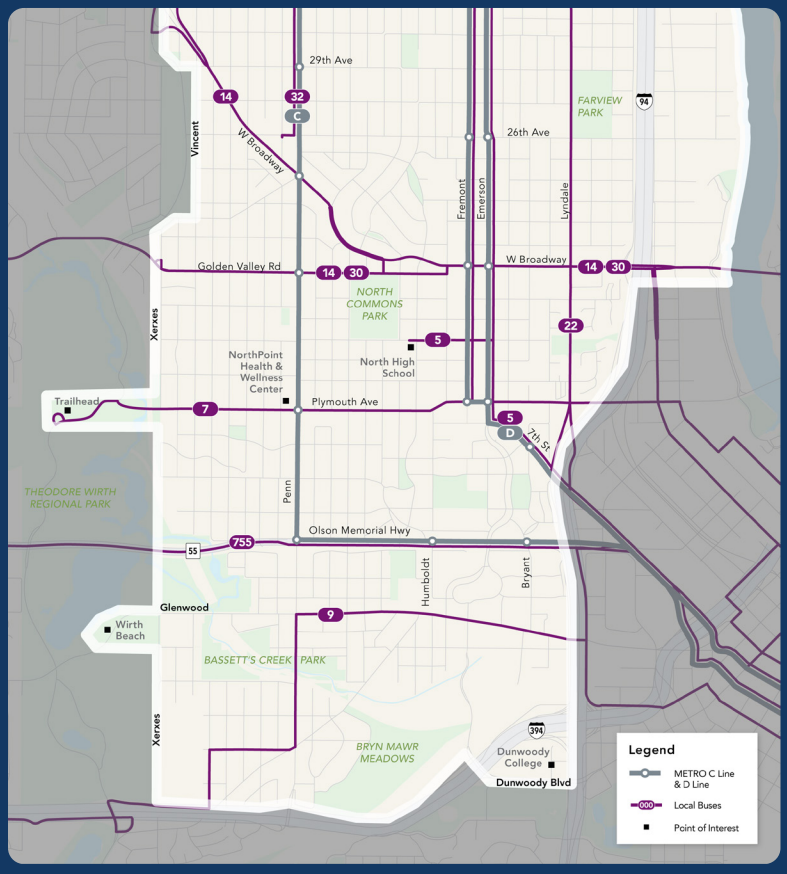
Beyond capacity considerations, these sites are also prime candidates for facilitating transfers, as they often already have safety and security measures in place, such as lighting, street activity, and shelters, ensuring microtransit riders have not only an efficient experience but a comfortable one, too.

AREA-SPECIFIC CONSIDERATIONS

The area-specific considerations regarding where a transit agency operates have influence over its fixed-route network, and the same can be said for microtransit. As agencies in the Baltimore region look to potentially operate cross-jurisdictional zones, local context is particularly relevant. As a microtransit zone's size and purpose becomes refined, it is recommended to coordinate with the institutions (e.g., worksites or educational campuses) captured by the zone to see if they have an agreement with an agency for fixed-route transit services or transit service within a specific service span. **Performance Monitoring** in **Section D** provides additional details on how working with others can buoy an agency's microtransit program and benefit the partner entity.

METRO TRANSIT MICRO — CASE STUDY

Metro Transit (Minneapolis-St. Paul) 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. However, Metro Transit discovered that many microtransit trips were local, with customers opting to access grocery stores and medical institutions, in particular, rather than capitalizing on free transfers to fixed-route transit connections. Due to the success of the zone in serving local necessities, Metro Transit is looking to expand microtransit service into less dense areas as well.[5]



5 Photo Courtesy Metro Transit: https://www.metrotransit.org/micro

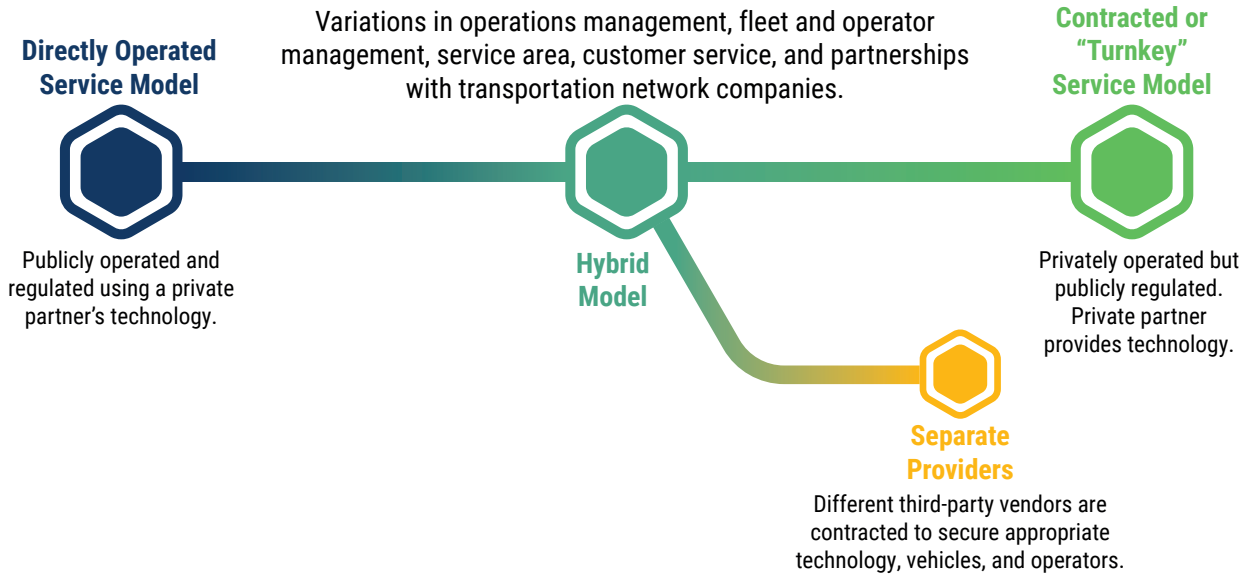
B. How to Plan Effective Microtransit Service

Service Design and Procurement Guidelines

WHAT SERVICE DELIVERY MODEL MAKES SENSE FOR MY AGENCY?

A microtransit service delivery model refers to the division of responsibility in providing microtransit service between public agencies and vendors, also called mobility technology companies. There are three predominant models: the software-as-a-service (SaaS) or directly operated model, the transportation-as-a-service (TaaS) or contracted service model, and the hybrid model. Although these models describe the predominant practices for the operation of microtransit service, there is opportunity for flexibility between models. **Figure 7** below shows these models on a spectrum to indicate the variety of ways responsibilities for operating service can be divided between a public sector agency and a private partner.

Figure 7: Operating Service Models for Microtransit Service



DIRECTLY OPERATED SERVICE:

Under this model, transit agencies use their own vehicles and operators, and contract with a vendor to supply the technology platform. Most commonly, an agency deploys the vendor's technology on their agency-owned and operated vehicles. However, a variation on that most basic arrangement, and more common to human services transportation, is private-sector technology, public agency vehicles, and non-profit agency drivers. Another variation is private-sector technology and private-sector drivers with public agency vehicles.

CONTRACTED OR "TURNKEY" SERVICE:

Under this model, agencies or localities contract with a vendor to supply the technology, vehicles, and drivers to operate the microtransit service. The agency defines the microtransit service parameters and requirements, and oversees both the service and vendor performance. The vendor offers an app-based booking option and provides all the technical and customer support functions for the service. The vendor is responsible for managing driver and vehicle availability to meet performance targets.

SEPARATE SERVICE PROVIDERS:

Under this model, different aspects of service are contracted to a variety of third-party vendors to secure appropriate vehicles, technology, and operators. This allows agencies to have greater control over the service, rather than contracting all service aspects to one vendor. Agencies can select vendors that best meet their needs in different areas. In some cases, more than one service provider can be contracted to run the service, providing greater flexibility and more options for riders.

HYBRID SERVICE:

Under a hybrid model, microtransit service can include elements of both directly operated and contracted service models. There are a multitude of configurations under a hybrid model where agencies can decide how much to delegate or take responsibility for. Agencies can also leverage partnerships with transportation network companies (TNCs) to fill gaps in service. There are two prevailing hybrid models:

- **Zone-Specific Directly Operated or Contracted Model:** Agencies will use the directly operated model for some zones and the contracted model for other zones. This type of hybrid model is often used to provide service in more remote areas that may be hard to access or are currently outside of an agency's existing service area.
- **Partnerships with Transportation Network Companies (TNCs):** Agencies develop partnerships with TNCs to fill gaps in existing microtransit service, providing more options for riders.

SEPTA — CASE STUDY

The **Southeastern Pennsylvania Transportation Authority (SEPTA)** in greater Philadelphia, Pennsylvania plans on operating microtransit service, SEPTA On-Demand, through a software-only model, utilizing the same software for its microtransit and paratransit services. SEPTA selected a provider with the objectives of improving ridership and efficiency. SEPTA On-Demand is unique for using the same software for its microtransit and paratransit services, which allows for commingling of trips in the future. This aspect of the service is intended to give riders more flexibility while saving on costs.

There is not a one-size-fits-all template for an agency to follow when selecting a microtransit service delivery model. An agency's organizational characteristics, goals for service, budget, and service area are all important factors in the selection of a model. **Table 2** below provides a high-level overview of the potential advantages and disadvantages of each service model.

Table 2: Comparison of Service Models

SERVICE MODEL	ADVANTAGES	DISADVANTAGES
Directly Operated Service Model	✓ Operational control and flexibility. ✓ As an agency employee, there may be more professional development opportunities available. ✓ In-house staffing and ability to train staff to agency standards.	× In some cases, upfront and overall higher costs. Cost is impacted by procuring vehicles if they are not already readily available. × Need for increased internal capacity. × For some agencies, existing collective bargaining agreements (CBAs) could be a challenge.
Contracted Service Model	✓ Least level of staff effort for ongoing management. ✓ Lower cost option. ✓ Ability to specify and enforce performance standards. ✓ Service can sometimes transition more easily to the SaaS model later if desired. ✓ Service can be implemented within a shorter time frame.	× Additional training will be necessary for independent contractors which could be costly. × Requires extra consideration and effort to interface with the established CBA terms. × Customer service functions may be subpar if outsourced and not closely monitored for quality.
Separate Providers	✓ Can fit specific agency needs. ✓ Can potentially create more choices for riders. ✓ Can lead to lower costs if negotiated adequately with different providers. ✓ Can leverage specific strengths of different providers, offering high quality service.	× Requires greater oversight capabilities for multiple contractors. × Requires additional effort coordinating communication strategies and service changes across providers. × Customer service functions may be subpar if outsourced and not closely monitored for quality.
Hybrid Model	✓ Can be a lower cost alternative. ✓ Can be customized to specific agency needs or circumstances. ✓ Can potentially create more choices for riders. ✓ Can create new or build upon existing partnerships with TNCs.	× Independent contractors may not be as well trained or compensated as bus operators. × If more than one TNC participates, riders must choose between providers. × May not be as operationally efficient if multiple providers participate.

ZONE PARAMETERS: SIZE, BOUNDARIES, AND SERVICE SPAN

Configuring microtransit service requires discerning key zone characteristics, including the purpose or use case, zone size and boundaries, hours of operation or service span, and microtransit stop types. Each of these characteristics determines how residents can access essential services and destinations, ensuring that zone configuration matches passenger needs and provides mobility to all passengers. This section details zone size and boundaries, as well as service span. **What are Microtransit Use Cases?** and **Microtransit Stop Locations** are topic areas covered in Section A and Section C, respectively.

Zone Size and Boundaries

The size and boundaries of a zone determine where passengers can travel to and where they are coming from. Regardless of use case, zones should be drawn to include a mix of residential sites and trip generators, such as shopping and employment centers, medical services, recreation facilities, and schools.

Defining a zone size is difficult, as ultimately this is a decision of how to limit a zone. It can be tempting to make expansive zones that cover large service areas. However, this can increase operational costs. Zone size influences average trip length, which can increase wait time and deadhead distances to pick up passengers. Deadheading refers to the times when a vehicle makes a non-revenue trip, including when a vehicle is returning to or leaving the vehicle storage location. A large zone can also cause demand to swell, resulting in longer wait times and a need to increase staffing and revenue vehicle count.

Smaller, contiguous zones can help manage demand for service, trip durations, and trip wait times. These are complex decisions to make, but benefit from identifying the zone purpose, which provides an easier way to determine if a location may make sense to include within a zone.

Agencies should use data as well as stakeholder and public input to identify potential zone boundaries. The two complement each other, and can help with initial boundary definition and refinement of zone boundaries.

DETERMINING BOUNDARIES WITH DATA

Data can include useful metrics such as:

- Paratransit O-D data, trip purposes, and trip counts
- Service area demographics (Passenger demographics may be trackable but this will likely require opt-in from passengers, or collection via rider surveys.)
- O-D data from location-based services
- Population and employment density from sources like the Census and Longitudinal Employer-Household Dynamics (LEHD)
- Locations of major points of interest and other trip generators

REFINING BOUNDARIES WITH ENGAGEMENT

Engagement is crucial to refining zone boundaries. Data can help when developing draft zones, but public engagement provides context and a way to understand what passengers want and need. Public meetings and outreach can help an agency better understand trips that currently cannot or are not being made, whereas historical travel data can typically only provide information on trips currently being made.

Exact zone boundaries also require a consideration of operational concerns. For example, it may be easier to have a zone cutoff along major roadways to make it easier to understand the zone extent. This requires decisions to be made about how to serve along the zone. For example, if a trip generator is on the opposite side of a road that makes up the zone boundary, should that location be served?

A microtransit zone may also have external connections. Allowing travel within a zone, as well as between the zone and locations such as a college or hospital campus, can connect zone residents to necessary services even if they do not fall within the zone. External locations may be difficult to serve as they increase the average trip length and may require consultation with a software vendor to determine if this sort of service is feasible.

Zone Service Span

Microtransit zones have different service hours based on when people need to travel and where they are traveling. This means the hours that a zone is in service must account for when major trip generators are open, as well as the trip purposes and destinations of those using, or likely to use, the service. For example, a microtransit customer looking to go to a medical appointment requires a service span built around the facility's hours. However, employees of the medical facility may need microtransit service beyond the hours a facility is open to the public. Ensuring that a service span reflects all relevant travel needs is critical for a zone's success.

Service hours or spans can also be informed by the zone purpose. For instance, a zone designed as a first-mile and last-mile connector may have substantially reduced demand during periods where other transit services are not running, such as during late night hours.

Aside from trip purpose, destinations served, and zone purpose, it is also important to consider the operational impact of the zone hours. Operational considerations include deadheading and driver shift requirements. For example, an agency should define if a service start time of 7 a.m. means vehicles can depart from the vehicle storage location at that time or if vehicles can depart from the vehicle storage location earlier and meet a passenger for pick up by 7 a.m. Similarly, if service ends at 7 p.m., can a customer be picked up then or does the trip need to be completed by 7 p.m.? Establishing rules helps both drivers and passengers understand service span nuances.

GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY — CASE STUDY

Greater Cleveland Regional Transit Authority (GCRTA) launched ConnectWorks service to provide a transportation option to employees and improve workforce mobility. Through outreach completed post-implementation, GCRTA learned that the service did not fully cover a shift of employees it was designed to serve. This discouraged many potential customers from taking the service because they would not be guaranteed transportation both to and from their employment site. GCRTA learned that additional outreach to both employees and employers was needed to understand the needs of their customer base.

MICROTRANSIT STOP LOCATIONS

Zone Stop Locations

Stop locations refer to where passengers are picked up and dropped off. There are three common types of stop locations that agencies use. Those three stop types — in order from most direct to least direct pickup/drop-offs — are door-to-door, curb-to-curb, and corner-to-corner. In the case of commingled ADA paratransit and microtransit services, it may be necessary to deviate from a stop location type for specific passengers, as regulations require aiding passengers utilizing complementary paratransit service.

This section summarizes stop location types and what they mean for both drivers and passengers. One point to note is that regardless of the stop location type chosen, agencies must clearly communicate the stop location expectation to drivers and passengers to avoid confusion.

DOOR-TO-DOOR SERVICE

Passengers are picked up and dropped off at the requested locations. Drivers may provide passengers with boarding and alighting assistance, requiring the driver to be trained on providing mobility assistance. Drivers must also be made aware of passenger assistance needs ahead of time via their software. This may include physically assisting passengers or calling them to notify them of the vehicle's arrival.

CURB-TO-CURB SERVICE

Vehicles stop at passengers' requested pickup location, wait for passengers to board, and then drop them off at a safe location near their destination. Curb-to-curb service typically does not include passenger boarding assistance, except for driver assistance operating the wheelchair lift and securing a mobility device, if needed.

CORNER-TO-CORNER SERVICE

Stop locations prioritize ease of vehicle access, and usually at least the pickup and/or the drop-off occurs at a predetermined spot. For instance, passengers may be picked up at their residence or a flexible location to start and are then dropped off at a fixed-route stop or intersection close to their final destination. At pickup and drop-off times, drivers provide passengers with limited boarding assistance. One point of caution to consider is that corner-to-corner stop locations require additional walking and can elicit complaints from passengers expecting or requiring more direct service.

MARTA CASE STUDY

During the MARTA Reach microtransit pilot, MARTA, in Atlanta, Georgia, enhanced the connectivity of its transit network by establishing virtual microtransit stops approximately every 1,200 feet (roughly four blocks) and designating microtransit stops at existing bus stops. Each of these stops were vetted for accessibility and safety. Although the virtual stops provided customer convenience and greater access, the process of vetting virtual stops and maintaining accessibility was time-intensive for the agency. A lesson learned from this experience was that right-sizing the number of virtual stops can minimize inefficiencies.

COMMINGLING

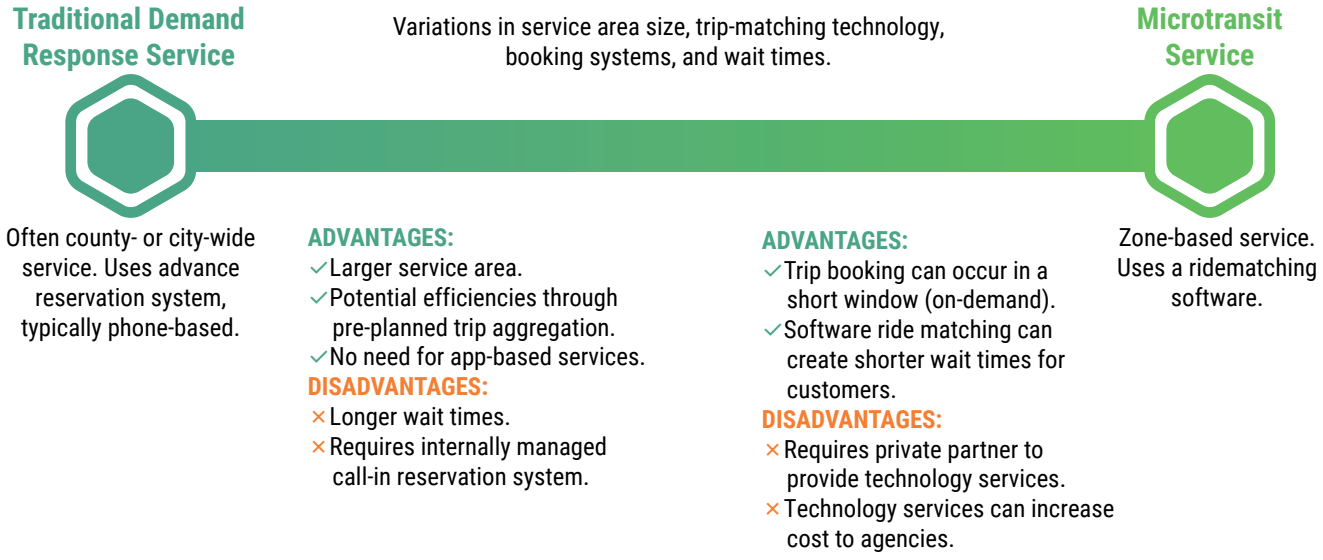
Commingling is the practice of combining microtransit service with ADA paratransit service. The exact combination of services can take several forms, from shared fleets to shared trips and from a unified technology platform to drivers switching between transporting paratransit and microtransit passengers within a single shift. This section offers guidance for agencies considering operating microtransit and paratransit in a coordinated or fully integrated way.

In some cases, agencies already operate both ADA paratransit and microtransit and want to explore whether these services can be integrated or "commingled." In other cases, agencies operate paratransit and are exploring the option to implement microtransit. In both cases, it is worth considering whether there are ways to operate two services with maximum efficiency while still meeting the purpose and goals of each service type.

Paratransit and Microtransit: Distinct Demand Response Services

Paratransit and microtransit are both demand response services, meaning that they operate in a defined area and trips are scheduled based on requests. ADA complementary paratransit requires an eligibility determination, while microtransit is typically fully open to the public. ADA complementary paratransit often uses a traditional demand responsive model, in which a passenger books their trip at least one day in advance. Microtransit service is usually fully on demand — i.e., passengers request a trip and are picked up if the estimated trip departure time suits their needs. However, some microtransit providers do offer pre-booking options. **Figure 8** identifies a conceptual spectrum of traditional demand response compared to microtransit service, along with some differences.

Figure 8: Spectrum of Demand Response and Microtransit Services



Agencies may seek to combine or commingle the two services due to operational similarities, particularly when they have overlapping service areas. A useful definition of commingling[6] is:

> The operation of ADA paratransit service in conjunction with a non-ADA demand-response service — anything from traditional dial-a-ride to app-based microtransit — with the goal of sharing resources to improve quality of service and reduce costs.

This definition elaborates that commingling can occur across three core aspects of an agency—fleets, shifts/operators, and trips:

> **Commingled fleets –** Paratransit and demand-response services share the same fleet of vehicles. While an individual vehicle will only operate as paratransit or demand response during a given driver shift, the proportion of vehicles assigned to paratransit and microtransit can change depending on demand.
>
> **Commingled shifts –** Paratransit and microtransit riders are not only served by the same vehicles, but during the same driver shifts. A dispatch algorithm optimizes these shifts for efficiency, slotting on-demand microtransit rides in between pre-booked paratransit rides, but does not assign microtransit riders and paratransit riders to share a vehicle at the same time.
>
> **Commingled trips –** Paratransit and demand-response riders can be scheduled and grouped together on the same vehicle at the same time.

6 Adapted from https://ridewithvia.com/resources/what-is-commingling-integrating-demand-response-and-paratransit and white paper available at https://ridewithvia.com/commingling-guide

Commingling Benefits

Effectively commingling services requires consideration of the purpose of each microtransit system, ongoing performance monitoring, and careful planning. Commingling can help agencies pursue efficiencies and other benefits. **Table 3** lists some of the benefits associated with commingling.

Table 3: Potential Benefits of Commingling by Type

BENEFIT OF COMMINGLING	COMMINGLING TYPE		
	FLEETS	SHIFTS	TRIPS
Increases shared trip rates			✓
Shortens deadhead distance between pickups		✓	✓
Reduces idling between passenger pickups, such as during periods of lessened demand		✓	✓
Streamlines technology systems by using a shared platform	✓	✓	✓
Brings technology enhancements from inclusion of fully on-demand microtransit into a traditional call-ahead paratransit system	✓	✓	✓
Shortens pickup deadhead distance as vehicles in service are dynamically dispatched to pick up nearby passengers		✓	✓
Shares resources and staffing such as operators, mechanics, call center staff, parts	✓	✓	✓

Considerations and Potential Challenges

Microtransit and ADA paratransit have different demand models: microtransit often serves a compact and defined zone, while ADA paratransit is required to provide trips between any two locations within a fixed-route service area, which covers all accessible areas around the fixed-route transit network (at a minimum).

ADA paratransit service areas are often larger than single microtransit zones. The differences in coverage can make maintaining reasonable wait times in microtransit zones difficult if the supply of vehicles is not adequate to meet all of the demand. For example, if ADA paratransit passengers are starting a trip in a microtransit zone, but then travel several miles outside of the zone for trips, a commingled vehicle would need to deadhead (i.e., operate with no passengers being served) back to the microtransit zone. The vehicle would not be available to service the microtransit zone during that time. Deadheading is undesirable because it increases labor and fuel costs without providing any additional passenger service.

Some important considerations when planning commingled services are:

- With the requirement to prioritize ADA trips to meet the service standards for ADA eligible passengers, some passengers may be dissatisfied with drop-off sequencing.
- With vehicles operating with more passenger trips aggregated, passengers may be displeased with vehicle routing resulting in longer trip times and more crowded vehicles.
- Wait times may be longer during periods of peak demand if vehicle availability is not proportionally increased when two services are commingled.
- Vehicles used for microtransit service may require modifications to accommodate wheelchairs or other passenger support devices.
- There may be longer deadhead distances between trips to pick up passengers of different service types.
- Depending on the agency, commingling may be more difficult to implement because of the requirements of collective bargaining agreements (CBAs).
- If the microtransit service is fully on-demand but the ADA paratransit service is required to allow booking at least one day in advance, an agency will need to ensure their technology offers appropriate configuration to achieve the benefits of commingling.

Scheduling Impacts

ADA paratransit shifts are often scheduled as straight shifts that are staffed to meet demand. This contrasts with fixed-route bus scheduling. Split shifts can create efficiencies but are less convenient for operators. Microtransit can be set up to enable scheduling similar to fixed-route transit, as microtransit demand is sometimes more like fixed-route transit with higher morning and afternoon peaks and lower demand in other periods, particularly for weekday service. Commingling services may require an assessment of demand and utilization between service types to ensure that capacity is available when needed. This can help to avoid excess capacity during periods of lower demand but may require adjustments to how work is scheduled, which can have negative quality of life impacts on operators.

Implementing Commingling

Transit Cooperative Research Program (TCRP) published Synthesis 143 *Resource Guide for Commingling ADA and Non-ADA Paratransit Riders,*[7] which lays out a commingling process based on commingling different demand response services with ADA paratransit. The report describes two processes: one for planning and a second for operations. Steps within either the planning or operational process may occur concurrently or require revisions to prior steps based on concerns identified during planning or operations. Preparation for an operational phase may be done during the planning phase, and there may be a need to review prior analysis during commingled operations.

Planning Process

Understanding the requirements and considerations to integrate two different demand response services is key. This can help identify what types of commingling are feasible and the tasks required to effectively commingle the services. This section summarizes key steps covered in the planning process.

PURPOSE AND OBJECTIVES

- **Identify purpose of commingling:** Identify needs such as conserving vehicles, pursuing efficiencies, extending service to more people, or sharing resources.
- **Define goals and objectives:** Create clear goals, for example, my agency wants to reduce total vehicle revenue hours by some amount by reducing excess capacity during periods of lower demand.

CAPACITY AND FUNDING

- **Identify whether adequate capacity is available:** If there is limited capacity, identify a scaled-down plan that would be feasible and/or work to identify funding sources to expand capacity.
- **Identify funding sources:** Pursue grants and partnerships, and incorporate services based on available funding and capacity.

COMPATIBILITY

- **Determine whether services are compatible:** Identify any differences that must be overcome, for example, these could include differences in booking or payment, or the need to track ridership, revenue, or hours separately.
- **Assess impact of combining systems:** Determine whether commingling is likely to affect wait times, lead to deviations from defined service areas, or reduce idle periods.

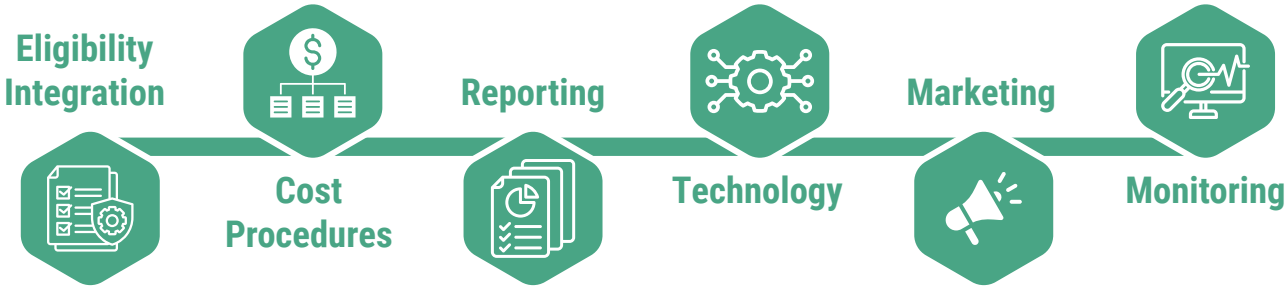
SERVICE PARAMETERS

- **Plan for integrating services:** Outline how to share vehicles or operators and steps to integrate platforms.
- **Determine service parameters and impacts of commingling:** Resolve differences in operating hours and operating days.

7 https://nap.nationalacademies.org/catalog/14474/resource-guide-for-commingling-ada-and-non-ada-paratransit-riders

Operational Process

On the operating side, there are six key steps related to commingling, starting with integrating ADA paratransit eligibility requirements and ending with monitoring commingling performance and making adjustments over time. Each step is briefly described below.



ELIGIBILITY INTEGRATION

- If necessary, develop a process to determine passenger eligibility for ADA paratransit and other service types.
- Develop Standard Operating Procedures (SOPs) for each service type even if commingled – trips under each service type may have different requirements such as aid provided to passengers.
- Document policies and procedures, including procurement requirements.

COST PROCEDURES

- Determine billing and cost tracking procedures – trips may be paid for by different funding sources.
- Identify fixed costs and variable costs – each service may have different costs, such as capital costs for equipment and variable costs like fuel or labor to support the service.
- Allocate costs to services – costs and the percentage of cost must be allocated to each service to draw from funding sources.

REPORTING

- Identify reporting requirements and metrics – both services must be reported to the National Transit Database (NTD), but there may be additional committees or reports required.

TECHNOLOGY

- Inventory technology differences between platforms and identify integration requirements.
- Procure technology.
- Once metrics are determined (see Monitoring below), develop reporting methodology using technology systems.

MARKETING

- Develop marketing materials to inform passengers about different service types and how to use them.
- If/as necessary, develop information (e.g., FAQs) on combined operations.

MONITORING

- Determine metrics and processes to collect and generate them.
- Monitor performance over time and compare trends.
- Adjust service to ensure regulatory compliance and adherence to performance standards.

Integrating Data

Commingling ADA paratransit and microtransit operations may require integrating data sources, and identifying what data can be integrated.

SCHEDULE DATA AND TRIP PLANNERS

Fixed-route transit schedule data is often stored in General Transit Feed Specification (GTFS), which is a format that is widely used in trip planners and to share static schedule data. Microtransit is not applicable to GTFS in the same way as fixed-route service, but can also benefit from GTFS by implementing GTFS-Flex, which is an extension of the GTFS standard. It allows an agency to represent demand response service within an existing GTFS static feed, resulting in the inclusion of microtransit service in trip planners (e.g., Google Maps) to improve the passenger experience. Passengers can see how their desired trip aligns with the microtransit service area, as well as any connections to fixed-route transit. GTFS-Flex is purely static data; there is no real-time vehicle location component. It is possible to add real-time information. However, this would require either a custom integration or deployment of the GTFS-Realtime, another GTFS extension.

ADA paratransit service does not model onto GTFS-Flex service as easily because it is only available to a small percentage of the population. While it is possible to include the ADA service area in GTFS-Flex, eligibility requirements are not part of the standard.

PRIVACY CONSIDERATIONS

Due to potential privacy considerations, GTFS-Realtime is not recommended for ADA paratransit service or microtransit service since GTFS-Realtime tracks vehicle location and schedule adherence.

Both ADA paratransit and microtransit service are likely to stop at or near a passenger's residence. ADA paratransit trips are likely to be scheduled for healthcare trips, which has major privacy implications. The privacy concerns of on-demand service are particularly acute in periods of lower demand.

REPORTING REQUIREMENTS

Both microtransit and ADA paratransit are currently reported to the Federal Transit Administration's National Transit Database (NTD) as Demand Response (DR) service. They may be broken out if they are directly operated or purchased. However, agencies may be required to report metrics on each separately, such as for board committees, operating divisions, or cost or funding metrics.

Accounting for each service can be difficult, as they may rely on different technology or performance metrics. Commingling must consider the data impacts and reporting requirements to effectively track these services, to whatever degree they are commingled. It can be difficult to calculate revenue miles or hours for a particular service type or costs associated with operations of each service.

Does Commingling Make Sense for my Agency?

The list below lays out several questions to help determine whether commingling makes sense for an agency – and if so, what type of commingling. It also includes some metrics to identify prior to implementing commingling and monitor during operations.

	If Yes	If No
Can my agency integrate services while maintaining compliance with ADA paratransit requirements?	**Assess what can be commingled and what is a good fit for agency**	**Strongly consider keeping services separate**
Can the two services use a single dispatching and/or trip request platform?	**Trips, shifts, or vehicles may be commingled**	**Likely limit to commingled vehicles**
Can passenger needs be communicated to operators, such as requiring additional time, assistance, or a phone call prior to boarding?	**Trips, shifts, or vehicles may be commingled**	**Likely limit to commingled vehicles**
Do a substantial number of paratransit trip origins/destinations align with one or more microtransit zones/service areas?	**May be a good fit for commingled trips**	**Likely limit to commingled fleet or shifts if deadhead milage is not an issue**
Do periods of peak demand differ between ADA service and microtransit service?	**May be a good fit for commingled trips**	**Evaluate capacity**

CRITICAL PATH QUESTIONS

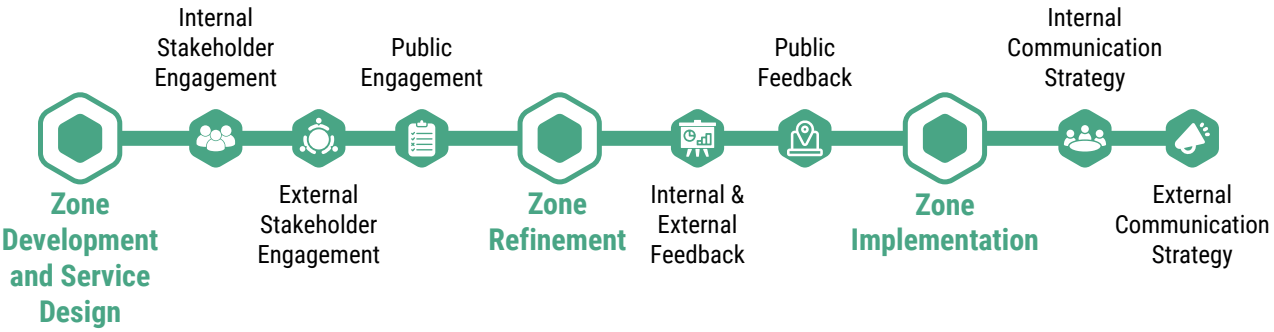
TEAL rows with a star indicate questions that are critical for determining commingling suitablility.

BLUE rows highlight questions that may indicate specific considerations or limitations when implementing commingling

	If Yes	If No
Can vehicles be shared between services/technology without extensive retrofitting or upgrades?	May be a good fit for commingled fleet	Likely blocks commingling as vehicles, operators, and shifts are not easily shared
Are microtransit vehicles accessible to individuals with diabilities, such as including wheelchair lifts and securements?	May be a good fit for commingled fleet	Likely blocks commingling as vehicles, operators, and shifts are not easily shared
Do trip wait times and durations currently meet or exceed service standards?	Trips, shifts, or vehicles may be commingled	Likely blocks commingling due to existing capacity
Are call center hold times currently at or above standards (if sharing staff)?	Trips, shifts, or vehicles may be commingled	Likely blocks commingling due to existing capacity
Can staff be cross-trained on different service needs?	Trips, shifts, or vehicles may be commingled	Likely blocks commingling due to existing capacity

PUBLIC AND STAKEHOLDER ENGAGEMENT

Public and stakeholder engagement is an essential step in the design and planning of effective microtransit service. As mentioned previously, technical planning is not everything and must depend on local knowledge of community needs, desires, and travel behaviors. Stakeholders and the public must be engaged in all steps of the design process, from zone development to performance measurement. This section focuses on how agencies can best integrate stakeholders and the public into the zone planning, refinement, and implementation processes.



Zone Development and Service Design

INTERNAL STAKEHOLDER ENGAGEMENT:

Prior to the microtransit suitability analysis and zone identification, agencies must look internally to ensure that microtransit is the appropriate service to meet organizational goals and objectives, especially considering potential impacts to agency staff such as operators, mechanics, customer service representatives, and managers. To gain insight on these topics, agencies can conduct:

- **Educational sessions** to communicate to staff how microtransit works and how it could impact them.
- **Internal surveys** to gauge general sentiments surrounding microtransit service. Anonymous surveys can ensure that staff are honest about concerns and expectations.
- **Focus groups** with the express purpose of understanding potential areas of concern from key sectors within an agency such as operators, mechanics, or agency leadership.

EXTERNAL STAKEHOLDER ENGAGEMENT:

Following internal engagement, agencies can identify key stakeholders to gain an understanding of sentiments regarding microtransit from local governments, institutions, social services, and community organizations that represent the interests of residents and workers. A subset of key stakeholders can be selected to form a technical working group, which can eventually provide support vetting and evaluating proposed microtransit service.

- **Interviews** with key stakeholders can provide the opportunity for agencies to present the benefits and drawbacks of microtransit services. Interviews allow stakeholders to tell agencies about mobility issues they may see in their community and how microtransit can bridge gaps in service. They can also inform potential policies and service delivery models.
- **Focus groups** with key stakeholders can also provide valuable insights by bringing different groups together to discuss mobility issues affecting community members.

PUBLIC ENGAGEMENT:

Following engagement with external stakeholders, agencies can begin to collect information from a broader audience, including residents and commuters, to understand gaps in transit service, where people want to go, and what service improvements community members would like to see.

- **Public surveys** can provide important information regarding locations that could be served by microtransit, gaps in transit service, issues with existing services, and other needs from community members.
- **Public outreach efforts** can provide valuable insights from system users that may not be reached through public surveys since surveys may only capture the loudest voices or those who have access to the internet, a computer, or a phone and have the time to complete a survey. Outreach efforts in the field can collect important feedback from riders who would otherwise not engage, helping to gather a diversity of voices. Outreach efforts include but are not limited to:
    - Bus Ride-Alongs: Allow agencies to reach actual riders in an area where microtransit is being proposed. These riders can provide valuable localized knowledge and experiences with service.
    - Tabling at Events: Agencies can have tables at events where crowds are already expected, garnering a wide diversity of participants and providing general education on microtransit service to the public.
    - Open Houses: These events can allow agencies to gather detailed feedback from interested participants. While open houses are often limited to community members who have the time to make their voices heard, they also provide a space for more thorough recommendations.

It is important to note that while public engagement is vital, microtransit zone development should be driven by data analysis and balanced with public engagement findings to ensure proposed zones are operationally effective. For further information on data-driven approaches to identifying microtransit zones, please see **How to Enhance Existing Microtransit Service**

Zone Refinement

Zone refinement ensures that zone boundaries address community feedback, includes important points of interest, and also ensures that zones make operational sense and capture operator concerns. The zone refinement process is vital to capture qualitative information that quantitative data simply cannot identify.

INTERNAL AND EXTERNAL STAKEHOLDER FEEDBACK

Agencies can collect valuable feedback from staff and external stakeholders via focus groups to assess zone boundaries and operational considerations for service delivery. Because operators interface daily with riders, they understand which areas are popular destinations and where riders want to go. Operators can also give feedback regarding the chosen service delivery model, application capabilities, fare collection, customer service, and navigation/ridematching software.

External stakeholders can provide valuable local feedback regarding specific zone boundaries, locally relevant points of interest, and planned or future developments. They can also provide important recommendations for service delivery with a local understanding of rider needs, including fare strategies and application recommendations.

PUBLIC FEEDBACK

Proposed microtransit zones should be clearly outlined and presented to the public in an approachable, easy to understand manner. This presentation should include detailed maps of the zone boundaries, as well as an explanation of the criteria used to define zones. In addition, it is crucial to share proposed service recommendations, such as operating hours, service frequency, and how the system will integrate with existing public transit options. Public surveys should be used to gather insight on potential improvements to service. Participants should be encouraged to provide specific recommendations about gaps in the proposed zone boundary, service recommendations, and their feelings about microtransit service.

SEPTA **CASE STUDY**

SEPTA On-Demand is unique because the agency uses the same technology for both microtransit and paratransit services, which enables 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 that involves acquiring approximately 411 vehicles for its extensive paratransit fleet and also purchasing 48 microtransit vehicles

SEPTA's unique approach of using common software across microtransit and paratransit led to a three phase procurement:
1.) In summer 2023, SEPTA focused on procuring the vehicles.
2.) In winter 2023, SEPTA released its technology request for proposal (RFP) and chose a vendor to modernize its paratransit technology and allow for integration with microtransit service.
3.) The new paratransit software launched in spring 2024, and microtransit vehicle delivery is anticipated in winter 2024 so SEPTA can launch the service in summer 2025.

Zone Implementation

Due to the novelty of microtransit service, newly implemented service should be accompanied by an internal communication strategy aimed at informing staff about changes and providing comprehensive training programs for new microtransit operators.

INTERNAL COMMUNICATION STRATEGY

An internal communication strategy can include a variety of topics and should cover the following four areas at a minimum:

- **Introduction to microtransit:** description of microtransit service, how it works, and how it is operated.
- **How to use the microtransit software:** dispatching, navigational features, and troubleshooting.
- **How to operate a microtransit vehicle:** guidelines for pickups, assisting passengers with disabilities, and operating a microtransit vehicle.
- **Customer service and microtransit:** how to directly interface with passengers.

PUBLIC COMMUNICATION STRATEGY

Microtransit must be advertised to the public, ensuring that community members are not only aware that the service exists, but also understand how to use it. To achieve this, clear communication strategies should be implemented to educate potential users about the features and benefits of the service:

- **Social media communication and tutorials:** By utilizing popular platforms, transit agencies can reach diverse audiences and offer interactive content like video tutorials and walk throughs. Social media ads targeted by geographic location can also ensure that information reaches relevant audiences.
- **In-application tutorials:** Once users download the microtransit application, they should be greeted with a step-by-step guide explaining how to book rides, pickup and dropoff locations, and fare payment options.
- **Vehicle staging:** Vehicles should layover strategically in areas with high foot traffic to capture new riders. Layover refers to the break time in a schedule, typically at the end of a trip, to allow for a variety of circumstances such as: to allow the driver to take a break, to change drivers, to allow vehicles running early to catch up with the schedule, and to allow extra time at busy stops. Vehicle branding should be explicit about the new service to draw customer attention.

MARKETING

When starting a marketing campaign, begin by laying out the service purpose, the audience, and how information will be distributed through development of a marketing plan. The project phase will dictate the marketing materials and efforts that will be most effective. For example, counties with a greater Spanish-speaking population would benefit from marketing materials translated in Spanish, and counties with a greater population of older adults would benefit from marketing materials being mailed to their homes. When developing marketing content for the identified audience, consider explaining how the microtransit service differs from the current available service(s), its key attributes, and benefits for the audience.

The table below displays marketing and direct outreach ideas to use in a marketing plan:

Table 4: Marketing and Outreach Ideas

DIGITAL MARKETING IDEAS	PRINT MARKETING IDEAS	DIRECT OUTREACH IDEAS
• Service website • Social media posts • Geotargeted ads • Radio advertising • Television advertising • YouTube videos	• Direct mail to residents within service area zone(s) • Brochures and flyers at transit centers and affected bus stops • Advertising at or on transit centers, bus shelters, and bus exteriors • A featured story in local papers • Posters and flyers at key trip generators	• Pop-up events • Bilingual brand ambassadors at rail stations and on buses affected by change • Wrapping service vehicle in the new microtransit program's logo and colors • Educational ride-alongs by staff

A marketing plan should cover the four main phases of a project: program development, pre-launch phase, launch phase, and post-launch phase. A variety of marketing and direct outreach strategies, such as the ones described above, can be used during each of the phases and may be individually tailored to fit the purpose of each phase.

MARTA

CASE STUDY

Metropolitan Atlanta Regional Transit Authority (MARTA) in Atlanta, Georgia marketed its MARTA Reach microtransit pilot program with in-house staff. Various marketing efforts were performed before and during service, but the following were the most effective based on customer and operator feedback:

- Direct mailers to all zip codes that touched the zones
- Flyers for operators to hand out when customers and passers-by asked questions
- Vehicles wrapped with MARTA Reach branding

MARTA also recommended listing an easy program website URL or QR code on the vehicle wrap.

Table 5: Marketing Phases and Activities

Program development (3-6 months prior to launch)	**The purpose is to ensure that the community is aware of upcoming service changes and to create excitement.** Awareness of the service can begin well ahead of the service launch. It is important to spend time explaining how the service works, how it differs from existing services, and the timeline for service launch. This can include the development of a project webpage, social media posts, and tabling efforts throughout the service area to reach a large audience quickly and to generate anticipation for the service. An agency can also partner with civic and neighborhood associations to reach potential riders through email listservs and regular meetings.
Pre-launch phase (one month prior to launch)	**The purpose is to educate the community on the new service type and its ability to address their transportation needs.** Customer education and outreach should ramp up in the period right before launch. Add content on service specifics, such as service hours, service area, and fares, to the project webpage, and make more frequent social media posts. In addition to these digital efforts, physical marketing materials like flyers and seat drops are also beneficial in this phase, especially for older adult audiences or those who are not as technology-literate.
Launch phase (0-2 months following launch date)	**The purpose is to continue education of the service, encourage use of the service, and solicit customer feedback.** The launch phase should begin with an event — such as a ribbon-cutting ceremony with the opportunity to try microtransit service — to generate excitement and draw attention from the public and media about the service. Vehicles should be wrapped in the project's branding including logo and colors for advertisement. It is also crucial to maintain the pre-launch phase's high frequency of digital and physical marketing efforts through this phase. Other methods of encouraging ridership at the launch of service include offering fare promotions (e.g., fare-free period) or providing incentives (e.g., free ride for current riders and referrals). During launch, it is essential to have "boots on the ground" at key locations in the service area to help people navigate the service. This is also a method of tracking the initial customer experience and satisfaction, which can be used to quickly modify the service to align with community needs. Refer to **Engagement Strategies** in **Section D** for more details.
Post-launch phase (ongoing)	**The purpose is to continue encouraging service usage and to incorporate feedback to improve the service.** The post-launch phase mostly consists of public engagement strategies to solicit feedback about the service, which is then used in combination with performance findings to make service improvements. Refer to **Engagement Strategies** in **Section D** for guidance on the marketing for the post launch phase and how to adapt service based on initial feedback.

DENVER DEPARTMENT OF TRANSPORTATION — CASE STUDY

The Denver Department of Transportation Infrastructure (DOTI) conducted public engagement for Denver Connector microtransit service by holding pre-launch community events to build awareness, hosting focus groups, and surveying community members. DOTI initially partnered with local non-profits to understand the community's needs and gain community credibility. Next, focus groups were established to gain input from different demographic constituencies to help design the microtransit service. Finally, DOTI contracted with a local transportation management association with an understanding of the technical transit needs to operate the service. Additionally, DOTI released a survey to gather input from the community throughout the public engagement process.

RFP BEST PRACTICES

Request for proposals (RFPs) for microtransit programs are dependent on the service model an agency pursues. Each service model has different procurement elements and presents their own unique advantages. Regardless of the service model, this section details requirements when establishing an RFP, and additional considerations before and during the RFP process to ensure a contractor can meet an agency's specific needs.

Funding Source

Depending on an agency's source of funding, the contents of an RFP can slightly differ. Agencies that receive FHWA or FTA funding (e.g., CMAQ or LOTS funding) will need to follow administration guidelines in the RFP process. This includes adding administration clauses and certifications, as well as potential data requirements, per the grant requirements. For agencies that receive federal funding and are submitting an RFP for establishing a new microtransit program, the "Best Practices Procurement & Lessons Learned Manual" gives examples of procurement practices and lessons learned from other agencies.[8]

Considerations Before RFP Development

For transit agencies looking to develop microtransit service for the first time, or looking to expand their service while it is still maturing, it is helpful to consider the following:

- What should be included in the project scoping?
  - Detailed, thought-out scopes are essential for developing a strong RFP and conveying to the public that an agency's planned microtransit service has been thoroughly researched. Certain details to consider in the project scope include goals of the microtransit service, available resources in-house versus what needs to be contracted, budget constraints, and stakeholders who will be interacting with the service (e.g., riders and operating staff).[9]
- What are great models to reference, both in terms of implemented service and the RFPs that developed them?
  - Useful RFPs or microtransit services for a transit agency to reference are dependent on the service model an agency is trying to pursue, the overall size of the transit agency, or geographic location, to name a few.
- What level of staffing and expertise does an agency have to support the development of an RFP and the selection of a qualified vendor?
  - If there is limited institutional knowledge about microtransit service at your agency, reach out to peer agencies who have experience establishing a similar microtransit program. Ask for copies of their RFPs and what they wish they would have done differently. If possible, visit their service to experience it first-hand.

8 FTA Best Practices & Lessons Learned Manual, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/funding/procurement/8286/fta-best-practices-procurement-and-lessons-learned-manual-2016.pdf

9 Four Successful Transit Leaders Share How to Write a Great RFP, https://ridewithvia.com/resources/4-successful-transit-leaders-share-how-to-write-a-great-rfp

RFP Requirements

When developing an RFP, the contents should be as detailed as possible to minimize ambiguity and maximize the potential number of bidders. Key requirements to consider when developing an RFP include:

- Statement about the agency's goals for the proposed microtransit service.
- Transparency of the agency's capabilities and where contracted services are needed, per prior assessments pre-RFP development.
- Anticipated budget, including contingencies for additional service requested post-implementation. The budget should also clarify the funding source or sources as well as any restrictions or allocations of the funding so that bidders can understand how best to price their proposal.
- Technologies required to efficiently operate the microtransit system.
    - If an agency, or a partnership between agencies, is looking to integrate microtransit into existing transit services, RFP requirements should clearly state the need for technology compatibility, down to the specific feature. For instance, it may be important for the transit agency and partner agency to have a single application for customers to pay their fare, while those same entities may be open to a new or outside trip planning application.
- List of metrics to monitor overtime as the microtransit service matures.
- Criteria by which bidders will be evaluated.

Vendor Selection Considerations

Following the development of RFP requirements, an agency should have a process for evaluating bids and proposals to help determine a vendor. Some agencies develop numerical rubrics and assign proposal scores based on different categories, such as approach, qualifications, and key personnel.[10]For non-quantitative components of the vendor selection process, agencies should also consider:

- Evaluating the bidder's experience and qualifications more than the cost proposal to avoid awarding the contract to the low bidder.
    - Agencies may want to ask for references to validate the client experience.
    - Agencies may also want to ask for a specific kind of experience, such as piloting service or implementing complex microtransit projects.
    - Agencies can ask for a specific number of qualifications within a recent timeframe (e.g., five examples within the past five years) to ensure the bidder has recent and deep experience.
- Resisting offering the solution within the RFP and instead allowing room for the bidder to innovate and provide creative solutions to the stated problem and project goals.

Following this approach can generate an increase in competitive and higher quality applications.

10 N-CATT, How to Successfully Launch a Microtransit Service, https://n-catt.org/guidebooks/on-demand-transit-and-microtransit-where-and-why/how-to-successfully-launch-a-microtransit-service/

METRO TRANSIT

CASE STUDY

Metro Transit provides a network of buses, light rail, commuter trains, and microtransit throughout Minneapolis and Saint Paul. In 2022, Metro Transit launched a microtransit pilot program called Micro in Minneapolis. The program was implemented using a hybrid model with separate vendors for technology and operations. To find these vendors, Metro Transit released two separate RFPs in the procurement process: one for the technology and the second for vehicles and operators. Metro Transit chose a hybrid approach with separate vendors due to the agency's preference to have local, unionized operators. This allowed for more direct control over who the operators were and resulted in more bids from local contractors. Metro Transit ultimately selected a Minnesota-based company called Transit Team as its vehicle and operator provider and Via Transportation as its software provider. In the future, Metro Transit will focus on data standardization in technology provider RFPs, especially since the agency works closely with other microtransit providers in the Minneapolis region. This includes having providers utilize GTFS-FLEX and having standards for data reporting.

DENVER DEPARTMENT OF TRANSPORTATION

CASE STUDY

DOTI's microtransit service, the Denver Connector, originated out of a study aimed at addressing mobility challenges. DOTI performed equity analyses to see which neighborhoods experience the most mobility difficulties. The analysis narrowed in on a collective of neighborhoods fairly close to the city center that were separated by highways. The area has also been difficult to serve with fixed-route transit due to the disconnected street grid of the neighborhoods.

DOTI then explored neighborhood-scale transportation solutions such as a circulator, volunteer-operated vans, and funding a neighborhood FlexRide service from the Regional Transportation District (RTD). Launching its own microtransit service was deemed the most suitable solution. This example shows the importance of defining needs and exploring various transportation solutions to address those needs before deciding to implement microtransit.

EQUITY CONSIDERATIONS

Transit agencies implementing service or fare changes should consider equity impacts to ensure that changes do not have a discriminatory impact on low-income or minority populations. In some cases, agencies may be required to conduct a service equity analysis (SEA).[11] According to the Federal Transit Administration (FTA), SEAs are required for transit providers that receive federal funding, operate 50 or more fixed route vehicles in peak service, and are located in an urbanized area of more than 200,000 people.[12] Agencies that fit this description must first determine if the proposed service change exceeds the transit provider's major service change threshold. Transit providers are responsible for defining this threshold based on their own criteria (e.g., a 25 percent increase or decrease in service).

Any service change that is considered "major" as part of an SEA must be analyzed for disparate impacts or disproportionate burdens. Disparate impacts and disproportionate burdens can result from both additions to service and reductions of service. For service additions, the change must not unfairly favor non-minority or non-low-income populations. For service reductions, the change must not unfairly harm minority or low-income populations. According to Title VI, agencies have room to provide their own definition of what is considered a disparate impact or disproportionate burden as long as it is consistent and within the framework of the law.[13] It is critical that agencies set these definitions internally before engaging in an SEA. Once established, if the relevant agencies determine that low-income or minority populations are unfairly impacted by a major service change, the agency must detail how to avoid, minimize, or mitigate that impact as part of the SEA.

Agencies that do not fit the description detailed above are not required to complete SEAs but should still evaluate and compare how service changes may impact specific demographic groups. While Title VI prohibits discrimination based on race, color, or national origin, many transit agencies also include factors such as age and gender when defining equity. Expanding this definition ensures consideration not only for minority and low-income populations, but also for senior and youth populations as well as women. Older adults or those with mobility challenges can be more acutely impacted by adjustments to microtransit service as they are often recurring and dependent riders.

Depending on an agency's microtransit goals, service changes can create both positive and negative equity implications. For example, expanding a microtransit zone may increase access, coverage, and ridership. At the same time, replacing fixed-route service with microtransit may result in reduced service spans for certain riders. Agencies both large and small should weigh these impacts to determine if vulnerable populations are unjustly affected by the service change compared to less vulnerable populations. This may include a quantitative approach similar to an SEA or a qualitative, community-focused outreach approach. Engaging directly with the public can help agencies evaluate the ramifications of service changes and tailor service changes to meet local needs.

Transit agencies that have public-facing documentation on equity analyses that included microtransit have variations in their methodology. Agencies can review and reference CobbLINC's Title VI SEA report[14] as an example.

11 Title VI of the Civil Rights Act of 1964
12 Federal Transit Administration (FTA) Title VI Circular 4702.1B
13 Federal Transit Administration (FTA) Title VI Circular 4702.1B
14 https://s3.amazonaws.com/cobbcounty.org.if-us-east-1/s3fs-public/2024-05/Cobb%20County%20Microtransit%20Title%20VI%20Equity%20Analysis_042324.pdf

C. How to Implement Effective Microtransit Service

Operating Guidelines

TECHNOLOGY REQUIREMENTS

A key component of microtransit service is technology. This is one of the requirements that sets microtransit apart from other transit modes. As a result, transit agencies and local governments need a better understanding of the technology requirements associated with the service. In general, the primary components of a microtransit technology platform consist of the following supplied by a technology provider:

Dispatch and Scheduling Software: A system that uses algorithms to create real-time routes in response to rider trip requests from multiple booking methods, such as a mobile application, website, or call-in. The software optimizes for time, distance, and vehicle occupancy. Scheduling software is commonly web-based (cloud) and accessed by the transit operator's dispatch/scheduling staff via an internet browser.

Passenger Mobile Application: A system that allows riders to book trips in real-time by inputting desired pickup and drop-off locations within the microtransit service area. The rider receives an estimated wait time, and the application may have options to book for scheduled times and collect fare payment.

Vehicle Operator Application: A system that provides vehicle operators (drivers) with real-time trip assignments and management of rider pickups and drop-offs. This application is installed to on-board hardware (e.g., tablet or mobile data terminal) and can provide GPS-based navigation and route guidance.

Performance Monitoring Dashboard/Report: A system that generates and displays statistics on customer experience and service performance. This system can be used by agency staff to monitor the success of the program and later adapt the service as needed.

There are other technologies, common to traditional fixed-route and demand response services, that may also be needed, including a fare collection system, fleet management software, automatic vehicle location (AVL) for dispatchers and customers, and security surveillance systems.

Agencies should consider the features in **Table 6** when acquiring a microtransit technology platform. The table also highlights the subcomponents of the features that may help in improving the efficiency and effectiveness of a microtransit application, along with a description of their importance.

MARTA

CASE STUDY

Through the MARTA Reach microtransit pilot program, MARTA was able to understand which aspects of the service worked best for the local communities and what goals it wanted to achieve for future implementations. The pilot program also gave MARTA knowledge on technology requirements for microtransit service. Moving forward, MARTA is seeking a technology provider that can integrate its fixed-route and new microtransit application into one mobile interface and offer a GTFS-Flex feed to support integration with popular trip-finding applications such as Google Maps. In addition, MARTA recommended contacting technology providers before issuing an RFP to understand technology offerings and product capabilities, as well as seeing it in-use at other agencies.

Table 6: Technology Features

FEATURE	SUB-COMPONENTS	IMPORTANCE
Trip Booking	• Book a trip on-demand or in advance (if enabled). • Book a trip on the mobile application or an applicable desktop application. • Book a trip through a call center operator. • Select origin and destination by typing in address or selecting a stop on the map.	Allowing several methods for booking trips ensures that the service is accessible to all users. This includes advanced scheduling for those who know ahead of time or have standing appointments, or allows for booking through a call center for those who are not as familiar with technology.
Service Area	• Limit pickup and drop-off to service area zone or select nodes outside of zone. • Define virtual and designated stops. • Provide flexibility in changing virtual stops.	Providing the option for defining service stops and offering the flexibility of choosing and changing a destination is key to encouraging more ridership. For trip generating areas, like grocery stores and hospitals, users would benefit from a designated place to wait for the microtransit service that is accurately marked on the app.
Routing Algorithm	• Adjust based on additional pickups or drop-offs as requests come in. • Adjust to increase or decrease ridesharing percentage. • Adjust based on designated places for idling vehicles between passenger trips. • Set minimum and maximum number of passengers per vehicle. • Maintain service standards, such as on-time performance and cost per vehicle hour, set by the agency.	Providing an efficient routing algorithm can improve both rider and operator experience by displaying different route options when navigating a trip. Selecting thresholds for these parameters can allow for more efficient trips and potentially decrease costs per vehicle hour.
Customer Communication	• Track vehicle locations to display in-app for customers. • Inform users of the routing demands. • Reach out to customer service for assistance.	Informing customers of their vehicle location and information about wait times will allow customers to make informed decisions about their mode choice. Customers can also reach out to customer service if issues arise.
Customer Experience	• Set maximum and average wait time targets. • Set maximum and average walk distance targets. • Set maximum time added to a passenger's trip when considering ridesharing. • Provide customer rating and feedback module in-app.	Adjusting parameters such as wait time and walk time can be based on agency information about the community that is being served. The threshold for maximum trip time relative to a single occupancy vehicle trip may differ based on the road network or socioeconomic characteristics of the area. The maximum walk time may also have a shorter threshold for communities with a higher percentage of people with disabilities or elderly people. Developing an opportunity for customers to provide feedback during or after their trip in-app ensures that customers are able to express their thoughts on the service.

FEATURE	SUB-COMPONENTS	IMPORTANCE
Operator Functionality	• Offer live tracking on the number of passengers and driver location. • Set maximum time an operator will wait for a passenger.	Providing alerts and live data to users helps ensure they are aware of where drivers are and how full the microtransit vehicles are. Furthermore, users can take the information that they see in real time and find another route to get to their destination, if needed.
Fare Payment	• Offer in-app fare payment option. • Offer the ability to pay onboard (if applicable). • Account for relevant regional transfer policies. • Integrate regional transit payment system. • Integrate zero-fare program for eligible riders as a part of the customer's in-app profile.	Offering a variety of payment options, like credit card, debit card, and transit card payments, can help provide more accessibility for users. A variety of options also allows users to choose the payment option they are most comfortable with.
Integration with Existing Services	• Integrate microtransit application with other existing applications to provide one interface for all services. • Integrate microtransit into any existing trip planner. • Integrate microtransit application with other local and regional transit services.	Offering a more seamless trip by integrating all services will encourage ridership and improve customer experience. All transit types within one agency and all services within a region should be connected as people's travel does not end at a jurisdictional boundary.
Performance Monitoring	• Generate performance metrics based on agency's service standards and customer experience. • Display performance metrics for staff to easily review and assess the service.	Generating performance metrics and displaying them in a simple interface will allow agency staff to keep track of the effectiveness of the service and adapt service as needed. Refer to **Performance Monitoring** in **Section D** for more guidance on measuring the performance of the service program.

CPACS

CASE STUDY

In 2021, the Center for Pan Asian Community Services (CPACS) launched microtransit service, CPACS Ride, to serve immigrants, low-income individuals, and people with disabilities in the Atlanta, Georgia region. Before CPACS Ride, CPACS operated a transit service through a pre-scheduling, call-and-ride system without any technology integration. CPACS Ride offered a multilingual customer app and was designed to share data with Gwinnett County's transit service, Ride Gwinnett, which also operates microtransit service. The intent was to allow one microtransit program to provide a transit option and facilitate transfers between services if the other could not. While this functionality was not fully implemented during the program, the data sharing requirement resulting from the CPACS Ride RFP was informative. It required the selected technology provider, Spare Labs, to follow the "Transactional Data Specification" and provide technical assistance for sharing trip transactional data with Ride Gwinnett. The use of a multilingual platform helped CPACS Ride accommodate the high percentage of non-English speaking riders in the service area.

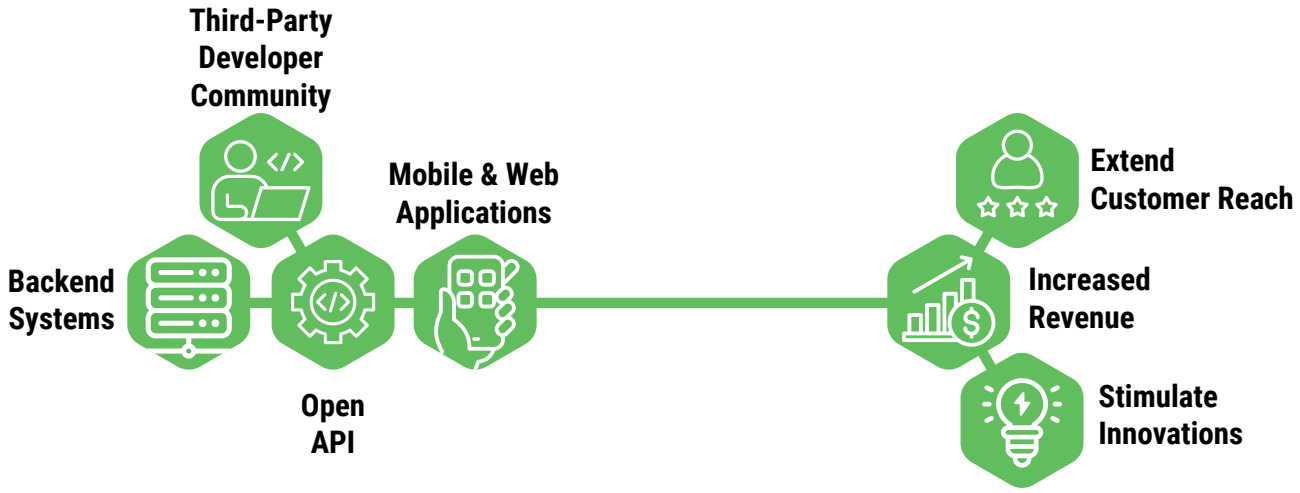
Adoption of New Technologies

The adoption of new technologies should be done in collaboration with other local governmental and transit agencies to ensure consistency in user experience and allow for data sharing. Some examples include the use of application programming interfaces (APIs) and procurement standards.

An API is a tool that can be used to allow developers access to software, web applications, and data. APIs can be used to exchange data with other transit agencies such as performance metrics or even trip transactional data when integrating microtransit services of multiple operators to provide cross-jurisdictional service. Agencies can use API data to work together to improve rider issues, such as long wait times between microtransit drop-off and pickup at stops.

APIs can also be used to integrate trip planning or booking among multiple service types into one interface. This is essential for providing a seamless travel experience for customers. Often, the purpose of a microtransit service is to provide a connection to fixed-route, high-capacity transit service. Travel needs do not end at a zone or jurisdictional boundary, so having one interface allows customers to plan a trip using all available transit services offered by one agency, or even all services across the entire Baltimore region.

Figure 9: Sample Technology Adoption Framework and Benefits



Adopting new technologies across a region can be more easily accomplished through the standardization of procurement processes. Cooperative purchasing of technology can help agencies reduce costs, enable technology integration by utilizing a common technology platform, and streamline data-sharing processes. For example, the BRTB or another agency could lead a group procurement, allowing for other agencies to buy the same technology using the contract. This would require participating agencies to first agree on a shared set of technology requirements to meet each agency's unique needs. During the planning stage, agencies can also benefit from sharing experiences with different technology platforms and understanding potential vendors' experience with this contracting approach in other regions. Furthermore, a common technology platform creates opportunities to collaborate on technology training. Refer to **Regional Workforce Coordination and Training** in Section E.

Overall, when adopting new technologies, it is beneficial to maintain open communication between collaborating agencies to streamline the implementation process and to find the most compatible technology provider(s).

VEHICLE TYPE

Typical microtransit vehicles have a capacity between four and 14 passengers, depending on vehicle size and wheelchair accessibility. Agencies such as the Central Ohio Transit Authority (COTA) or Tucson's SunTran use larger passenger vans or cutaway buses with greater capacity. King County Metro, which serves the Seattle region, uses minivans to provide on-demand service for residents.[15] Agencies operating microtransit report an average of 2.4 to 4.7 passengers per hour, so service can be accommodated using smaller vehicles compared to fixed-route transit service.[16] Common vehicle types are illustrated below.

MINIVAN

4-6 Passengers

If accessible, one wheelchair using passenger and one non-wheelchair using passenger

PASSENGER VAN

10-15 Passengers

Passenger van can be modified to include lifts for wheelchairs

CUTAWAY BUS

20+ Passengers

Often used for paratransit and can be rebranded to be used as accessible microtransit

There are several factors that go into the selection of a vehicle for microtransit service, such as expected demand, size of microtransit zones, costs, and accessibility. Capacity for more passengers does not always translate to better service. The quality of service can be impacted if a larger vehicle has several passengers traveling to different destinations due to the increased number of stops. Smaller vehicles are easier to maneuver and can enter more neighborhoods that do not have the capacity for larger buses. Smaller vehicles can also be less expensive to procure and more fuel efficient than larger vehicles.

Although microtransit has the potential to provide an alternative to traditional paratransit, agencies are not necessarily required to provide wheelchair accessible microtransit service if they are currently providing paratransit. However, procuring wheelchair-accessible vehicles (WAVs) improves the accessibility of a microtransit program and helps ensure that all potential customers can access the microtransit service.

Electric Vehicles

In addition to considerations about vehicle size and accessibility, agencies can also consider procuring electric vehicles or other vehicles that operate on alternative fuels. It is important for agencies to consider the difference in capital and operating costs for electric vehicles. While electric vehicles might cost more upfront than gasoline vehicles, they can drive significant cost savings—such as from maintenance and fuel—when heavily utilized as part of a fleet. According to a United States Department of Energy study conducted in 2021, electric light-duty vehicles cost 40 percent less to maintain than the gasoline vehicle equivalent. Currently, Maryland does not have any existing state contracts for electric transit vehicles, but other states, such as Georgia, California, New Mexico, and Washington, have publicly available information on their contracts and pricing. This information can be used to understand the difference in capital costs. Lastly, procurement of electric vehicles will require investments in vehicle charging infrastructure at bus depots and, potentially, in the field. This adds to the overall cost and timeline of vehicle procurement.

15 American Public Transportation Association. Mobility Innovation Hub: Microtransit. https://www.apta.com/research-technical-resources/mobility-innovation-hub/microtransit/

16 TCRP Synthesis 141, Microtransit or General Public Demand Response Transit Services: State of the Practice (2019), https://www.trb.org/Main/Blurbs/178931.aspx

ELECTRIFICATION

The electrification of microtransit vehicles is an emerging sustainable strategy currently being explored, thus there are only a few examples of agencies implementing electric fleets for microtransit and limited research on microtransit electrification performance and lessons learned. However, from what precedents do exist, it is apparent that the infrastructure required to charge and maintain microtransit vehicles and implementation considerations are similar to those of other electrified transit vehicles. Factors to consider when planning the implementation of infrastructure for an electrified microtransit service include:

WEATHER

Locations that experience severe weather like strong thunderstorms and flooding require additional planning to ensure the transit service is weather resilient because electrified infrastructure can be susceptible to damage and decreased efficiency.

Another consideration for weather is battery charge. A colder climate can reduce the battery's charge, which would result in more frequent charges. Given Baltimore's relatively temperate climate, this would only be a concern for a few months of the year.

FLEET

The charging times of electric vehicles and limited battery range may lead to the need for additional vehicles, depending on the vehicle and service design. The size of the microtransit fleet and the type of vehicles used can determine the amount of electric vehicle charging infrastructure to install. Fueling infrastructure that requires large upfront capital investment is not cost-effective for small fleets, while alternative fuels that require a set amount of infrastructure per vehicle can be more cost-effective for smaller fleets. With some alternative fuel sources, like battery electric, infrastructure is implemented on a per-vehicle basis. So, agencies should be aware of how costs scale with fleet size when planning electric microtransit services.

FLEET COMPOSITION

Microtransit programs typically utilize light-duty vehicles. Therefore, an agency considering fleet electrification may find it easier to experiment with a smaller electric microtransit fleet rather than planning for the electrification of its entire transit fleet. Agencies may find the number of electric vehicle models available for microtransit to be limited, although this will likely change as the technology and market mature. Agencies should evaluate current vehicle options and whether the required infrastructure can support other vehicle types in their fleet.

FACILITY

The space and utility capacity of a transit agency's facilities can impact the implementation of electric vehicle charging infrastructure. For example, the agency may need additional space to accommodate the utility requirements and the infrastructure itself. It is beneficial for agencies to assess the space, utility, and installation requirements for electric charging infrastructure during the planning stage to evaluate the feasibility of integrating it.

Agencies should speak with local utility companies to understand their proposal for installing charging infrastructure in the area, planning for the additional load on their electrical grid, and how agencies can best make use of public charging infrastructure.

NEWTON, MASSACHUSETTS — CASE STUDY

The City of Newton, Massachusetts recently began phasing in electrification of their microtransit vehicles. The service is city-wide and operates with a fleet of 10 vehicles. The City is taking a phased approach because of lead times associated with grants and charging infrastructure installation. The City currently has a mixed fleet with two electric vehicles and eight hybrid vehicles, with plans to eventually become fully electric. When beginning to use fully-electric vehicles for its service, the City worked with a local public charger company, Greenpoint, to install additional public chargers that could be used by the agency's vehicles as well.

The electrification has been successful due to the service's short average trip distance and the partnership with Greenpoint. The City has not received any public comments about the electrification, but the community is largely in favor of the microtransit service. The electrification of the fleet has helped the City with additional state and federal grants by showing progress towards its sustainability goals.

Along with these factors, an agency can consider using existing electric vehicle infrastructure, such as public fast chargers, during the process of acquiring more microtransit vehicles and charging infrastructure. This can allow for quicker implementation of more sustainable vehicles while waiting on the typically lengthy installation period for electric vehicle infrastructure.

The region is currently in the process of building out public charging infrastructure and preparing its electric grid. According to Maryland's National Electric Vehicle Infrastructure (NEVI) Plan, the Baltimore region contains the highest concentration of electric vehicle (EV) charging stations out of all the regions in the state, specifically along the I-95 and I-270 corridors. The City of Baltimore is also participating in the Climate Mayors EV Purchasing Collaborative initiative that involves cooperation among Climate Mayors cities across the country to leverage their collective buying power and accelerate the conversion of public fleets to EVs. It is a turnkey, one-stop, online procurement portal providing members with equal access to competitively bid EVs and charging infrastructure, innovative financing options, best practices, and other forms of expertise.[17]

Simultaneously, agencies and governments looking to electrify their transit fleets must focus on developing their own charging infrastructure to meet the unique needs of their operations. The time needed for installation can vary depending on the location of utilities. For example, if the location does not have a proper electricity connection, the duration of the installation period can increase because of the additional components to install. Further, because of the on-demand nature of microtransit service, it is inherently less predictable than fixed-route service in terms of anticipated vehicle miles traveled. It is difficult to predict when charging is needed during the service span. The exception to this is smaller zones that would only require vehicle charging once per day. Because of this, agencies can also consider other sustainable alternatives for the fleet, like plug-in hybrid vehicles.

Agencies can apply to federal grants for funding the implementation of EV charging and hybrid microtransit vehicles.

17 https://www.climatemayors.org/join-us

FARE POLICY

As agencies explore the implementation and enhancement of microtransit services in the region, they must carefully evaluate the fare structures associated with this new mode. An agency's goals and objectives can significantly influence fare policy. Some agencies may prefer to position microtransit as a premium service, opting for higher or distance-based fares. Others may view it as a vital link between communities and the greater transit network, potentially adopting flat fares, offering free transfers to fixed-route, or going zero-fare to provide greater connectivity. The novelty and flexibility of microtransit service allows for a wide range of fare strategies and policies. However, drastically different fares across the same region can create a challenge for customers making cross-jurisdictional trips, or trips via multiple agencies. This section outlines the existing fares for demand response systems in the Baltimore and Washington D.C. regions, details the benefits of regional fare coordination, and spotlights two zero-fare practices.

Current Demand Response Fares

Currently, microtransit services in the Baltimore and Washington, D.C. regions can be found in Montgomery County, Prince George's County, and the city of Annapolis. In other counties and cities in the region, the most comparable service to microtransit is the existing demand response or paratransit service.

To provide greater context for potential microtransit fares in the region, **Table 7** describes the current fares of demand response systems in the Baltimore and Washington, D.C. regions, including microtransit and other zone-based systems.

Fares for demand response systems vary significantly, ranging from zero-cost services to distance-based fares as high as nine dollars. A few systems also only offer service to eligible riders as they are the ADA paratransit option for their county or transit agency. Agencies across the region could consider the following fare policies to incentivize microtransit use and provide affordable and well-connected services to their residents.

Table 7: Comparison of Fares of Regional Demand Response Systems

COUNTY	SERVICE NAME	SERVICE TYPE	FARE POLICY	FARE COLLECTION
Anne Arundel County	Call N' Ride	Zone-based dial-a-ride	Zero-fare	N/A
	Annapolis Go	Microtransit	$2.00 flat fare. Uses same fare system as fixed-route. Discounts for seniors, populations with disabilities, and K-12 students.	Fare is charged on the vehicle and can be paid in cash or with a bus pass.
Baltimore City	Mobility	ADA compliant paratransit.	$2.20 flat fare for eligible trips. Eligibility is determined by passenger application for access to paratransit service, and an assessment determining if the trip can be made using fixed-route bus/rail service.	Tickets can be purchased online or at a Transit Store
Baltimore County	County Ride	Countywide demand response. ADA compliant paratransit.	Zero-fare for eligible riders only: passengers above 60, with a disability, or rural resident	N/A
Carroll County	Carroll County Demand Response Service	Countywide demand response. ADA compliant paratransit.	Distance based fare. Base is $4.00 up to $9.00. Discounted fares for seniors ($2.00)	Exact cash, tickets, or fare account which can be refilled.
Harford County	LINK	Countywide demand response. ADA compliant paratransit.	$2.00 flat fare	Cash or Token Transit App
	N/A	Microtransit (Planned. Not in service).	Not currently defined	Not currently defined
Howard County	RTA Mobility Services	ADA compliant paratransit.	$4.00 one way trip for eligible riders only: passengers with a disability or above 60.	RTA Transit App
	N/A	Microtransit (Planned. Not in service).	Not currently defined	Not currently defined
Montgomery County	Ride On Flex	Microtransit	$1.00 flat fare. Uses same fare system as fixed-route.	Fare is charged on the vehicle using cash., SmarTrip Card, or tokens.
Prince George's County	PGC Link	Microtransit	$2.00 flat fee	Fare is collected on the Transloc app. Cash, tokens, and SmarTrip cards are not accepted.
Queen Anne's County	County Ride	Countywide demand Response. ADA compliant paratransit.	Zero-fare	N/A

Regional Fare Coordination

As agencies within the Baltimore region explore potential microtransit services and opportunities for regional coordination, it is essential to take fare policies into account. The wide variation between fare policies for on-demand services could pose significant challenges for both passengers and agencies alike as agencies seek to provide greater connectivity throughout the region.

To counteract the potential issues that may arise, agencies could work together to establish a unified fare for the provision of microtransit service. While fares are largely dependent on local context and agency budgets, fare coordination is especially beneficial in areas with shared cross-county activity generators or higher productivity transit options such as rail or high frequency bus service. Agencies must also explore options for consolidating fare collection, as the wide range of web applications and customer service numbers could confuse travelers making cross-jurisdictional trips.

Consistency with Other Fares

There is precedent for pricing microtransit fares akin to fixed-route fares within the Baltimore region (Anne Arundel County, for example) as well as in nearby jurisdictions such as Montgomery County and in the peer regions studied (MARTA Reach in Atlanta, for example). The rationale for pricing microtransit the same as other transit service, particularly fixed-route, varies from agency to agency. However, where microtransit is designed to replace inefficient fixed-route service, agencies may choose the same fare so as to not create a new barrier or obstacle for riders interested in the new microtransit service. Similarly, if microtransit service is designed to serve a specific population, such as low-income households or older adults who may be on a fixed income, setting a comparable fare to other transit services puts microtransit on an even playing field and maintains affordability.

Premium Fare

There is also precedent for pricing microtransit service as a premium service in the peer regions studied (SouthWest Transit in Minneapolis-St. Paul and MVTA in Minnesota, for example). The rationale for pricing microtransit above other transit services like fixed-route service also varies from agency to agency, but generally agencies see it as a premium service because it provides a more convenient and customizable experience for customers. Setting premium fares may also be the result of how microtransit service is funded and the agency's funding goals. For instance, MVTA Connect is funded through the agency's operating budget; Microtransit fares are $3.00 while fixed-route fares are between $2.00 and $2.50. The agency may be trying to recoup farebox revenue and/or offset microtransit operating costs.

Setting a premium fare for microtransit does not preclude an agency from offering discount options, however. SouthWest Transit implemented microtransit as a means of expanding mobility options, thus even though regular microtransit fares are $5.00 and regular fares are $2.50, the agency maintains reduced fare programs for low-income individuals, veterans, young people, and older adults during non-peak days and times.

Zero-Fare

ZERO-FARE PILOT

Implementing zero-fare service at the start of the microtransit pilot can encourage ridership on a new and unfamiliar service and extend benefits already offered to transit users in the Baltimore region. Zero-fare service may also eliminate barriers to entry for many residents who would like to try microtransit but cannot afford to pay for an unfamiliar service. Zero-fare service ensures that ridership numbers are not limited by costs and may provide useful ridership data to refine zones or plan future zones.

As agencies garner a greater ridership base, they can transition to a fare-based system with appropriate communication with stakeholders. The transition from a zero-fare service to a service with fares may come with some challenges. Operating zero-fare in the beginning is a useful way to attract customers to a new mode of service. However, once accustomed to zero-fare service, customers may push back on the implementation of a fare. Marketing is a crucial tool for making the transition as smooth as possible and to help limit the impact of ridership changes once fares are implemented.

PERMANENT ZERO-FARE

While zero-fare policies are often introduced during pilot programs, some agencies have experimented with offering permanent fare-free microtransit services. This approach can be motivated by various factors, including:

Equity: Agencies focused on expanding access to disadvantaged or vulnerable communities use microtransit as a means for providing greater connections. Populations that rely on public transit can greatly benefit from fare-free services, particularly populations that may be unable to drive, such as disabled, senior, or immigrant populations.

Connectivity to Transit: Some agencies see microtransit as a crucial link connecting populations to the broader regional transit system. To incentivize transit use, they may offer fare-free microtransit as a first-mile and last-mile solution, facilitating connections to and from major stations.

SOUTHWEST TRANSIT CASE STUDY

SouthWest Transit, based in Eden Prairie, Minnesota, took the approach of advertising its microtransit service as a premium option because its services provide more direct access to key destinations. As a result, the regular fare for most of its microtransit services is two times that of fixed-route service in the region. SouthWest Transit also has microtransit services tailored to different trip purposes, and each purpose has unique pricing. For example, discounted pricing is offered on its SW Prime Essential service, designed to provide trips for essential needs like grocery stores and pharmacies, while higher pricing is in place for SW Prime service to Minneapolis-Saint Paul (MSP) International Airport.

DENVER DEPARTMENT OF TRANSPORTATION CASE STUDY

The Denver Department of Transportation and Infrastructure (DOTI), took a different approach. DOTI chose to make microtransit service fare-free since its service prioritizes equity. The agency also hoped that this would encourage ridership. In addition, since DOTI did not previously operate any transportation service, it did not have the administrative processes nor capital equipment such as fareboxes set up to collect fares from customers. DOTI avoided significant upfront capital costs by going fare-free.

OPERATOR AVAILABILITY

In the last few years, the nation has experienced a bus driver shortage due to an aging transit workforce, strong competition for workers following the post COVID-19 economic recovery, reports of inadequate compensation, worker concerns over schedules, and the prolonged hiring process (e.g., drug and alcohol testing, commercial driver's license (CDL) requirements, and background checks). A recent study indicated that 96 percent of transit agencies have experienced a workforce shortage.[18] Many agencies have adopted unique strategies to mitigate this issue. Some strategies that may be beneficial to the Baltimore region include:

- **Sourcing operators from local companies with community relationships:** Metro Transit Micro recommends hiring operators through local companies, like Northeast Transportation Connections, because they have better relationships with local communities and have a higher likelihood of retaining their employees. In comparison, larger companies that are working remotely to recruit and retain operators are more likely to hire operators whose needs are not met or feel less connected to the company.
- **Supplementing service with rideshare company operators as needed:** Rideshare companies, like Uber or Lyft, typically have a large number of operators in the field at one time with flexible hours. This can supplement microtransit service when there is a shortage of operators. Refer to the Center for Pan Asian Community Services (CPACS) Ride case study about how they used this mitigation strategy.
- **Right-sizing fleet for expected demand:** Initial modeling can provide a preliminary estimate of the number of vehicles and operators needed by service hour. Right-sizing or calibrating fleets can prevent vehicle idling, therefore optimizing operator availability. Monitoring performance data to match observed demand with driver availability is key to understanding the extent to which drivers are utilized.
- **Promoting the ability to be an operator without commercial driver's license (CDL) requirements for smaller vehicles:** Many microtransit services use smaller vehicles such as sedans or minivans that do not require CDLs to operate. When recruiting operators, notifying interested individuals on whether they need a CDL or not can bring awareness to the variety of positions available. By sharing this information, potential operators who do not have the commercial certification can still apply for a role.
- **Providing and promoting competitive operator salary and benefits:** Offering competitive sign-on bonuses can attract more applicants. Research should be conducted on commensurate pay in the area before setting compensation levels. Aside from maintaining competitive salaries, agencies can retain operators by offering more health and safety accommodations, such as more bathroom breaks, flexibility with schedules, and mental health measures. Additionally, creating a policy on how to respond to the mistreatment of operators by passengers can create a safer environment for all parties. This policy can help mitigate the rising issue of operators being mistreated by passengers. Furthermore, ensuring the safety of passengers and employees can be done by adding cameras in the program vehicles.

18 APTA, Transit Workforce Shortage, https://www.apta.com/wp-content/uploads/APTA-Transit-Workforce-Shortage-Report.pdf

- **Developing a standardized training process:** Another way of retaining operators is to develop a standardized training process for both technology and interactions with customers. Technology training consists of understanding app functionalities such as rerouting and driver alerts. Customer interaction training can include appropriate wait times at pick up locations, service information provided to customers or passers-by, and the level of assistance for supporting customers when boarding or alighting. The training process can also cover response procedures, like how to notify supervisors of dangerous driving conditions on their route.
- **Creating union relations and utilizing existing operators:** Forming relationships or partnerships with unions such as the Amalgamated Transportation Union (ATU) Local 130 can help reach existing operators and encourage them to apply for a position in an agency's microtransit service program. Relationships with unions can also help with retaining operators for microtransit service by addressing operator needs early. Refer to Partnerships in Section D for more of the benefits of creating partnerships.
- **Investing in autonomous vehicles/technology:** Although a long-term endeavor, investing in autonomous vehicles and technology would require operators during at least the initial launch phase. An agency may decide to staff autonomous vehicles (AVs) with an operator beyond the initial launch depending on public perception of driverless vehicles and to ensure rider safety. Public perception plays a role as many people are still wary of this technology and see it as unproven or untested.

These strategies can be used in tandem to bring the best outcome. When determining the best strategies to use, consider the local atmosphere of labor relations, program service zone size, long-term cost of the mitigation strategy, successes of peer agencies in the region, and the community's acceptance of new technologies.

SOUTHWEST TRANSIT — CASE STUDY

SouthWest Transit operated the first microtransit service in the Minneapolis-Saint Paul region, which now consists of five different programs. Given the magnitude of the service, the supply of operators was a major challenge. This was mitigated through sourcing local companies with an existing network of drivers.

The agency is also implementing autonomous vehicles (AVs) for its popular SW Prime microtransit service. During the initial launch, five wheelchair-accessible AVs will be deployed, and operators will be present as a safety precaution for riders. In the future, the agency plans to use fully autonomous vehicles without operators present as a long-term solution to address the national issue of operator availability.

D. How to Enhance Existing Microtransit Service

Monitoring and Enhancing Service Guidelines

PERFORMANCE MONITORING

Performance monitoring is the ongoing development, analysis, and tracking of metrics for the microtransit service. Results can be used to improve the program. Agencies should pilot microtransit programs for a minimum of one to two years to allow adequate time for promotion, education, service adjustments, and sufficient data collection to assess viability and customer acceptance.

Performance monitoring requires several key steps, and it is a continuous process:

1. Identify metrics to be tracked
2. Inventory available data sources and potential uses
3. Create a process to develop metrics of interest from available data
4. Document the process, including data sources, time periods used for reporting, reporting frequency, and processing steps
5. Create benchmarks to evaluate metrics against
6. Adjust service based on findings

Agencies should be thoughtful when considering which performance metrics to use. Microtransit performance monitoring should not be compared directly to the metrics used to measure the success of fixed-route service. Microtransit service has more similarities to ADA paratransit service than fixed-route service. For example, rather than on-time performance, agencies assessing microtransit service are typically more concerned with metrics such as wait time, passenger trip duration, and deviation from a scheduled pick-up and drop-off time. Although traditional transit service metrics are useful to track, they are not typically the defining metrics for microtransit service success.

Clearly defining metrics is crucial for effective performance monitoring and ensures consistent reporting and the ability to monitor progress over time. The exact metrics to be tracked will vary based on available data and the agency's goals. For example, an agency with a zone designed to connect to high-capacity transit may want to track transfers or origin and destination data more closely. Additionally, an agency may want to measure the number of Spanish-speaking riders if there is a large Spanish-speaking population.

Performance monitoring is especially important in cases when the service is contracted out to ensure that the vendor is upholding contractual requirements. Ongoing performance monitoring ensures that a contracted service is accountable for meeting agreed-upon performance standards. Microtransit technology selection and performance monitoring also go hand-in-hand, so agencies should ensure their desired metrics can be calculated by the selected technology vendor.

Microtransit typically has several core metrics, including some from the NTD. Below is a list of the performance metrics that can be used to analyze the success of a microtransit program:

- Cancellation and no-show rate
- Complaints per X trips
- Complaint types
- Cost per passenger trip
- Customer satisfaction
- Origin/destination and common trip purposes
- Passenger demographics
- Passenger miles traveled
- Percentage of shared rides
- Revenue miles or hours
- Non-revenue miles or hours
- Ridership (unlinked passenger trips)
- Trip distance
- Trip duration
- Wait time

Additionally, when using and collecting data through a mobile app, agencies can analyze real-time behavior trends to easily and quickly deploy messaging, such as emails and push notifications. Agencies can target marketing to areas that generate or attract the most trips, such as apartment complexes, hospitals, office parks, entertainment venues, or the most popular origins and destinations.

After the performance metrics for the microtransit program have been chosen, benchmarks should be determined. Benchmarks are often set according to two core types: targets based on past performance and agency-set standards.

Targets based on past performance include identifying underperforming service such as those which are below an average or other standard statistical tool.

Agency-set standards may be more aspirational and defined by agency management, such as requiring an on-time performance rate of X percent. It is important to set benchmarks solely for what an agency has control over; considerations like inclement weather can create outliers affecting performance and may need to be excluded from analysis.

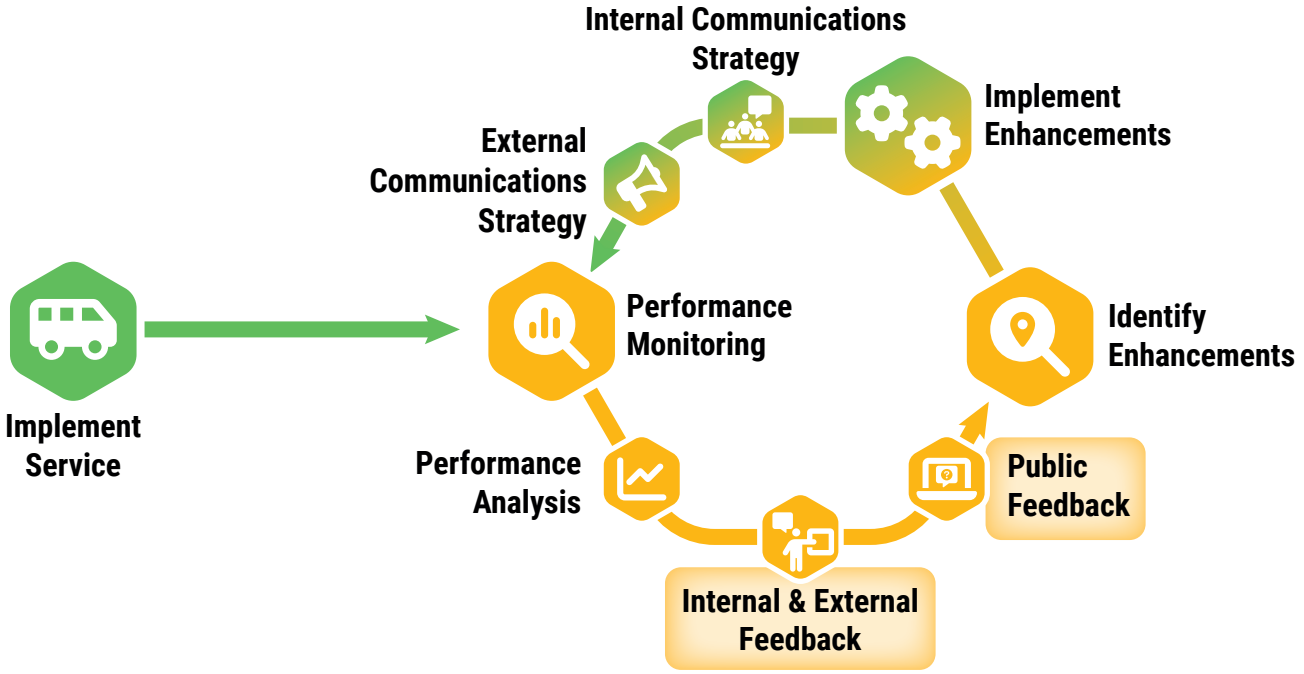
For microtransit performance, it may be useful to set standards and categorize trips based on how they perform. For example, setting a maximum trip duration of 45 minutes is useful, but breaking the data down further into time spent on the vehicle, such as trip durations less than 15 minutes, 30 minutes, and 45 minutes, provides additional context for the passenger experience rather than a simple percentage of trips less than 45 minutes.

MARTA CASE STUDY

MARTA collaborated with the Georgia Institute of Technology (Georgia Tech) to use data to monitor demand and to adjust zones and service during the MARTA Reach microtransit pilot. Two data outputs were used to determine the overall success of the service: ridership and survey results. MARTA was able to analyze the program effectiveness from these sources and identify ways to make improvements for a future permanent microtransit program. In addition to measuring the success of the program, the performance monitoring indicated that fewer vehicles were needed than the simulation model predicted during the planning stage. On average, riders experienced eight-minute wait times because vehicles were readily available due to excess capacity. Riders may have benefited by this, but at higher operational costs compared to batching multiple trips together.

ENGAGEMENT STRATEGIES

Following implementation, microtransit service must be continually monitored to ensure that service is operating effectively and meeting the needs of riders. While service enhancements can be data-driven and based on performance metrics being tracked, public engagement is also a crucial consideration in making service adjustments. The cyclical process of monitoring and adjusting service based on data and input is pictured below:



For soliciting public feedback to improve service, agencies should use a variety of techniques to reach a broad audience, including a special emphasis on those who depend on microtransit for their mobility needs. One way to collect feedback is through **internal application surveys**; many software providers allow for the creation of surveys to capture customer feedback. These surveys are similar to what appears after taking a Lyft or Uber ride, for instance, which ask the rider to rate their experience, typically one through five stars (five being the most satisfied), and provide written comment.

Agencies can also conduct in-person forms of public engagement such as **pop-up events** or **focus groups and public meetings.** These opportunities should take place specifically at locations riders or potential riders already frequent so as to glean more targeted community feedback than virtual forums open to everyone. Customer feedback can also be captured through **vehicle ride-alongs,** where agency representatives hear about what is working well and what could be improved directly from riders and drivers.

For soliciting internal feedback, agencies can deploy a variety of techniques or methods to reach staff at all levels and across all relevant departments. **Internal focus groups** designed to bring together attendees across a range of positions and departments is one means of not only gauging strengths and weaknesses, but also providing a forum for on-the-spot coordination and problem solving.

One-on-one interviews also offer staff the opportunity to share their perspective about what is working well and where there are areas for improvement. Agencies should develop a discussion guide in advance of interviews and allow participants to review the guide before the meeting takes place. For drivers and dispatchers, the discussion guide can include questions related to frequent complaints from customers, safety or operating issues they are aware of, changes they suggest, and an open-ended question related to anything else the agency should know.

Combined with performance data, the insights from internal and external engagement will inform a universe of potential service enhancements. Once an agency decides which service enhancements are priorities, they must implement those service changes with transparency, communicating with agency stakeholders and the public along the way.

PARTNERSHIPS

Partnerships can help agencies understand the needs of community members, spread awareness, and build trust in the community, ultimately increasing ridership. Partnerships can also be beneficial in acquiring funding. Agencies providing microtransit service can create partnerships with community organizations, local employers, local schools, universities, local government officials, and other transit agencies. Partnerships can range from legal agreements to informal verbal agreements. The following section offers guidance on a few types of partnerships that service programs can benefit from.

Partnerships with Community Organizations

Community organizations can include transit advocacy organizations, religious groups, and human service organizations. These partnerships can be used during program development to gain an understanding of the community's mobility challenges, during the pre-launch phase to spread information about the service, and during the launch phase to build trust in the program. For more information on how community organizations can support marketing and public engagement, refer to **Marketing** in Section B and **Engagement Strategies** in Section D.

Partnerships with Local Employers

Through partnerships with large, local employers, transit agencies can work to ensure that people in their service area have more options for getting to work. These partnerships can be financial agreements or can simply consist of conversations to better understand the needs of employees.

If existing microtransit service serves an employment site, consider partnering with that employer as a stakeholder. Employers can provide valuable information on commuting patterns, defined shift hours, work from home days, desired/permitted stop locations, and employees' attitude towards transit. This information can be used to refine the service in terms of hours of operation and service stops. It can also inform decisions about additional nodes based on travel patterns.

Microtransit service can better serve industrial employment sites as compared to fixed-route transit. Many industrial employment sites are inaccessible to fixed-route transit service, especially those that are gated and require a longer walk to the entrance. If employees are interested in microtransit service, the agency should consider partnering with those employers to directly service those potential customers by developing designated stops closer to the employment site entrance.

As participation in microtransit service by employees increases, an agency should consider conversations with employers to gauge their interest in gearing the service towards employee travel patterns and investigating if they are interested in financially supporting the service through a public-private partnership.

Agencies can also reach out directly to local businesses or work with the local Chamber of Commerce to develop relationships. These connections can be leveraged to educate businesses on microtransit service options for their employees.

SOUTHWEST TRANSIT **CASE STUDY**

SouthWest Transit, a provider of SouthWest Prime microtransit service in the Minneapolis-St. Paul region, partnered with major employers like the MSP International Airport and Mall of America, as well as a variety of other employers along the I-494 corridor, grocery stores, and medical institutions, to subsidize fares, offer discounted fares, and determine the best pickup and drop-off points to encourage ridership. The agency also partnered with Lyft to provide optional ridesharing services in two busier zones, the Airport zone and the Prime Edge zone. Lastly, the agency partnered with May Mobility to provide autonomous vehicles in the Eden Prairie zone. By partnering with outside entities, SouthWest Transit was able to meet the needs of employers and employees, provide connections to important destinations for a high quality of life, and innovate by testing emerging technologies.

Partnerships with Local Schools

Partnering with local schools can help the service program identify students who may not qualify for school bus service but could benefit from microtransit service to their home. The service may specifically benefit students with after-school activities. Once these students are identified, the agency and school can work together to determine pickup and drop-off locations.

Although local schools are likely not able to contribute funding for the service, providing service to schools could unlock opportunities to apply for federal grants such as Safe Routes to School.

Partnerships with Colleges and Universities

Partnerships with colleges and universities are similar to partnerships with local employers. The partnership can include public engagement on campuses to understand the transportation needs of students, employees, and faculty. Partnerships could also include financial contributions from the institution or reduced fare programs for students.

Partnerships with Local or State Government Officials

Partnerships with local government officials can help build initial support and buy-in for microtransit service, as well as generate financial support to sustain implementation. Once implemented, it is crucial for agencies to conduct substantial outreach to educate community members about the service and to encourage them to try it. Partnering with local and state government officials can generate positive attention towards the service.

Service programs can contact the following individuals for partnerships:

LOCAL

- Mayor
- City Manager
- County Executive
- County Administrator
- Other elected officials

STATE

- State Department of Transportation/Transit
- Council on Aging
- State House and State Senate Transportation Committee Chairs

Partnerships between Transit Agencies

Partnerships between agencies can assist in implementing microtransit programs across agency boundaries. Furthermore, agencies can share data, lessons learned, and best practices with each other. More guidance on agency collaboration can be found in **Section E. How to Collaboratively Implement Microtransit.**

GREATER CLEVELAND RTA

CASE STUDY

GCRTA deployed a turnkey solution for microtransit service, ConnectWorks, due to limited staff resources, inability to use existing contracts for this service, and limited initial knowledge about microtransit service operations. GCRTA contracted with a technology vendor that was responsible for providing 50 percent of the funding and identifying employers to collaborate with in hopes of developing public-private partnerships. The service faced challenges in terms of attracting ridership and participating employers, but GCRTA is continuing to look for alternative ways to implement a more successful microtransit service in the future.

GCRTA learned many lessons from their use of the non-traditional service method. The service saw low ridership, and there was difficulty securing participating employers for a transit benefit package for employees. Additionally, the fare structure and service changed during the first year of service due to a shift in leadership at the turnkey provider. Although the novel idea was worth piloting, employers were often unwilling to contribute financially to a transportation service for their employees or partner with GCRTA on providing a service.

E. How to Collaboratively Implement Microtransit

Regional Coordination Guidelines

REGIONAL WORKFORCE COORDINATION AND TRAINING

Interagency coordination is crucial in ensuring microtransit service success for agencies, operators, and customers. This section details regional workforce coordination and training best practices that agencies can enact, strengthening regional coordination and collaboration.

Workforce Coordination

Interagency workforce coordination considers big picture needs, such as workforce headcounts based on the size of the transit agency and hiring goals, as well as day-to-day needs about how to staff service. At an individual agency level, insufficient workforce planning can affect a transit agency's operations. This can create ripple effects for other agencies in the Baltimore region and impact cross-jurisdictional service. Agencies providing or looking to provide cross-jurisdictional microtransit service should communicate their workforce needs to each other. These objectives can be raised at the regional roundtable, a forum for sharing issues and celebrating successes, discussed in the **Regional Roundtable** section. Additionally, agencies should pursue individual workforce need assessments, if they do not already. Certain strategies to gauge workforce goals include:

- Frequent staff surveys
- Exit surveys for staff leaving the agency
- Forecasting and modeling (e.g., population growth projections or staffing needs based on fixed-route and contracted service)
- Monitoring industry trends

Regional Training

Sharing training practices and resources among agencies interested in coordinating microtransit services can have several benefits including:

- Reducing individual costs of training programs by conducting training sessions in larger groups across multiple agencies.
- Boosting morale and creative or innovative problem-solving by expanding who collaborates and shares experiences.
- Increasing customer service and technical competencies because drivers are better prepared and aware of a variety of topics from driving in adverse weather to conflict resolution.
- Involving administrative and other staff who may not otherwise collaborate and share resources.

MARTA REACH

CASE STUDY

While not exactly regional training, MARTA was able to create training efficiencies for their MARTA Reach program by leveraging existing paratransit contracts to secure microtransit drivers. By deploying paratransit drivers as microtransit drivers and utilizing paratransit vehicles for their microtransit service, MARTA only had to provide one additional training regarding microtransit software. This reduced the overall level of training needed to initiate service and reduced the costs to establish a microtransit driver training program.[19]

19 Photo courtesy MARTA: https://news.microsoft.com/source/features/digital-transformation/with-their-transit-ride-share-pilot-marta-and-georgia-tech-give-passengers-a-first-mile-last-mile-solution/

JOINT PROCUREMENT

Background

Procuring goods and services for microtransit is a requirement regardless of the selected service delivery model; agencies must procure vehicles, software, and potentially operators or other supporting services. Transit agencies and their respective funding sources have varying procurement requirements including those internal to the agency or from federal, state, and local regulations that can be an administrative burden to track and satisfy. Additionally, agencies without the capacity to conduct market research may have limited insight into offerings from vendors, resulting in an unsuccessful Request for Proposals (RFP). See **Section B** on **RFP Best Practices** to avoid this pitfall. Joint procurement, the idea of two or more purchasers agreeing from the outset to use a single solicitation document and entering into a single contract with a vendor, is an option to make the procurement process easier and more efficient.

There are a multitude of benefits to joint procurements, including reducing the overall procurement effort of agencies involved; sharing and expanding the knowledge base about vendor offerings; and recognizing cost advantages, as volume pricing can reduce the unit cost of procured goods or services. Joint procurement is particularly attractive for vehicle procurement purchases due to economies of scale, but contracted services and software can also produce cost benefits.

Joint Procurement Options

Joint procurement may be pursued either directly between agencies such as transit providers, or as part of a larger initiative coordinated through or led by a regional body such as BMC. Direct agency collaboration requires coordination between two or more participating agencies. In this case, the agencies would identify their respective RFP requirements, release an RFP with those specifications, and award a contract agreement. Alternatively, if a regional entity leads the procurement, they are able to craft a more open-ended procurement agreement that agencies can opt into. In this case, the regional entity would incorporate each agency's requirements and craft the RFP to meet the needs of partner agencies. Joint procurements of both types can allow for multiple bids to be selected in order to accommodate different agency needs, as long as the RFP is written to allow the selection of multiple contracts.

> The purchasers in a joint procurement may award individual contracts for their particular needs as long as those contracts reflect the terms and conditions in the competitive solicitation and the proposal that was submitted by the winning contractor. One approach that has been used for joint bus procurements is for the lead agency to award the basic contract with pricing, specifications, terms and conditions, etc., and then to have the participating agencies issue individual purchase orders against the basic contract as funding becomes available to the agencies during the life of the contract. The purchase orders would reflect the basic contract unit prices and reference the basic contract for other terms and conditions.[20]
>
> — Federal Transit Administration, Joint Procurements Frequently Asked Questions

20 https://www.transit.dot.gov/funding/procurement/third-party-procurement/joint-procurements

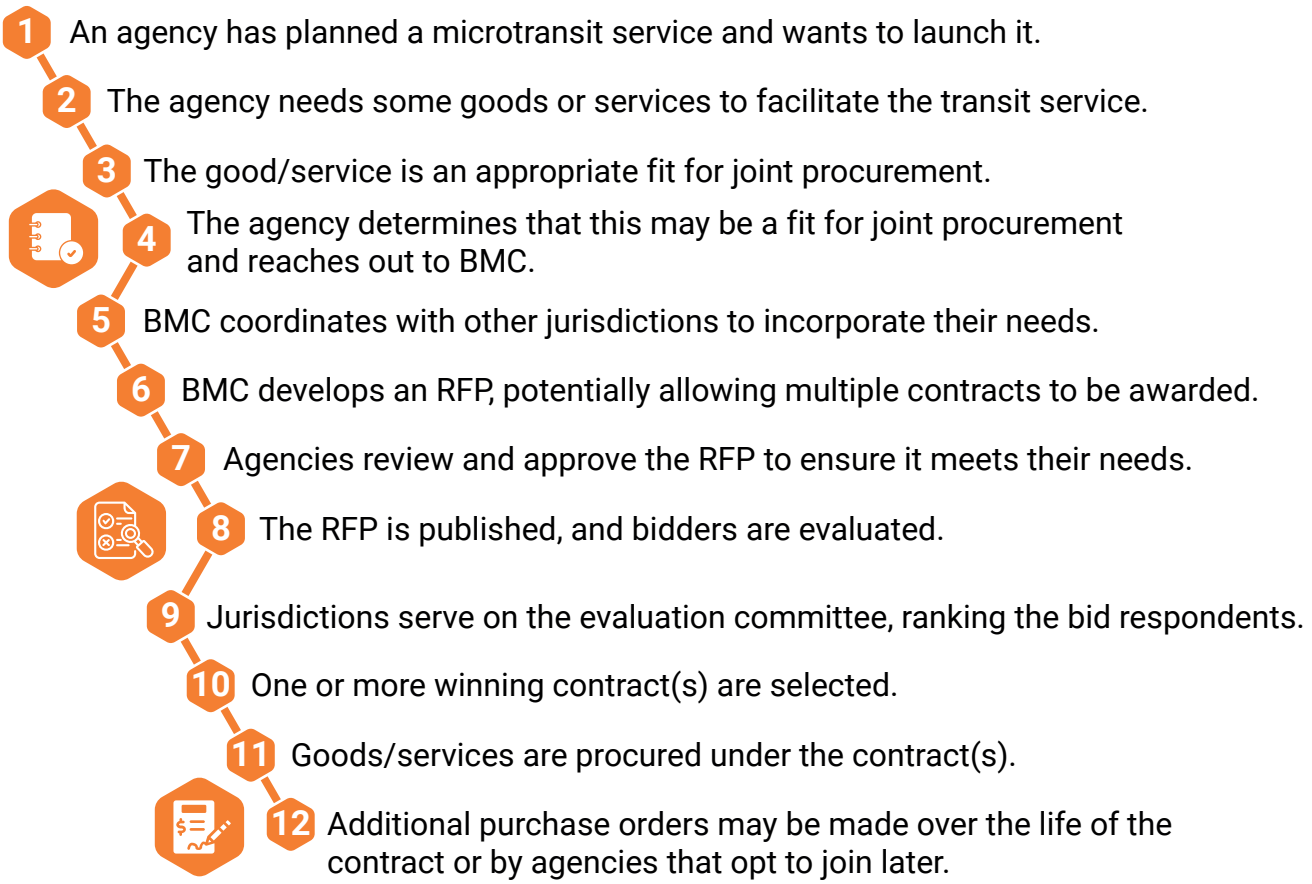
In cases where BMC and jurisdictions partner to develop a procurement agreement, each body benefits. Jurisdictions can provide input based on their needs, while benefiting from economies of scale and a reduced burden on them to develop an RFP and pursue bids on their own. BMC is able to take input from jurisdictions to focus the proposal and can have the jurisdictions participate in the selection committee. This collaboration serves to make the RFP stronger, as jurisdictions have different insights into their own needs, as well as an understanding of regional travel. Agencies who opt not to pursue the joint procurement can still pursue their own procurement. The RFP may allow agencies to join in later, potentially benefiting agencies that do not have an immediate need.

FTA provides resources on joint procurement:

- **Joint Procurement Clearinghouse:** Online tool for agencies to identify other transit providers, how to work together, and ways to pool purchases.[21]
- **Best Practices Procurement and Lessons Learned Manual:** Resource for FTA grant recipients to understand third-party procurement requirements.

Joint Procurement Process led by Regional Entity

The exact procurement process may vary, but a general flow for a regional agreement could look something like the steps below:



21 https://www.transit.dot.gov/funding/procurement/joint-procurement-clearinghouse

REGIONAL ROUNDTABLE

A key approach to strengthening regional collaboration is convening local stakeholders and leaders in a roundtable to address shared challenges and issues. Roundtables foster open discussion, allowing stakeholders equal opportunities to participate regardless of their role or status, or, in the case of the BMC, the geographic or demographic size of the jurisdiction they represent.

As agencies in the Baltimore region study, design, implement, and refine microtransit services, a regional roundtable can provide an opportunity for agencies to connect and discuss topics including, but not limited to:

- Fare integration
- Cross-jurisdictional service
- Joint procurement
- Training
- Policies
- Data collection and reporting
- Funding
- Performance monitoring

For roundtables to be effective, they must be structured with clear ground rules that guide both organizers and participants. **Table 8** outlines these foundational ground rules, organized into categories specific to participants and organizers. These guidelines ensure that discussions remain productive, inclusive, and focused on achieving meaningful outcomes.

To organize a successful roundtable, follow these steps:

- Establish goals
- Select a moderator
- Invite stakeholders
- Select key discussion points
- Set an agenda
- Conduct roundtable
- Record, synthesize, and share results

Table 8: Participation Guidelines[22]

PARTICIPANTS	ORGANIZERS
Attend all scheduled meetings and actively participate whenever possible. If unable to attend, ensure a representative is sent.	Attend all scheduled meetings. If unable to attend, ensure a representative is sent.
Approach each meeting with an open mind and a willingness to listen.	Secure meeting space and develop materials to foster discussion.
Allow space for others to contribute without dominating the conversation.	Provide notice of scheduled meetings and track attendance.
Practice active listening; do not interrupt other participants or engage in side conversations.	Respect participant time by following an established agenda, starting and ending meetings on time.
Limit cell phone use to the extent possible. If you must take a call, please do so outside the meeting space.	Record, synthesize, and share results and ideas.
Decisions will be made collaboratively, with participants working together to plan next steps and fully back the group's choices and actions.	Foster a positive group environment where all members feel comfortable expressing their views and asking sincere questions.

22 Ground rules were developed based on the Atlanta Regional Commission's Regional Safety Task Force: https://cdn.atlantaregional.org/wp-content/uploads/rstfmeetinggroundrules.pdf

MINNEAPOLIS-ST. PAUL **CASE STUDY**

The Minneapolis-St. Paul metropolitan area contains five transit agencies: Metro Transit, Maple Grove Transit, Plymouth Metrolink, Minnesota Valley Transit Authority (MVTA), and SouthWest Transit. The agencies started meeting regularly in 2024, roughly every other month, to discuss the various microtransit services operated in the region. At these meetings, they share observed challenges with their services and lessons learned that other agencies can then avoid or benefit from. The hope is that these conversations and collaboration will reduce the fragmentation and inconsistency between microtransit programs operated by neighboring transit agencies.

RETENTION AND RECRUITMENT INCENTIVES

Public transit providers across the country continue to face a shortage of operators across several modes, including microtransit, post-COVID. The cause of operator shortages varies between agencies — even when they are within the same region, like Baltimore. Responsive recruitment and retention initiatives can play a role in minimizing staffing deficits and preventing shortages. This section details potential strategies agencies can use in their recruitment processes and the development of long-term investment in their staff as their microtransit service matures.

Recruitment

ASSESSING THE STATE OF THE HIRING PROCESS AND ESTABLISHING PERFORMANCE METRICS

Agencies looking to hire new staff for their microtransit service should investigate the current state of their hiring process. It is important to identify trends and possible barriers to recruitment and retention, as well as strengths within their hiring process. Agencies that might have limited visibility with their processes could start by establishing hiring metrics they would find useful for the long-term success of their microtransit service. Alternatively, agencies can also develop metrics that speak to known issues within the workforce to potentially reveal trends and barriers. **Table 9** shows examples of performance indicators an agency can use in the hiring process for specific outcomes. The aforementioned regional roundtable, led by BMC, can serve as a forum for discussing workforce issues and collective problem-solving.

Table 9: Useful Performance Indicators[23]

INDICATOR QUESTION	USE
How many outreach events do we attend per month by type, such as career fairs or pop-up recruitment at community events?	Tracking the number and type of recruitment activities and their outputs enables an agency to understand the effectiveness of each activity. For example, if career fairs at technical schools tend to yield fewer applications than at neighborhood events, recruiters can either reprioritize their resources or re-examine their approach to technical school recruitment.
On average, how many applicants do we get per outreach event by type?	
How many hiring actions do we have each month?	
On average, how many hiring actions do we get per outreach event by type?	
How many prospective employees begin an application but do not finish or submit it?	Understanding whether application completion is a factor in recruitment can indicate that the application itself may need revision or additional resources to help applicants complete them.

23 Example from APTA-Workforce-Shortage-Synthesis-Report-03.2023.pdf

CAPTIVATING MARKETING AND MESSAGING

Marketing plays a notable role in the public's reception toward microtransit—and it can also play an equally important role in the recruitment process. Agencies should assess whether current branding and marketing materials have a competitive edge over other agencies or industries looking for similar candidates and whether the messaging shows the highlights of working for them and the value they offer. With multiple transit expansion projects and new developments planned for the Baltimore region, local transit agencies can take advantage of the planned growth occurring in their jurisdictions, weave it into their marketing strategies, and attract candidates who want to contribute to increasingly innovative transit in their communities. As the convening body for regional interests and issues, BMC can support local agencies by helping to create salient and attention-getting messaging and marketing materials that promote employment opportunities.

REFERRAL NETWORKS

Transit agencies in the Baltimore region serve a vast array of communities with various local networks that can be tapped into for job referrals. Local partner networks include workforce development programs, refugee and immigrant support organizations, local high schools, colleges and universities, and technical schools. If such partnerships already exist, conducting a strengths, opportunities, weaknesses, and threats (SWOT) analysis can be useful for identifying successes, shortcomings, and barriers to partnership. **Table 10** lists a few entities local to the Baltimore region that transit agencies can potentially partner with to garner prospective applicants. To lead the region in this space, BMC can also set up a career resource center to help job seekers find opportunities and get connected with potential employers.

Table 10: Partner Entities in the Baltimore Region

ENTITY	NETWORK	JURISDICTION(S)
Maryland Workforce Expressway	Workforce Development	Statewide
Train Up	Workforce Development	Baltimore City
Howard County Office of Workforce Development	Workforce Development	Howard County
Lincoln Tech in Columbia, MD	Technical College and University	Howard County
Susquehanna Workforce Network	Workforce Development	Cecil County, Harford County
Anne Arundel Works	Workforce Development	Anne Arundel County
Anne Arundel Community College	College and University	Anne Arundel County
Carroll Works	Workforce Development	Carroll County
Community College of Baltimore County (several locations)	College and University	Baltimore County
Amalgamated Transit Union Local 1300	Labor Organization	Regionwide
Casa de Maryland	Workforce Development, Immigrant Support	Baltimore City

ENHANCING CANDIDATE AND EMPLOYER EXPERIENCE IN THE APPLICATION PROCESS

In tandem with captivating marketing and messaging, agencies should refurbish the application process to benefit both applicants and reviewers. Agencies can improve the user experience for potential candidates in many ways, including redesigning their current website and online applications for mobile use, offering assistance with online application questions, accepting in-person applications for those who may not be tech-savvy, and simplifying application language.

On the agency side of the application process, agencies with successful recruitment techniques may be overwhelmed if they do not have sufficient human resources staff to keep pace with the number of applicants. Depending on if application trends are consistently high or are more cyclical, agencies can create pathways for interns or look toward full-time employment opportunities in this field as well.[24] In addition to an increase in human resources availability, agencies can also develop hiring metrics that speak to hiring, retention, and other criteria pertinent to an agency's workforce goals.

BMC's Workforce Development arm can play an outsized role by continuing to provide insight into labor market trends, as well as offering recruitment assistance at no cost to the employer and reimbursement for customized training to meet the specific needs of an employer.

Retention

COMPETITIVE BENEFITS

Flexibility with scheduling, paid time off, sick leave, insurance policies, and retirement programs are all essential benefits. Agencies can explore additional incentives based on target audiences or particular goals they are looking to reach. For instance, not only could tuition assistance programs attract younger workers, but they can be a driver toward maintaining retention over time. Additional segments of the workforce might be reached through innovative programming and partnerships with institutions that can provide pathways to further their careers.[25,26] Additionally, at the regional level, BMC's Workforce Development arm can support retention by offering existing workers the training they need to stay competitive in their position and field.

Regardless of target audience, for both benefits and compensation, it is important to enact clear and transparent policies so employees know the benefits they have access to.

INCLUSIVE ROSTERING EXPERIENCES

Rostering procedures to determine an operator's runs and days off is another catalyst toward retention. Instead of using the cafeteria approach, which gives operators with more seniority first pick, there are different strategies agencies can consider to minimize potential dissatisfaction with shifts among operators of different levels of experience. Some agencies provide weekly rosters, grouping runs together to minimize the difference between operators' workweeks. Others may offer differential pay to workers driving less than desirable runs.[27] Depending on the service delivery model an agency chooses for their microtransit service, an agency may be faced with constraints (e.g., collective bargaining agreements from unions), which might impact how shifts are assigned. It is important to bring various stakeholders together to explore feasible strategies to implement well-received rostering procedures.

24 Transit Workforce Shortage Synthesis Report, APTA, https://www.apta.com/wp-content/uploads/APTA-Workforce-Shortage-Synthesis-Report-03.2023.pdf

25 Santa Clara Valley Transportation Authority's Joint Workforce Investment (JWI) program is the first in the country to offer an apprenticeship for bus operators: https://www.jwiworks.com/

26 For a more regional example, MDOT MTA recently developed the Maryland Apprenticeship and Training Program with its first cohort in the Spring of 2024. https://www.labor.maryland.gov/employment/appr/index.shtml

27 Transit Workforce Shortage Root Causes, Potential Solutions, and the Road Ahead, APTA, https://www.apta.com/wp-content/uploads/APTA-Transit-Workforce-Shortage-Report.pdf

REPORTING

Standardized reporting, whether conducted nationally for FTA or regionally by an entity like BMC, can help transit agencies monitor, evaluate, and improve services. Standardized reporting for microtransit, in particular, allows agencies to share insights, align service improvements, and provide common stakeholders with transparent, comparable data. This section outlines existing reporting requirements at the federal level, as well as a potential framework for standardized reporting at the regional level. Guidance for agency-specific reporting metrics can be found in **Performance Monitoring** in Section D.

Federal Reporting

Transit agencies are required to report data regarding the financial, operating, and asset conditions of their system to FTA's NTD. The purpose for this reporting is best described by FTA, which states:

> The NTD is designed to support local, state and regional planning efforts and help governments and other decision-makers make multi-year comparisons and perform trend analyses. It contains a wealth of information such as agency funding sources, inventories of vehicles and maintenance facilities, safety event reports, measures of transit service provided and consumed, and data on transit employees. FTA uses NTD data to apportion funding to urbanized and rural areas in the United States. Transit agencies report data on a number of key metrics including Vehicle Revenue Miles (VRM), Vehicle Revenue Hours (VRH), Passenger Miles Traveled (PMT), Unlinked Passenger Trips (UPT), and Operating Expenses (OE).[28]
>
> — Federal Transit Administration, The National Transit Database

One part of FTA's NTD reporting requirements includes reporting data related to any demand response service provided. Microtransit and ADA paratransit are largely reported to NTD as demand response service and lumped into this one category.[29] The two services may be broken out and reported distinctly if they are directly operated or purchased. However, agencies may be required to report metrics on each mode separately, such as for board committees, operating divisions, or cost or funding metrics. Accounting for each service can be difficult, as they may rely on different technology or performance metrics.

For agencies with commingled services, it can be difficult to calculate revenue miles or hours for a particular service type or costs associated with operations of each service. FTA's assigned NTD analysts can assist agencies in the Baltimore region who may have questions about reporting policies.

28 https://www.transit.dot.gov/ntd
29 https://www.transit.dot.gov/ntd/recent-ntd-developments-frequently-asked-questions#B-15%20-%20ADA

State/Local Reporting

MTA's Office of Local Transit Support (OLTS) is designed to provide technical assistance to locally operating transit systems (LOTS) related to, but not limited to, compliance, planning, and training. The LOTS Program Manual provides comprehensive guidance on federal and state rules and regulations for providing public transit services. One key aspect of the LOTS Program Manual is the requirement to report financial and operating data to an MTA Regional Planner on a quarterly basis.

The operating budget form, **Form B-2,** asks operators to detail vehicle operations expenses as well as purchased services by funding source.

Form 2a: Service Performance Summary asks LOTS to report data similar to the metrics provided to NTD, including VRM, VRH, number of trips, and operating costs.[30] MTA asks for performance data to be reported by one of the following service types: fixed-route, demand response, or deviated. Just as with NTD reporting, there is limited guidance on how to properly report microtransit, particularly commingled microtransit and paratransit service. An agency's designated MTA Regional Planner may be able to answer questions and assist agencies to ensure accurate reporting.

30 https://mta-website-staging.s3.amazonaws.com/mta-website-staging/files/Regional+Transit/LOTS/2017+LOTS+Manual+Rev.+4.pdf

F. What Microtransit Resources Exist?

Additional Resources

FUNDING RESOURCES

Federal Funding

Identifying funding resources is a critical step as agencies consider implementing microtransit service. Several options exist for agencies looking to take advantage of federal funding. For example, agencies can repurpose existing funding streams to create "new" microtransit funding sources. This can be done by programing Federal Highway Administration (FHWA) formula funds, specifically metropolitan planning (PL) funds, to create a regional microtransit program. The Congestion Mitigation and Air Quality (CMAQ) program and the Carbon Reduction Program (CRP) are two options within PL funds that metropolitan planning organizations (MPOs) can leverage to fund microtransit. Unlike most other federal funding programs, CMAQ and CRP funds can be used for both capital and operating expenses.

Agencies that are designated recipients of federal funding and have suballocation policies can also revise their existing policies to create regional set-aside programs for Locally Operated Transit Systems (LOTS). Funding from the regional set-aside can be used to pay for high-priority, high-impact cross-jurisdictional projects, such as microtransit programs. Furthermore, reserving or prioritizing funds for cross-jurisdictional projects creates an incentive for local jurisdictions to provide service outside their respective boundaries and formalizes coordinated funding decision-making across agencies. A regional set-aside program which leverages existing FTA formula funding can also help the region implement priority projects that are not funded through the Consolidated Transportation Program (CTP).

The Bipartisan Infrastructure Law (BIL), which authorized the largest federal investment in public transportation in the nation's history, presents agencies with additional funding options. This law allows for agencies to pursue federal discretionary grant opportunities at a regional level. Specific grant opportunities available for microtransit include:

- **Advanced Transportation Technology and Innovation (ATTAIN) program:** Eligible entities include state and local governments, transit agencies, MPOs, and a consortium of research or academic institutions. Recipients may use this funding for transportation and congestion management technologies, such as advanced mobility access and on-demand transportation service technologies. The program will provide $60 million each year through fiscal year 2026. For agencies looking to apply for a grant, the application cycle generally runs from late February to late May.
- **Enhancing Mobility Innovation program:** Eligible applicants include public transportation providers; private for-profit and not-for-profit organizations incorporated in a jurisdiction; state, city, or local government entities; and higher education institutions. The program provided nearly $2 million in funding for fiscal year 2024, with eligible activities including the development of software to facilitate demand-response services. The application cycle for fiscal year 2024 ran from the beginning of July through the end of August. This program is part of the BIL, which reauthorizes funding through fiscal year 2026. However, it is not known at this time if FTA will announce a third notice of funding opportunity for this particular program.
- **Rural Surface Transportation program:** Eligible applicants include states, regional transportation planning organizations, local governments, or tribal governments. The funding may be used for a range of transportation projects, including highway, bridge, and tunnel projects; highway safety improvement projects; or on-demand mobility projects. The most recent application cycle was open from late March 2024 to early May 2024 and awarded a total of $780 million to recipients.

By coordinating discretionary or competitive grant applications such as these on a regional level, jurisdictions compete against others across the country instead of between each other. This approach can foster better regional coordination and promote a cohesive set of regional priorities.

CAPITAL COST OF CONTRACTING

FTA recipients that elect for a contracted public transportation service can take advantage of FTA's **Capital Cost of Contracting** policy to cover a portion of microtransit capital costs.[31] This policy says that FTA will provide assistance with the capital costs accrued through a contract with a vendor. Only the costs associated with privately owned assets are eligible under this policy. For urban areas such as the Baltimore region, FTA will provide up to 40 percent of capital costs, which can enable operators to be more strategic with their funding resources. This may be useful for agencies that choose to implement a "turnkey" microtransit service where a vendor supplies the technology, vehicles, and drivers for operation. See **Performance Monitoring** in Section D to learn more about local partnerships and funding contributions.

31 https://www.transit.dot.gov/funding/procurement/third-party-procurement/capital-cost-contracting

State Funding

Agencies located in Maryland may take advantage of state funding for microtransit through the Maryland Department of Transportation Maryland Transit Administration (MDOT MTA) Statewide Transit Innovation Grant.[32] The program aims to reduce delays and improve connectivity between regional and economic population centers, and may be used for bus, rail, or other transit modes. Eligible applicants include Maryland local governments, locally operated transit providers, or organizations that currently receive MDOT MTA grant funds. Since the program launched in 2018, MDOT MTA has awarded more than $2.7 million in funding for 17 projects, including a microtransit pilot project and a microtransit feasibility study.

Local Funding

Local funding can be raised for microtransit services through ballot measures and local partnerships. Transit ballot initiatives can raise dedicated transportation funding by increasing sales or property taxes. In November 2020, 13 out of 15 transit ballot initiatives were approved across the country, providing $35 billion in transit funding.[33] Other local communities have partnered with stakeholders, such as corporations, foundations, or universities to launch on-demand services.

WAVE TRANSIT — CASE STUDY

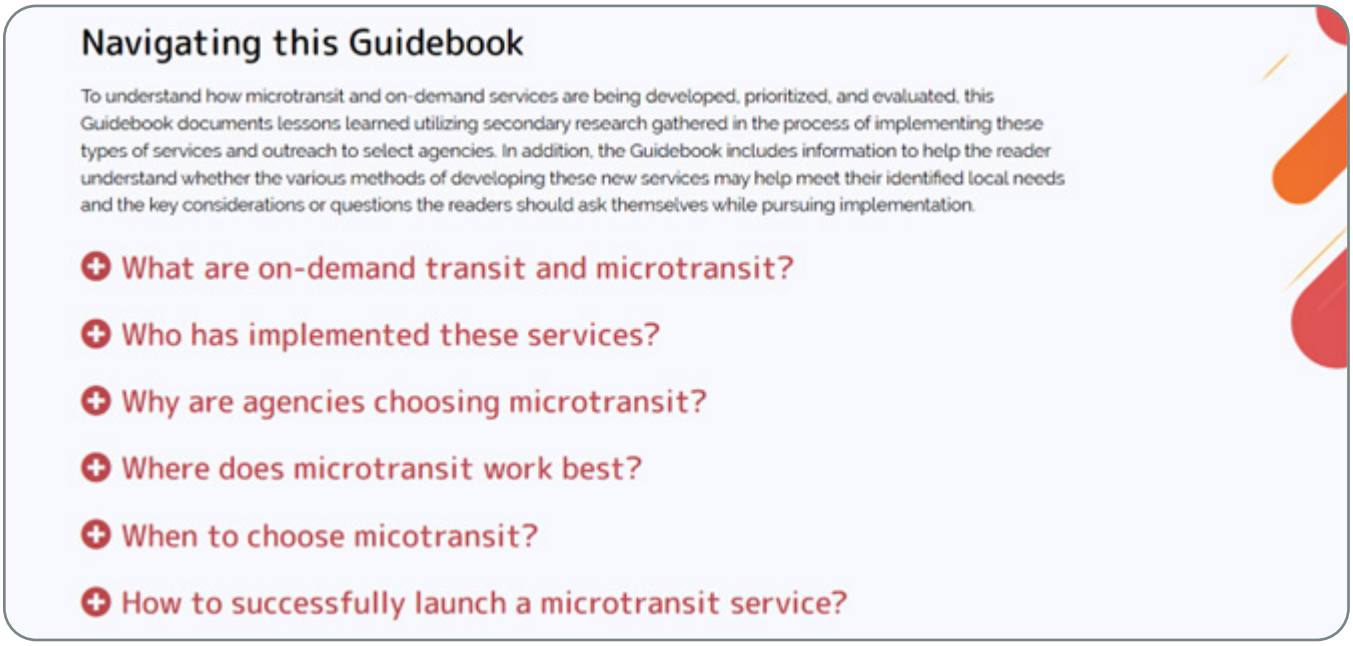
Wave Transit in Wilmington, North Carolina utilized a combination of state funding opportunities to implement their microtransit service, RideMICRO. Through a partnership with the North Carolina Department of Transportation (NCDOT), Wave Transit received $600,000 from NCDOT's ConCPT Grant and $100,000 from the Integrated Mobility Department's Community Transportation Fund. This funding, totaling $700,000, was used to launch the pilot program in 2021. Wave Transit now receives up to $500,000 from NCDOT to continue operating RideMICRO. Additionally, Wave Transit has benefited from community partnerships to enhance their microtransit service. Brunswick Transit System, a nonprofit community transit system, and Pender Adult Services, a community assistance nonprofit, both partnered with Wave Transit to establish the RideMICRO microtransit pilot program.

32 https://www.mta.maryland.gov/grants
33 https://n-catt.org/guidebooks/on-demand-transit-and-microtransit-where-and-why/how-to-successfully-launch-a-microtransit-service/

N-CATT MICROTRANSIT GUIDEBOOK

The National Center for Applied Transit Technology (N-CATT) provides transit agencies with several resources for applying innovative and technological solutions, including microtransit. The N-CATT Microtransit Guidebook defines how microtransit can benefit agencies in various contexts and serves as a high-level manual for designing and implementing microtransit programs. The content includes lessons learned from case studies across the country and can help answer questions about service area design, data collection, marketing strategies, and which service delivery model works best for your agency. For more information, visit the guidebook at N-CATT.org.[34]

Figure 10: N-CATT Microtransit Guidebook Chapters



34 https://n-catt.org/guidebooks/on-demand-transit-and-microtransit-where-and-why/

N-CATT MICROTRANSIT TOOL

N-CATT offers a Microtransit Service Assessment Tool which helps agencies evaluate the potential performance of microtransit and demand-response service in a given area. The tool relies on data from microtransit simulations that are representative of cities where microtransit currently operates. Upon entering a series of inputs, agencies can use this tool to obtain estimates of weekday ridership, vehicle requirements, vehicle service hours, service productivity, and yearly cost. This information can prove valuable for agencies as they plan for implementation and determine the resources and level of service needed for a successful program launch. The tool is especially useful for smaller agencies that may not have the technical capabilities or consultant support to conduct these analyses otherwise. For more information, visit and/or use the tool.[35]

Figure 11: N-CATT Microtransit Service Assessment Tool

35 https://ncatt-tool.demandtrans.com/

TCRP REPORT 141

The Transit Cooperative Research Program (TCRP) Report 141 outlines a methodology for selecting performance measures and identifying peers as part of benchmarking processes. This guidance is beneficial to agencies looking to set performance targets and identify strategies to improve performance. Additionally, TCRP Synthesis 141 provides a state of the practice on microtransit and demand-response programs based on a survey of 22 transit agencies across the country. The report analyzes these survey results to provide insights on why agencies implement microtransit, how to design and market the service, how to procure vehicles and technology, and how to train agency staff. The report also analyzes five transit agency case studies, including details on design processes, challenges, lessons learned, and recommendations for success. These resources can be useful for agencies as they look to incorporate industry best practices into the planning and design of their own microtransit programs. For more information, access Report 141[36] and Synthesis 141.[37]

Figure 12: TCRP Report 141

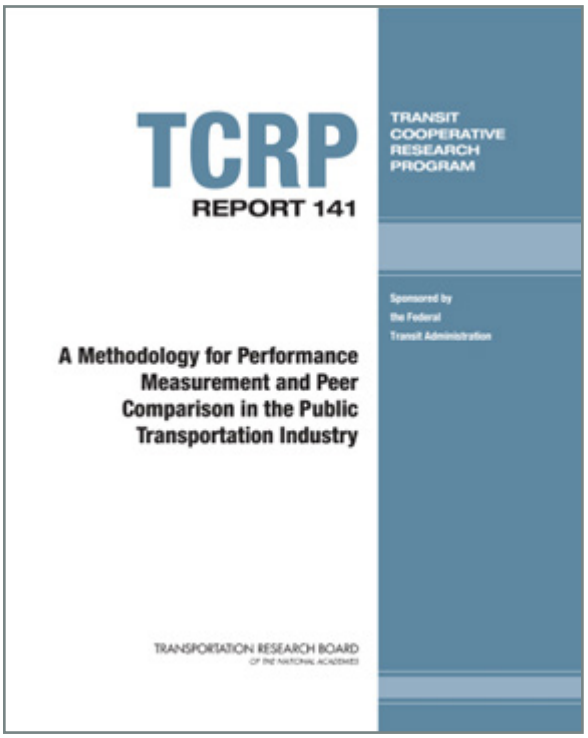
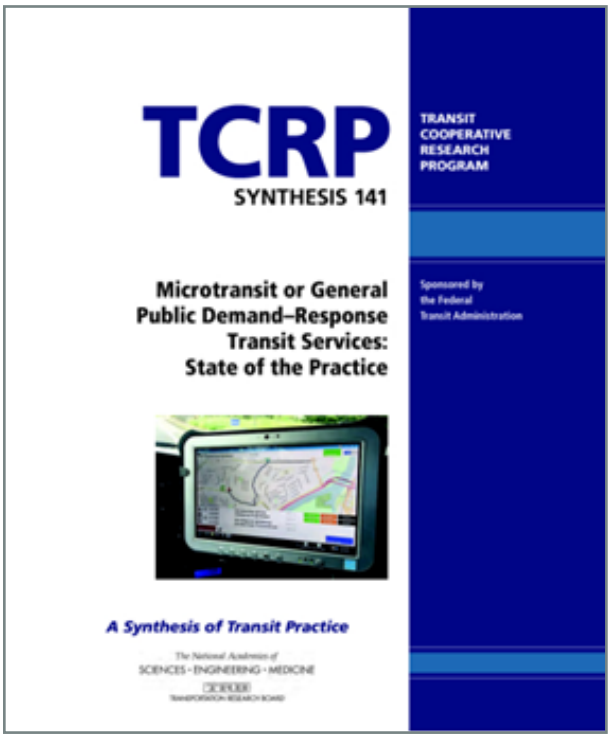


Figure 13: TCRP Synthesis 141



36 https://ftis.org/iNTD-Urban/tcrp_141.pdf
37 https://nap.nationalacademies.org/catalog/25414/microtransit-or-general-public-demand-response-transit-services-state-of-the-practice

Microtransit Guidebook for the Baltimore Region

BRTB Baltimore Regional Transportation Board | Foursquare ITP | Kimley»Horn