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Microtransit Solutions in Rural Communities: On-Demand Alternatives to Dial-a-Ride Services and Unproductive Coverage Routes (2025)

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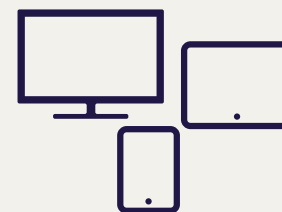
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TCRP

Synthesis 178

A SYNTHESIS OF TRANSIT PRACTICE

Transit Cooperative Research Program

Sponsored by the Federal
Transit Administration

Microtransit Solutions in Rural Communities

ON-DEMAND ALTERNATIVES TO DIAL-A-RIDE SERVICES
AND UNPRODUCTIVE COVERAGE ROUTES



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TCRP SYNTHESIS 178

**Microtransit Solutions
in Rural Communities**

**ON-DEMAND ALTERNATIVES TO DIAL-A-RIDE SERVICES
AND UNPRODUCTIVE COVERAGE ROUTES**

A Synthesis of Transit Practice

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The nation's growth and the need to meet mobility, environmental, and energy objectives place demands on public transit systems. Current systems, some of which are old and in need of upgrading, must expand service area, increase service frequency, and improve efficiency to serve these demands. Research is necessary to solve operating problems, adapt appropriate new technologies from other industries, and introduce innovations into the transit industry. The Transit Cooperative Research Program (TCRP) serves as one of the principal means by which the transit industry can develop innovative near-term solutions to meet demands placed on it.

The need for TCRP was originally identified in *TRB Special Report 213—Research for Public Transit: New Directions*, published in 1987 and based on a study sponsored by the Urban Mass Transportation Administration—now the Federal Transit Administration (FTA). A report by the American Public Transportation Association (APTA), *Transportation 2000*, also recognized the need for local, problem-solving research. TCRP, modeled after the successful National Cooperative Highway Research Program (NCHRP), undertakes research and other technical activities in response to the needs of transit service providers. The scope of TCRP includes various transit research fields including planning, service configuration, equipment, facilities, operations, human resources, maintenance, policy, and administrative practices.

TCRP was established under FTA sponsorship in July 1992. Proposed by the U.S. Department of Transportation, TCRP was authorized as part of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). On May 13, 1992, a memorandum agreement outlining TCRP operating procedures was executed by the three cooperating organizations: FTA; the National Academies of Sciences, Engineering, and Medicine, acting through the Transportation Research Board (TRB); and APTA. APTA is responsible for forming the independent governing board, designated as the TCRP Oversight and Project Selection (TOPS) Commission.

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Because research cannot have the desired effect if products fail to reach the intended audience, special emphasis is placed on disseminating TCRP results to the intended users of the research: transit agencies, service providers, and suppliers. TRB provides a series of research reports, syntheses of transit practice, and other supporting material developed by TCRP research. APTA will arrange for workshops, training aids, field visits, and other activities to ensure that results are implemented by urban and rural transit industry practitioners.

TCRP provides a forum where transit agencies can cooperatively address common operational problems. TCRP results support and complement other ongoing transit research and training programs.

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ABOUT THE TCRP SYNTHESIS PROGRAM

Transit administrators, engineers, and researchers often face problems for which information already exists, either in documented form or as undocumented experience and practice. This information may be fragmented, scattered, and unevaluated. As a consequence, full knowledge of what has been learned about a problem may not be brought to bear on its solution. Costly research findings may go unused, valuable experience may be overlooked, and due consideration may not be given to recommended practices for solving or alleviating the problem.

There is information on nearly every subject of concern to the transit industry. Much of it derives from research or from the work of practitioners faced with problems in their day-to-day work. To provide a systematic means for assembling and evaluating such useful information and to make it available to the entire transit community, the Transit Cooperative Research Program Oversight and Project Selection (TOPS) Commission authorized the Transportation Research Board to undertake a continuing study. This study, TCRP Project J-07, “Synthesis of Information Related to Transit Practices,” searches out and synthesizes useful knowledge from all available sources and prepares concise, documented reports on specific topics. Reports from this endeavor constitute a TCRP report series, Synthesis of Transit Practice.

This synthesis series reports on current knowledge and practice, in a compact format, without the detailed directions usually found in handbooks or design manuals. Each report in the series provides a compendium of the best knowledge available on those measures found to be the most successful in resolving specific problems.

FOREWORD

By Emily Griswold

Staff Officer

Transportation Research Board

With the advent of on-demand technology, on-demand transit services have provided cost-effective, immediate-fulfillment, shared-ride transportation for the general public in areas where or at times when fixed-route service is not viable. Increasingly, transit entities have implemented on-demand models to expand public transit access to new areas or times and, by doing so, have tested the demand in these areas and at these times to potentially replace underperforming routes or route segments with on-demand models.

On-demand transit has been successfully implemented in portions of rural areas with a high demand density. In such a setting, the high demand density enables a transit entity to directly or through a contractor cost-effectively operate on-demand transit as a dedicated service as an alternative to fixed-route service. Moreover, such high-demand settings are more apt to attract transportation network companies (TNCs) and taxis, which can provide on-demand trips either as the primary vendors or in support of a dedicated fleet.

This synthesis documents the current state of practice of transit entities that have implemented on-demand services in rural settings. The authors conducted a literature review and an exploratory survey of 27 transit providers. The agencies responding to the survey ranged widely in terms of ridership, with between 55 and 9,625 passenger trips per month, with all but one agency providing at least 500 passenger trips per month; most agencies had started their service in 2022 or 2023. In addition, the synthesis contains seven case examples of transit agencies that have implemented microtransit in rural settings. These case examples provide insights on services provided, key challenges, notable practices, and lessons learned.

Alanna McKeeman, Jessica Klion, and Laura Duke collected and synthesized the information and wrote the report, under the guidance of a panel of experts in the subject area. The members of the topic panel are acknowledged on page iv. This synthesis is an immediately useful document that records the practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As progress in research and practice continues, new knowledge will be added to that now at hand.



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S U M M A R Y

Microtransit Solutions in Rural Communities: On-Demand Alternatives to Dial-a-Ride Services and Unproductive Coverage Routes

Overview

Historically, rural public transportation providers have offered dial-a-ride service in areas where fixed-route or deviated fixed-route service is not suitable. Dial-a-ride service typically requires advanced booking by phone and, as trips can be relatively long in distance in rural areas, can often serve no more than two to three passenger trips per vehicle revenue hour.

In the past decade, new technologies have become available that offer passengers the ability to book and pay for trips using a mobile application. These technologies are designed to facilitate spontaneous travel and offer passengers real-time information about their vehicle's location and their expected wait time. These technologies offer the ability to dynamically generate routes based on real-time trip requests rather than on vehicles operating according to routes designed, sometimes manually, using a set of pre-identified origins and destinations, as they are in dial-a-ride service. Public transportation service provided using these new technologies is typically termed “on-demand transit” or “microtransit.”

This synthesis study explores the question that these developments have increasingly led rural public transit providers to ask: Can on-demand microtransit service work in a rural context, particularly in settings that are truly low-density?

Through a literature review (Chapter 2), a survey of 19 providers (13 that are U.S.-based) of rural microtransit service (Chapter 3), and interviews with seven rural transit providers (Chapter 4), whose locations are shown in Figure S-1, this synthesis explores this fundamental question. The project focused on rural providers operating service at least partially, if not fully, outside of a U.S. Census–defined urbanized area (using the urbanized area boundaries based on the 2020 decennial census).

Key Findings

The project led to the following key findings:

- All agencies surveyed and interviewed reported that rural microtransit customers greatly appreciate the ability to travel spontaneously or on shorter notice and book trips via mobile app (for those who take advantage of that option) and say these features enhance their quality of life.
- Nearly all agencies have found that demand for their service exceeds their supply—often to a greater extent than the services that microtransit was designed to replace or supplement.

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Figure S-1. Map of case example agencies.

As a result, several agencies are exploring implementing or re-implementing other transit service types to meet the travel needs of more customers in their communities and to decrease the unmet demand for their microtransit services.

- Most agencies that have tried to implement truly on-demand microtransit service across large service areas, and particularly those doing so with relatively fewer resources, have transitioned back to requiring pre-booking due to overwhelming demand.
- The challenge of not being able to meet high levels of demand when serving large geographies indicates that there is an important trade-off to consider when balancing level of service and extent of coverage.
- Most agencies providing rural microtransit still enable subscription trips even if they do not have formal policies that prioritize certain customer or trip types.
- Some agencies have implemented or are exploring customized strategies to manage demand that range from fare adjustments to “releasing” capacity incrementally to specialized operating strategies to increased service availability in rural areas.
- Creating partnerships for small and rural agencies to implement microtransit is a time-intensive practice that has produced significant benefits in some cases, while it has been challenging in others.
- Some case example agencies said they had achieved operational efficiencies, particularly in their internal operations, by implementing new software with app-based booking and dynamic routing capabilities.

- Adoption of app-based booking is not always above 50 percent; adoption requires a population that is receptive to using it combined with hands-on training to help convince hesitant users to try it.
- Distance-based and higher fares are common for rural microtransit providers, particularly those operating countywide or across a larger service area. Complaints about fares are not common.
- With a couple exceptions, most agencies offer service that ends between 4:30 and 7:00 p.m. and that operates only Monday through Friday.
- Zone sizes vary considerably, from under 50 square miles to over 4,000.
- Agencies have taken different approaches to combining or co-mingling their microtransit and paratransit services, with some maintaining a separate paratransit service. Some have seen organic shifts of customers, including ADA customers, from paratransit to microtransit.
- Several agencies said a “slow launch” was an effective strategy, and other agencies said that they wished they had implemented service on a more incremental basis.
- Proactive and ongoing engagement with employees was a strategy that benefited multiple agencies in implementation.
- Federal and state grant programs for microtransit services in rural areas made implementation of services possible for several of the case example agencies.

Future Research

A key finding from this synthesis is that few rural microtransit providers have identified or implemented innovative or complex ways to quantify the benefits of rural microtransit as they related to better economic or societal outcomes. Therefore, this remains an area of practice that could be further explored, given providers’ widespread belief that rural microtransit has highly positive impacts in their communities.



CHAPTER 1

Introduction

Study Objectives

The objective of this synthesis is to document the state of the practice for providing on-demand microtransit service in rural areas. Microtransit service has been well researched and documented in reports such as *TCRP Synthesis 141: Microtransit or General Public Demand–Response Transit Services: State of the Practice* (Volinski, 2019). However, operating microtransit service in rural areas is different from operating service in urban areas and small towns. In rural areas, service zones must be larger to reach the population, trip lengths are longer, aggregating on-demand trips is more difficult, broadband access may be inconsistent, and hospital and clinic closures have increased the distance many people must travel to access medical services. Most practitioners hold the belief that it is difficult to provide truly on-demand service in rural contexts at a reasonable cost while meeting the needs of all residents. Through a literature review (Chapter 2), survey (Chapter 3), and case examples (Chapter 4), this report covers topics relevant to providing microtransit service in rural areas ranging from service design and delivery models to visioning, goals, and performance metrics to procurement, funding, technology, and marketing and customer education. Chapter 5 contains the team’s conclusions related to the state of the practice, highlighting trends and lessons learned from the experiences of the case example agencies.

Key Terms

- **ADA complementary paratransit.** Under the Americans with Disabilities Act (ADA), agencies that provide fixed-route service are required to provide ADA complementary paratransit service—within three-quarters of a mile of all fixed-route service—to people who cannot access or use the fixed-route service because of a disability. Part 37 of Title 49 in the Code of Federal Regulations (CFR) describes the requirements, noting the principle that “each public entity operating a fixed route system shall provide paratransit or other special service to individuals with disabilities that is comparable to the level of service provided to individuals without disabilities who use the fixed route system.”
- **Contracted service.** This term refers to a service model in which a public agency contracts with a vendor or another organization to provide additional functions of a microtransit service beyond the technology and technology support. These functions can include, but are not limited to, drivers, vehicles, operations management, and customer service. This service model is also referred to as “purchased transportation.” Services that are *almost entirely* contracted or purchased, such that the responsibilities of individuals directly employed by the public entity are generally limited to oversight and contract management, are sometimes referred to as “turnkey” services.
- **Demand response service.** The Federal Transit Administration (FTA) defines demand response service [in 49 CFR Section 604.3(g)] as any non-fixed route system of transporting

individuals that requires advanced scheduling by the customer, including services provided by public entities, nonprofits, and private providers. [Circular 2710.2A (FTA, 1988) elaborates: “A demand response system is one where passenger trips are generated by calls from passengers or their agents to the transit operator, who then dispatches a vehicle to pick the passengers up and transport them to their destinations.” The operation is characterized, it continues, by the following: vehicles do not operate over a fixed route or on a fixed-route schedule (except on a temporary basis); vehicles may be dispatched to pick up several passengers at different pick-up points before taking them to their destinations and may even be interrupted en route to these destinations to pick up other passengers; these services can have any combination of origins and destination (i.e., many-to-many, many-to-one, one-to-many, or one-to-one).]

- **Dial-a-Ride.** This is a common form of demand response service that usually operates in a defined area, such as a city, county, or transit agency jurisdiction, during advertised days and hours. Pick-ups and drop-offs can take place anywhere in the service area. Dial-a-ride is most commonly offered in suburban and rural areas without sufficient population density to support fixed-route service. Riders request a pick-up time by calling, and service providers develop routes and schedules according to requests received. The service must be equivalent to passengers with and without disabilities, including wheelchair users (FTA, 2016).
- **Directly operated service.** This is a microtransit service model in which a public agency acquires microtransit technology from a vendor but continues to provide the majority of other service components and functions such as drivers, vehicles, operations management, and (typically) customer service, either directly or through a separate contract.
- **Flexible service.** Unlike fixed-route services that operate on regular schedules and with defined frequencies and fixed origins and destinations, flexible services require a trip reservation or request, sometimes with advance notice. The term flexible service can refer to a number of different modes, including route deviation, point deviation, demand response connector, request stop, flexible route segments, and zone route. Demand response service can be categorized as a type of flexible service, and for the purposes of ADA regulations, the FTA (in 49 CFR 37.3 Appendix D) states that it regards a system that permits user-initiated deviations from routes or schedules as demand responsive. Some demand responsive services can be designed as a hybrid of modes; for more information, see *TCRP Synthesis 53: Operational Experiences with Flexible Transit Services* (Koffman, 2004). (Note that in the context of flexible service, the term “reservation” is used broadly. For a dial-a-ride service, a reservation is scheduling a pick-up, whereas for route deviation, a reservation means asking the operator to deviate to a specific location.)
- **Microtransit.** Microtransit is as an information technology (IT)-enabled passenger transportation service that services passengers by dynamically generating routes and may expect passengers to make their way to and from common pick-up or drop-off locations. Microtransit services offer mobile apps to plan, request, pay for, and track trips, as well as providing routing capabilities that operate dynamically (N-CATT, 2023).
- **On-demand service.** On-demand services are those that allow someone to book their trip within an hour or less of when they want to travel. Even when microtransit routing and scheduling software offers a pre-booking option, on-demand service offers the option for in-service vehicles to receive ride requests and dynamically change their routing to accommodate them if certain conditions are met. While on-demand microtransit services are designed for app-based booking, virtually all agencies in the United States that provide the service also allow customers to book through a call center.
- **Paratransit service.** Paratransit service is a type of passenger transportation that is more flexible than a traditional fixed-route bus but more structured than a private automobile. Paratransit includes demand response transportation services, shared-ride taxis, carpooling and vanpooling, and jitney services. It most often refers to wheelchair-accessible demand response service without a mobile booking option.

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- **Rural.** Across the United States, the term “rural” is not defined consistently, and by some seems to be used to describe all places other than urban or dense suburban areas. For the purposes of this report, rural is defined as areas that were located outside of a U.S. Census-designated urbanized area (sometimes referred to as a “UZA”) as of 2020. Urbanized areas are those located in proximity to a region with a total population of at least 50,000 and that have a population density of more than 500 people per square mile. This report focuses on microtransit services that operate in part or fully outside of urbanized area boundaries. This definition is critical to the study; there are many agencies that operate microtransit in small towns outside of dense urban areas but fully or predominantly within urbanized areas. (Note that the U.S. Census defines urbanized areas as areas with 50,000 or more people and a minimum of 1,275 housing units per square mile. The Census defines all areas that do not qualify as urbanized as rural. The FTA designates areas located outside of a U.S. Census-designated area with a population of less than 50,000 as rural and eligible for 5311 formula funds.)


CHAPTER 2

Literature Review

This chapter synthesizes relevant literature on topics related to providing on-demand microtransit service in rural settings. Key topics that are addressed in the literature review include on-demand microtransit service models; procurement for on-demand microtransit services; strategies for marketing and customer education of on-demand microtransit services; technology considerations of on-demand microtransit service; and performance measurement of on-demand microtransit services.

On-Demand Microtransit Service Design Overview, Use Cases, and Operating Models

On-Demand Microtransit Service Design Overview

On-demand microtransit service offers nearly unlimited opportunities to customize service parameters to meet the needs of the provider and its customers. The service provider can define the boundaries where the service should operate, identify permitted out-of-zone destinations, set parameters related to how far someone could be asked to walk to get to their pick-up point, identify which categories of trips or passengers to prioritize, and much more. For example, service providers can create overlay zones to keep some vehicles within a certain area while allowing others to roam around a larger service area.

In the United States, rural microtransit service areas typically fall into two general categories:

- **Countywide or large area service** involves microtransit operated within the boundaries of an entire jurisdiction or multiple, connected jurisdictions. This type of service usually covers at least 50 square miles of area—typically much more—and in some cases, up to thousands of square miles.
- **Town or small area zones** are less—often much less—than 50 square miles, and the zones are set to enable people to circulate within the area but not connect to major destinations outside of the town or a neighboring town. In this type of zone, a vehicle is typically never more than 5–10 miles away from where the next trip request will originate. In these cases, vehicles typically cannot travel between zones unless the zones overlap (N-CATT, 2023).

On-Demand Microtransit Use Cases

On-demand microtransit service can address a variety of purposes or fit into one or more general “use cases,” or typologies. In some cases, agencies use on-demand microtransit as just one service in a family of services. There is also no one-size-fits-all for transit service, and on-demand microtransit service can serve multiple use cases (Volinski, 2019). However, understanding the need and purpose for an on-demand microtransit service is helpful for agencies when designing

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their service. Common use cases for on-demand microtransit services in rural settings include service coverage expansion, replacement or supplement for a traditional demand response service, and first-mile and last-mile coverage/connector.

- **Coverage expansion.** In many rural settings, transit agencies provide service to multiple localities across a large, low-density service area. Microtransit service is sometimes implemented to expand coverage. In some cases, transit agencies supplement fixed-route or deviated/flex route bus service with on-demand microtransit service to provide transit service coverage across a larger area (N-CATT, 2023).
- **Dial-a-ride replacement.** Some agencies have implemented on-demand microtransit to fully replace their traditional dial-a-ride service. Transitioning dial-a-ride service to microtransit gives customers the flexibility to book via mobile app for on-demand (immediate) service, typically improving the customer experience and convenience. This option can also reduce the burden on call center staff of booking and dispatching trips. For agencies that provide a separate ADA complementary paratransit service, microtransit can reduce demand on that service, as ADA customers sometimes organically shift to microtransit. Furthermore, the technology used in microtransit service can also be used for scheduling and dispatching ADA paratransit trips (N-CATT, 2023); the practice of co-mingling passengers on microtransit and ADA paratransit services is rapidly evolving.
- **First-mile/last-mile service.** Another use case for on-demand microtransit service is to provide a connection to fixed-route service; this is often referred to as a “first-mile/last-mile connection” or “feeder” use case. In addition to increasing coverage, a service of this use case allows customers to connect to fixed-route services that operate in areas beyond walking distance. Connecting to fixed-route transit by foot or mobility device can be a particular challenge in rural areas, which tend to be auto-oriented with limited sidewalks and low-density land uses (N-CATT, 2023).
- **Fixed-route or deviated route replacement.** Some agencies have implemented microtransit services to replace fixed-route, or deviated route, service(s). Typically, agencies do this when fixed-route services are relatively unproductive (i.e., operating at a relatively high cost per passenger trip or per passenger mile). In some cases, this replacement may also be made upon the request of customers or stakeholders who desire an alternative service type that is more flexible to meet the needs of passengers’ travel.

Service Delivery Models

On-demand microtransit service can be operated using a wide variety of service delivery models. These models can fall on either end of a spectrum—that is, they can be fully directly operated or fully contracted out to a single vendor—or they may fall somewhere in the middle through a “hybrid” service delivery model. Functions such as reservations, scheduling, customer service, operations, vehicle provision, and facility provision can all be directly managed by a service provider or contracted out (Rodman, 2022). The different approaches to service delivery are described in detail in *TCRP Synthesis 161: ADA Paratransit and Other Demand-Responsive Transportation Services in Small to Midsized Transit Agencies* (Rodman, 2022) and summarized in Table 1.

Procurement of Rural On-Demand Microtransit Services

Rural Challenges to Accessing Private Sector Providers

While the market of operators for on-demand microtransit service is evolving, transportation network companies and providers of contracted services most often work in more urban

Table 1. Demand response service delivery models (adapted from Rodman, 2022).

Service Delivery Model	Description
Fully Directly Operated	All functions are directly managed and carried out by the service provider.
Fully Contracted (“Turnkey”)	All functions are overseen by the service provider but managed and carried out by a contractor.
Split Call and Control Functions	Reservation and customer service functions are managed by the service provider, but all other functions (scheduling, dispatch, operations, vehicle provision, and facility provision) are managed by a contractor.
In-House/Overflow	All functions are directly managed and carried out by the service provider, but a contractor provides overflow support for operations, vehicle provision, and facility provision.
Turnkey/Overflow	All functions are managed and carried out by a contractor, but the service provider offers overflow support for operations, vehicle provision, and facility provision.
Operational Contractor(s)	Reservations, scheduling, dispatch, and customer service are managed and carried out by the service provider, but operations, vehicle provision, and facility provision are carried out by one or more contractors.
Duplicate Call and Control Functions	All functions are directly managed and carried out by the service provider for advanced requests and wheelchair-accessible service. Reservations, dispatching, scheduling, operations, vehicle provision, and facility provision are managed and carried out by a contractor for same-day and non-wheelchair-accessible service.
User-Side Subsidy Program	All functions are carried out by a taxi company or other contractor. The service provider subsidizes the cost of the trip for the rider.
Operational Contractor(s)/ Agency Assets	All functions except operations are directly managed by the service provider. A contractor operates the system using the service provider’s vehicles and facility space.

and suburban settings rather than in rural settings. Although most technology providers can operate in rural settings, it is not uncommon for rural on-demand microtransit providers to directly operate or use a hybrid approach for service delivery (Rodman, 2022). Microtransit service vendors are sometimes not as inclined to work with small transit agencies that lack the resources of larger jurisdictions. Smaller agencies may require more direct support and training from software vendors than larger agencies do (Virginia Department of Rail and Public Transportation, 2023).

In one example, RIDE, the on-demand microtransit service in Wilson, NC, struggled to find enough vehicle providers to meet demand during its pilot period. RIDE started as a service fully contracted to the technology provider, which partnered with a vehicle provider that could only perform maintenance at a facility located over an hour away from the RIDE service area. The limited availability of vehicles led to decreased quality of service and lower ridership (North Carolina Department of Transportation, 2023). This is largely an issue in fully contracted operations, where the service provider is relying on a vendor to provide vehicles to operate the service. However, if an agency is operating under a fully contracted model, it would typically want to ensure the contractor has an adequate supply of vehicles and maintenance services within reasonable proximity to maintain the expected level of service, a requirement which can be challenging in rural areas.

In addition to maintaining an adequate supply of equipment and services, another challenge of operations in rural areas, under any service model, is operator availability. Nationwide, transit agencies are experiencing operator shortages. Accelerated by the COVID-19 pandemic, many

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transit service providers have faced hiring challenges, especially for transit drivers and maintenance staff. Additionally, the transit workforce is aging, which will further exacerbate the workforce shortage (APTA, 2023). This issue can be felt particularly in rural areas, where the potential workforce is more dispersed compared to denser urban and suburban areas. The proportion of U.S. residents living in rural areas has been on the decline for over a century.

Procurement Process

Rural agencies have also run into challenges with procurement of on-demand microtransit technology and/or service in general. Small rural agencies often do not have staff who are familiar and comfortable with procurement processes, nor do they always have staff available to monitor and oversee a vendor once a contractor is procured (Rodman, 2022). For microtransit vendors, it may be difficult to make the business case for pursuing a request for proposal for just one small rural agency.

Marketing and Customer Education

Marketing is essential to both ensure that the public is aware of the new service and to teach current and potential riders how to use the service. Transit agencies can use their past techniques to promote the service; still, educating the public on a new and unfamiliar service can present challenges (Volinski, 2019). Transit service providers have found success when marketing and education efforts are continuous, beginning prior to service implementation and continuing after a service launches. This effort requires forward thinking and planning with regard to project budgets, resources, and staffing. Proactively maintaining connections with customers and community stakeholders can result in strong relationships between the service provider and microtransit customers, as well as higher ridership retention rates (Hansen et al., 2023).

Transit service providers can use a variety of strategies to market on-demand microtransit service and educate current and potential customers. In general, marketing campaigns are most effective when they are tailored to specific audiences. Some customers, such as those less comfortable or familiar with smartphone technology, may respond best to in-person communication and demonstrations, while others may respond better to other types of marketing campaigns (Hansen et al., 2023).

Prior to launch, strategies for marketing new on-demand microtransit service typically include:

- Creating a dedicated website for the service;
- Developing a press release that directs potential customers to download the microtransit mobile app;
- Creating a short video on how to use the service and sharing it on the website and on social media;
- Distributing brochures and flyers;
- Using brand ambassadors at key travel destinations fluent in English and/or other languages appropriate for the local population;
- Purchasing radio spots and television commercial time on channels in English and other languages appropriate for the local population;
- Presenting information at community meetings, including homeowner association meetings or local government meetings;
- Engaging with community partners through meetings and events;
- Conducting travel trainings for current and potential transit customers;
- Mailing notices and free ride coupons to residents living within the new service area; and
- Holding ribbon-cutting ceremonies at the start of the new service (Volinski, 2019).

Once a service launches, to encourage ridership some agencies use fare promotions, such as offering a fare-free period or offering the first two rides for free. Agencies and organizations operating on-demand microtransit service sometimes also promote ridership through referral programs with existing riders. The on-demand microtransit vehicles themselves can also serve as a marketing tool; a branded vehicle moving throughout a community is advertising the service while simultaneously providing it. Transit service providers can also leverage available data collected by the mobile app to inform their marketing tactics. Some service providers target direct marketing to areas that generate or attract the most trips, such as apartment complexes, and can send emails and push notifications to existing riders (N-CATT, 2023; Hansen et al., 2023).

Technology

Rural Technology Challenges

On-demand microtransit service relies on mobile broadband service to operate, which can pose barriers in rural settings. On the operating side, a lack of broadband internet coverage can interrupt on-demand microtransit operations. Because on-demand microtransit service is dynamic, operators must be connected to the microtransit technology when in the field. Limited broadband and cell phone service in rural areas can make this a challenge. For example, when the Baldwin Regional Area Transit System (BRATS) first implemented on-demand microtransit service, operators used tablets in their vehicles. However, due to connectivity issues, operators had to switch to smartphones to have more reliable service that provided operators with the most up-to-date routing possible (N-CATT, 2023). Federal investment in broadband infrastructure is expected to lessen gaps in broadband coverage in the coming years (The White House, 2023).

Another key challenge that rural transit agencies face is technology availability. While urban and suburban transit agencies are typically set up to use a range of transit technologies, including automated vehicle locators, GPS, and computerized scheduling and dispatching systems, rural transit providers are often equipped with only cell phones and voice radios (Potts et al., 2010). Rural agencies in Michigan, for example, indicated through a survey that they are interested in implementing technology solutions such as scheduling/dispatching software and fare collection software as well as in-vehicle software (Michigan Department of Transportation, 2022).

A third challenge for rural agencies is comfort with technology for both agency staff and the people the agency serves. In the survey of rural transit agencies in Michigan, for example, agencies indicated that although they are interested in technology solutions, they also see a lack of technical experience among staff and customers. When asked how tech-savvy the public and their transit agency are, respondents rated the public an average of 4.3 on a scale of 1 to 10 and agencies an average of 5.4 on a scale of 1 to 10, with 10 being the most tech-savvy. This indicates a gap in ability to use, or comfort with using, a technology-enabled, smartphone-reliant transit service such as microtransit (Michigan Department of Transportation, 2022).

Challenges Related to Broadband and Smartphone Access

While the gap in broadband availability in the United States is decreasing, the ability to take advantage of it remains an issue in some locations and for certain population groups, including older Americans, lower-income Americans, and people with disabilities. Surveys indicate that older adults are less likely to have a smartphone than those ranging in age from 18 to 64. Smartphone ownership increases with income; approximately 79 percent of people in households earning \$30,000 or less annually own a smartphone. Smartphone ownership increases to 90 percent of people when income increases from \$30,000 to \$69,999 annually. Research has found that

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nearly a quarter of rural Americans say broadband access is a problem in their community, and approximately 15 percent of rural Americans do not own a smartphone (Gelles-Watnick, 2024).

Smartphone ownership, of course, does not guarantee consistent and stable internet access. Even when broadband is available, the high cost of data services and home internet plans can make consistent internet access a barrier to microtransit usage for low-income households, especially in rural areas. Many Americans who do not have home broadband internet cite affordability as a major barrier (U.S. Government Accountability Office, 2023). About 330,000 tribal households and nearly 3.5 million total rural households were enrolled in the federal Affordable Connectivity Program before it lapsed in 2024 (Federal Communications Commission, 2024), indicating a high level of need for affordable broadband access.

Funding

Although rural areas generate a lower concentration of demand for transit compared to urban and suburban areas, many residents of rural areas have unmet transportation needs. For this reason, rural transit providers serve as a lifeline for these residents. In some cases, no other publicly available and/or affordable transportation option may operate in the area, and individuals without their own private vehicle may rely entirely on publicly available transportation for all their travel needs. Rural transit providers often face specific challenges in operating service. Costs on a per-trip and per-passenger basis are generally high in rural areas compared to service in urban and suburban areas. Trip distances also tend to be longer than in urban and suburban settings, which decreases performance in standard productivity measures (Hosen and Powell, 2011).

Funding is often a challenge rural transit providers face in providing the service that individuals in rural areas need. Rural transit agencies typically serve large areas on limited budgets that attempt to meet a relatively high level of demand. While these agencies have access to federal grants, it can be difficult to access these funds because they cannot obtain enough funding to provide the required local match.

Some rural agencies have overcome funding challenges in innovative ways. For example, Treasure Valley Transit in Idaho worked with several communities in its service area to pass a hotel tax to help provide local funds for transit. Other rural agencies have generated revenues through agreements with retail stores to provide advertising, provide direct service, or both. Partnerships with healthcare providers can also serve as a way to generate additional funds (Hosen and Powell, 2011).

Performance Measurement of On-Demand Microtransit Services

Setting Performance Standards

Identifying and using performance measures to evaluate microtransit service allows providers to understand how well a service is performing and meeting predetermined service goals. Further, setting performance standards and regularly evaluating service provides transparency and data to support service planning and funding decisions (N-CATT, 2023). In one example, as part of the FTA's Mobility On-Demand (MOD) Sandbox program, Los Angeles Metro and Sound Transit and King County Metro (Puget Sound, WA) developed a set of goals for a first-mile/last-mile on-demand program on which they partnered. These goals were then tied to specific performance metrics that could be tracked over time (Cordahi et al., 2018) (Table 2). While designed for agencies operating in an urban setting, a similar framework focused on increased service availability, generally and for target populations, could potentially be applied to a rural context.

Table 2. Example project goals, evaluation hypotheses, performance metrics, data elements, and data sources from the FTA MOD Sandbox demonstration program.

Project Goals	Evaluation Hypothesis	Performance Metric	Data Elements	Data Sources
1. Expand mobility in both regions.	Mobility in both the LA and Puget Sound regions will increase as a result of this new service.	Travel times of all users to and from selected pilot stations, wait times of all users traveling to and from selected pilot stations, travel time reliability	Survey data	Travel activity data, rider/passenger survey
2. Promote equitable mobility benefits across all populations.	(a) Users who previously did not have access to TNCs for first-mile/last-mile trips now have access to TNCs to complete first-mile/last-mile trips.	Number of low-income people who previously did not have access to TNCs as a first-mile/last-mile option	Survey data	Rider/passenger survey
	(b) Integration of Via into the ORCA card will increase its (Via to Transit's) use among (1) low-income populations, (2) unbanked populations, and (3) minority populations.	Number of trips conducted by underserved populations through use of ORCA	Survey data, payment data	Rider/passenger survey, ORCA payment data

Note: TNCs are Transportation Network Companies; Via is a microtransit software provider; ORCA cards are a fare card used for public transit in the Puget Sound region of Washington state.

Establishing performance standards for on-demand microtransit service and evaluating service regularly is widely considered a best practice. On-demand microtransit service is often filling a transit gap; as such, performance standards are most useful when they are reflective of the context in which the service operates (Kittelsohn & Associates, Inc. et al., 2013). Low productivity, as determined through common measures such as passenger trips per hour, is not necessarily a reflection of poorly performing microtransit service, particularly if the goal of the service were, for example, ensuring everyone in an area could get to all their medical appointments on time and safely (Volinski, 2019).

All federally supported public transit providers—including rural providers—are required to report certain data including ridership, vehicle revenue hours and miles, expenditures, and funding sources to the FTA; as such, rural providers almost universally track these metrics (U.S. Department of Transportation, 2024). Many agencies also track on-time performance, customer satisfaction or customer complaints, or other metrics. In a rural context with one service provider in particular, the increased accessibility the provider offers its community is evident. This literature review did not identify any examples of agencies using nontraditional performance metrics to track the success of their microtransit services.



CHAPTER 3

Survey Results

Introduction

For purposes of the survey for this synthesis, the study team identified 27 agencies—18 U.S. agencies, two Canadian agencies, and seven agencies in the United Kingdom—that currently operate or previously operated on-demand microtransit service in rural areas. Nineteen agencies responded: 13 U.S. agencies, one Canadian agency, and five agencies in the United Kingdom (Figure 1).

The respondents represent local or regional transit agencies (53 percent), divisions of a municipality (21 percent), nonprofit organizations that provide transit (21 percent), and a Council of Governments (5 percent).

The survey included 52 questions about microtransit planning, service models, performance metrics, funding, marketing, and other topics related to providing rural microtransit service. Most questions were optional, and most of the multiple-choice questions enabled respondents to select multiple answers, so not all totals displayed in the following results add up to 19, or 100 percent.

Key Survey Takeaways

- **Customer feedback was highly positive**, almost universally. The customer service ratings shared by the agencies ranged from 4.5 to 4.94 on a 1–5 scale and 90–99 percent on a 100-percent scale. Two U.S. agencies mentioned they found the flexibility of the service highly positive, even “life-changing” for customers.
- **All the U.S. respondents’ services are directly operated (i.e., do not use the turnkey model).** A few agencies mentioned wanting to maintain adequate control over the service provision and quality as a motivation for this decision. The reason for the lack of fully contracted service providers in rural areas was unclear.
- **Agencies had a variety of reasons for implementing microtransit.** The most common reasons identified for implementing microtransit service was to increase connections to fixed-route service, including fixed-route service operated by the same agency, fixed-route service operated by other agencies, regional routes and rail, and intercity bus service. Five agencies implemented microtransit to replace flexible fixed-route or fixed-route service, and five agencies are using microtransit to provide service in a new area.
- **About half the services are operated by unionized operators, and multiple agencies involved union members throughout the process of planning and implementing the microtransit service.** Similar to fixed-route service, some are unionized and some are not. The introduction of microtransit has been known in some cases to create tension with other unionized operators; no responding agencies reported issues with implementing microtransit with union members.



Figure 1. Map of U.S.-based survey respondents.

- **Satisfaction with the software used for dispatch, scheduling, and routing varied significantly.** A few respondents commented on the importance of testing the software first to ensure that it would be able to deliver on all the capabilities promised by vendors during the procurement process.
- **App-based booking is a feature not used by the majority of passengers in many cases;** the average percentage of trips that are booked by app among responding U.S. agencies is 40 percent. The most common reported barrier to app-based booking is riders not being comfortable using a smartphone. Two agencies mentioned that the proportion of app-based booking is growing over time for them.
- **Cash payment is still common.** Six responding agencies, five of which are U.S. agencies, have half or more trips paid for by cash.
- **The majority of vehicles used for microtransit service are wheelchair accessible.** Only two U.S.-based agencies reported having vehicles in their fleets that are not wheelchair accessible.
- **Responses varied in terms of whether on-demand microtransit had reduced or increased costs.** Two agencies reported a higher overall service cost, two reported a lower total service cost, and one said total costs have remained stable.
- **Most agencies underwent a visioning and/or goal-setting process** before establishing an on-demand microtransit service. Common goals identified through these processes included expanding transit access, enhancing the customer experience, and improving service reliability and operating efficiency.
- **About half of responding agencies said they established pre-defined performance metrics for their microtransit service.** More than half reported that they have adjusted their service

in response to performance. This has included adding additional terminals and hubs to reduce deadhead miles; hiring new drivers in some areas to maintain short wait times and high on-time performance; and adding vehicles to accommodate more riders and reduce the number of unbooked trips.

Survey Respondent Characteristics

Table 3 shows information for U.S.-based agencies provided by each agency about their organization and microtransit service. Table 4 shows the information for agencies outside the United States.

These tables highlight a few key findings:

- Among U.S. respondents, all the agencies that responded to the survey directly operate their microtransit service (i.e., the service is not operated through a turnkey contract with the technology provider).
- The agencies range widely in terms of ridership, with between 55 and 9,625 passenger trips per month. All but one of the agencies currently operating provide at least 500 passenger trips per month.
- Microtransit vehicle count was positively correlated with ridership, with fleet size for U.S. respondent agencies ranging from one to 72, with an average of 20.
- The zone populations ranged from just over 3,000 to over 360,000, with an overall positive correlation between zone size and population.
- The governance structure of the U.S. respondents varied, with some being divisions within a municipality, some being local or regional authorities or nonprofit organizations, and one being a consortium of agencies. Among the U.K.- and Canada-based agencies, all reported being a local or regional authority.
- All the survey respondent agencies still operating microtransit started their service after the onset of the COVID-19 pandemic in March 2020. In the United States, most started their service in 2022 or 2023.
- All the U.S. respondents reported that they operate another service in addition to microtransit.
- Adoption of the mobile app varied widely from between 5 percent and 80 percent among U.S. agencies. Among the four agencies in the U.K. that responded to the question about app usage, the average adoption rate of the app was 70 percent, with three of the four agencies having rates above 75 percent and one as high as 92 percent.

Planning and Service Design

Fifteen agencies (79 percent) started their microtransit service as a pilot project. Among U.S. respondents, 85 percent said their services started as a pilot. The most common reason identified for implementing microtransit service was to increase connections to fixed-route service, selected by nine agencies (Figure 2). While seven agencies operate fixed-route service, first-mile/last-mile connections in some cases include connections to fixed-route services operated by other agencies, regional routes and rail, and intercity bus service. Five agencies implemented microtransit to replace flexible fixed-route or fixed-route service, and five agencies are using microtransit to provide service in a new area. While three agencies implemented microtransit service to replace paratransit or dial-a-ride service, other agencies indicated that they encourage ADA riders to use microtransit even though they have maintained their other demand response service. Other reasons multiple agencies gave for implementing microtransit included trying out the technology, attracting new riders, and improving connectivity.

Table 3. Survey question responses by agency—U.S.-based agencies.

Agency	Number of Zone(s) and Size(s)	Est. Zone pop.	Agency Type	Monthly Ridership ^a	Service Start	Microtransit Fleet (% Wheelchair-Accessible Vehicles)	Total Fleet	Service Model ^b	% of Trips Booked by App	Other Services Provided ^c
Baldwin Regional Area Transit System (AL)^d	Countywide, 1,590 sq. mi.	231,770	A division of a single municipality	8,465	September 2020	46 (96%)	46	Directly operated	48%	■ Fixed route
Battle Creek Transit (MI)	Countywide, 719 sq. mi.	134,310	A local or regional public transit agency or authority	687	March 2021	5 (100%)	24	Directly operated	70%	■ Fixed route ■ Other demand response
Bay Area Transportation Authority (MI)	Countywide (two counties), 950 sq. mi.	117,540	A local or regional public transit agency or authority	9,625	July 2023	30 (100%)	85	Directly operated	45%	■ Fixed route ■ Deviated fixed route
Bay Transit (VA)	One zone, 17 sq. mi.	[not provided or available online]	A private, nonprofit organization	1,490	July 2021	3 (100%)	48	Directly operated	50%	■ Deviated fixed route ■ Other demand response
Hall Area Transit (GA)	Countywide, 361sq. mi.	203,140	A division of a single municipality	7,340	July 2022	31 (100%)	33	Directly operated	-	■ Fixed route
GoWake Access Transportation (NC)	One zone, 100 sq. mi.	43,000	A division of a single municipality	55	April 2022	4 ^e	72	Directly operated	50%	■ Other demand response
Heart of Iowa Regional Transit Agency (IA)	Countywide (seven counties), 4,177 sq. mi.	365,100	A local or regional public transit agency or authority	6,604	October 2022	72 (100%)	72	Directly operated	-	■ Other demand response (flexible route)

(continued on next page)

Table 3. (Continued).

Agency	Number of Zone(s) and Size(s)	Est. Zone pop.	Agency Type	Monthly Ridership ^a	Service Start	Microtransit Fleet (% Wheelchair-Accessible Vehicles)	Total Fleet	Service Model ^b	% of Trips Booked by App	Other Services Provided ^c
Mountain Empire Older Citizens (VA)	One zone, 15 sq. mi.	[not provided or available online]	A private, nonprofit organization	4,333	June 2021	4 (100%)	52	Directly operated	80%	■ Other demand response
North Central Regional Transit District (NM)	Three zones: 43 sq. mi.; 652 sq. mi.; 26 sq. mi. (within previous zone)	2,050; 43,550; 3,240 (respectively)	A local or regional public transit agency or authority	1,165	December 2022	10 (100%)	75	Directly operated	5%	■ Fixed route ■ Deviated fixed route
PICK Transportation (OK)	19 zones ranging from 15-45 sq. mi.	Ranges by zone from 3,800 to 40,000	Consortium of agencies	1,811	August 2023	44 (100%)	200 ^f	Directly operated	48%	■ Other demand response
Southeast Vermont Transit (VT)	One zone, 20 sq. mi.	3,400	A private, nonprofit organization	558	January 2023	1 ^e	62	Directly operated	5%	■ Deviated fixed route ■ Other demand response
Town of Great Barrington (MA)	Three zones	[not provided or available online]	A division of a single municipality	1,207	May 2023	6 (50%)	6	Directly operated	20%	■ Deviated fixed route
YVEDDI Public Transportation (NC)	Two town-wide zones: 6.2 sq. mi.; 7.6 sq. mi.	4,120; 5,900	A private, nonprofit organization	1,389	July 2023	6 (100%)	55	Directly operated	20%	■ Other demand response

YVEDDI = Yadkin Valley Economic Development District, Inc.

- a. The survey asked for the number of riders in the past year, or, for services operating less than one year, the number of riders since implementation.
- b. Per definition in Chapter 1.
- c. **Bolded** agencies are those selected as case examples and profiled in Chapter 4.
- d. “Other demand response” refers to a traditional Dial-A-Ride service or paratransit service, if separate from microtransit service.
- e. Percentage of vehicles that are wheelchair accessible not provided.
- f. Across all the consortium members who operate during daytime hours.

Table 4. Survey question responses by agency – agencies outside the United States.

Agency	Number of Zone(s) and Size(s) in Square Miles	Agency Type	Monthly Ridership ^a	Service Start	Microtransit Fleet (% Wheelchair-Accessible Vehicles)	Total Fleet	Service Model	% of Trips Booked by App	Other Services Provided ^b
Cheshire West and Chester Council (UK)	One zone	A local or regional public transit agency or authority	1,487	July 2023	2	2 ^c	Contracted service	76%	-
Hertfordshire County Council (UK)	Two zones	A local or regional public transit agency or authority	3,189	September 2021	7 (100%)	22	Contracted service	92%	-
Moray Council (UK)	Four operating areas with zone structures	A local or regional public transit agency or authority	2,067	May 2023	16 (80%)	38	Directly operated	33%	<ul style="list-style-type: none"> ■ Fixed route
North Lincolnshire Council (UK)	Countywide	A local or regional public transit agency or authority	1,083	September 2020	4 (100%)	6	Contracted service	80%	<ul style="list-style-type: none"> ■ Fixed route
TransLink (Canada)	One zone	A local or regional public transit agency or authority	277	Two-month pilot in summer 2019	2	2,069 ^d	Directly operated	-	[Did not answer]
Warwickshire County Council (UK)	One zone	A local or regional public transit agency or authority	833	May 2020	4 (100%)	38	Contracted service	-	<ul style="list-style-type: none"> ■ Fixed route ■ Deviated fixed route ■ Other demand response

- a. The survey asked for the number of riders in the past year, or, for services operating less than one year, the number of riders since implementation.
- b. “Other demand response” refers to a traditional Dial-A-Ride service or paratransit service, if separate from microtransit service.
- c. Other service in the county is contracted.
- d. Includes 438 vehicles operated by contracted services.

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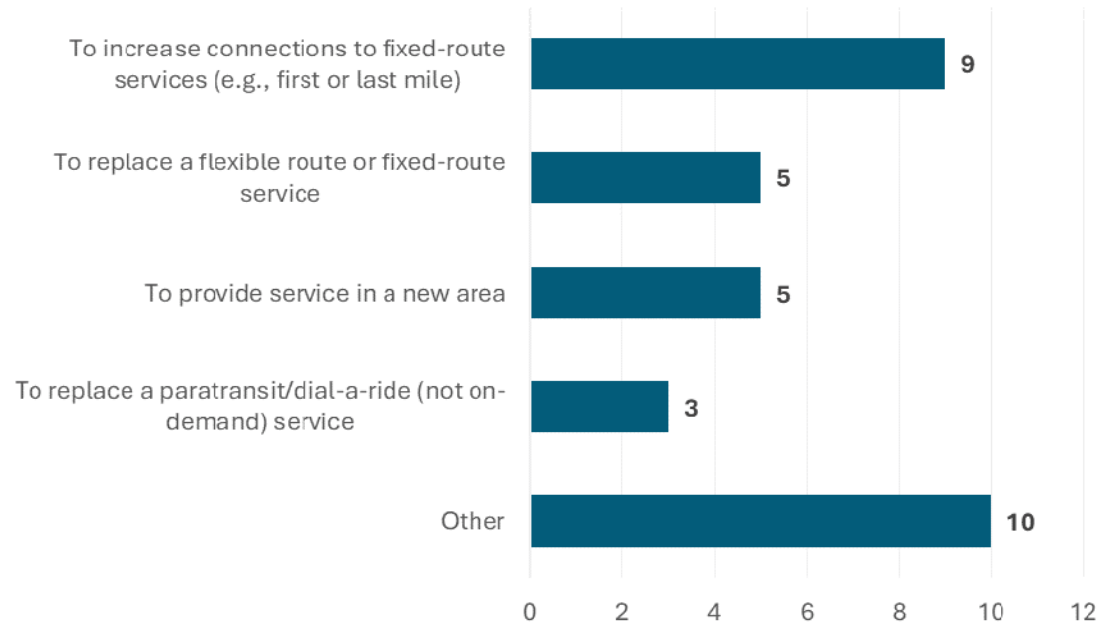


Figure 2. Reasons for implementing microtransit service. Based on 19 respondents; respondents could choose more than one answer.

One agency designed its zone to include all stops on the deviated fixed route it planned to discontinue: a Walmart and other retail outlets, a hospital and related medical services, and senior and low-income housing.

When asked how they planned their microtransit service, a majority of agencies highlighted the use of data and public and stakeholder outreach. Agencies reported using data such as disadvantaged areas based on Census data and data from regional organizations, such as their local planning commissions and nearby transit authorities. Multiple agencies conducted long-range plans or microtransit feasibility studies to determine their service parameters. Many agencies reported conducting extensive outreach, including focus groups, surveys, and stakeholder meetings. Some heard from riders that they wanted more spontaneous transit or an improved level of service.

All agencies operate either curb-to-curb or door-to-door microtransit (Figure 3). With curb-to-curb service, the app may instruct the rider to walk to the nearest intersection to provide a more efficient pick-up location for the driver. Door-to-door service refers to services that pick up a rider directly where they request a ride. Some agencies report offering both; they provide door-to-door service to riders with mobility challenges. Moray Council in Scotland is starting a service that will allow groups of up to 14 riders to book a multi-pick-up/drop-off service to secure a complex journey pattern for employee journeys, health and social care groups, education bodies, and local support groups. Four agencies (22 percent) prioritize specific passenger groups when booking, including older adults, ADA, and passengers going to dialysis and other medical treatments. Three U.S. agencies prioritize passenger groups; two agencies replaced paratransit service with microtransit, and one agency did not replace paratransit but encourages ADA riders to use microtransit.

Service Models and Fleet Considerations

As indicated in Table 3, all U.S. agencies reported that they directly operate their service (i.e., do not contract, such that the technology vendor operates the service), including one agency that said it would prefer to operate a fully contracted service but cannot afford it at the current cost with federal 5311 (Formula Grants for Rural Areas) funding. The primary factors in deciding a service model were cost and staff/agency expertise, each selected by 12 agencies (Figure 4).

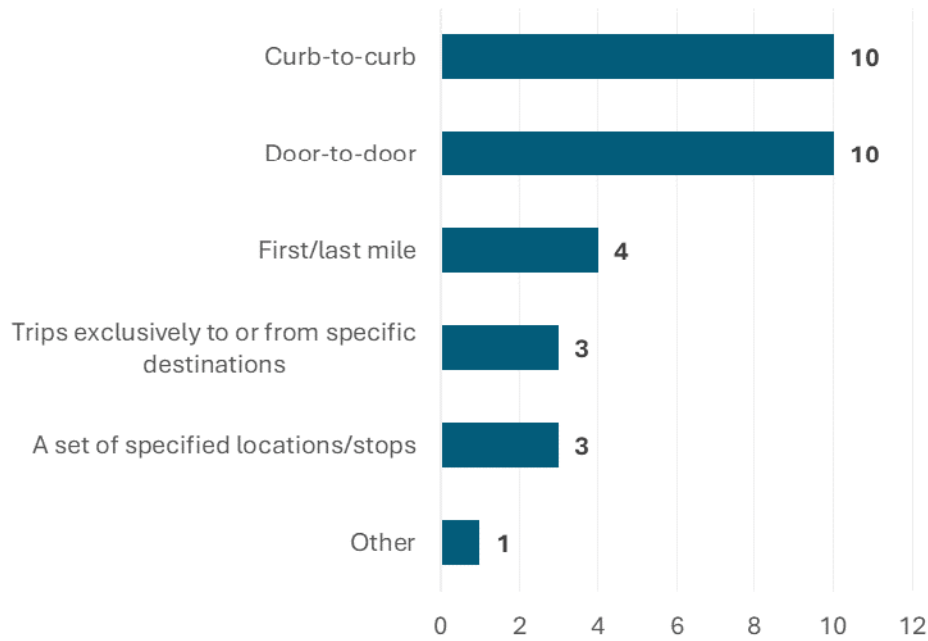


Figure 3. Type of microtransit service. Based on 18 respondents; respondents could choose more than one answer.

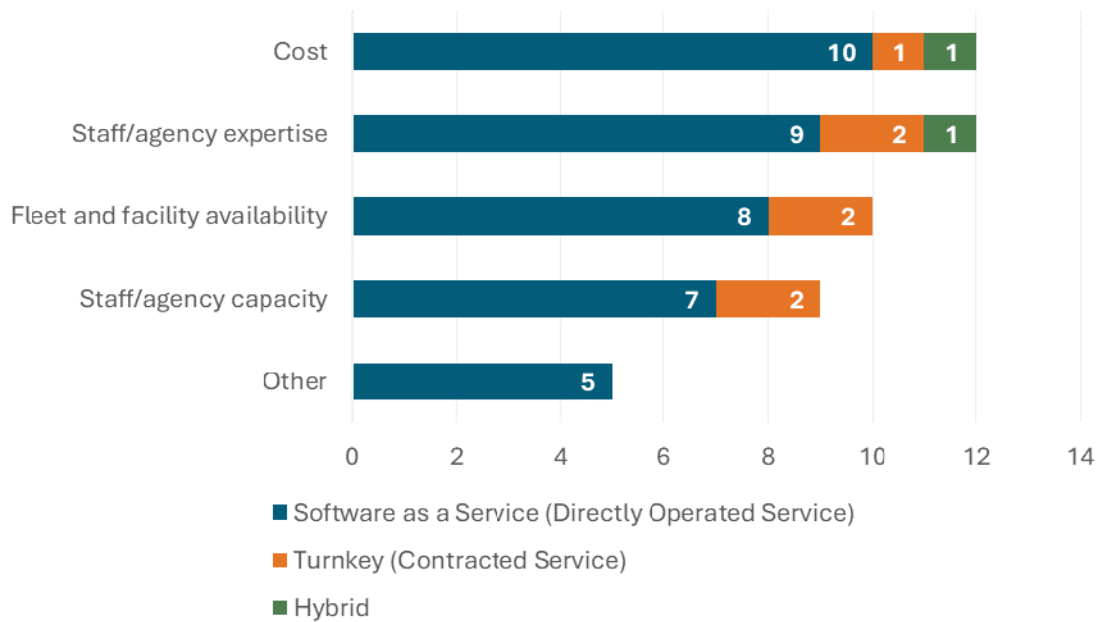


Figure 4. Service model decision-making factors. Based on 19 respondents; respondents could choose more than one answer.

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The next most important factors were fleet and facility availability and staff/agency capacity. Other factors mentioned included wanting to provide customer service, retaining infrastructure and resources in case microtransit didn't work for the community, and wanting full control of the service.

Four microtransit services in the United States (31 percent of responding U.S. agencies) are run by operators who are members of a union. No agencies experienced any issues with implementing microtransit service based on the concerns of union members or leadership, and multiple agencies reported involving union members throughout the whole process—from helping select a vendor, to helping determine app and software capabilities, to providing feedback during the pilot period.

As shown in Table 3 and Table 4, survey respondents indicated that a majority of vehicles they use to operate microtransit services are wheelchair accessible. Among responding agencies, 12 agencies operate passenger vans that don't require a commercial driver's license (CDL), nine agencies operate passenger vans or cutaway buses that require a CDL, nine agencies operate minivans, and two agencies operate sedans. The majority of the responding agencies reported that their fleets include passenger vans or cutaway buses that require the driver to have a CDL (Figure 5).

As part of its visioning process, one agency reported spending a year holding focus groups with riders, community partners, county and city officials, and medical personnel to develop goals for the service. Another agency reported identifying concerns with its existing software to prioritize features based on the relative cost of each of the concerns.

Visioning, Goals, and Performance Metrics

Eleven agencies (58 percent) underwent a visioning process before establishing their microtransit service. Agencies that did not undergo a visioning process reported having goals in mind but no formal process of adopting goals from a microtransit feasibility study. Agencies shared their goals for the service in an open-ended question. The responses are organized by theme as follows:

- Ridership
 - Increase ridership.
 - Attract new riders while maintaining current ridership.

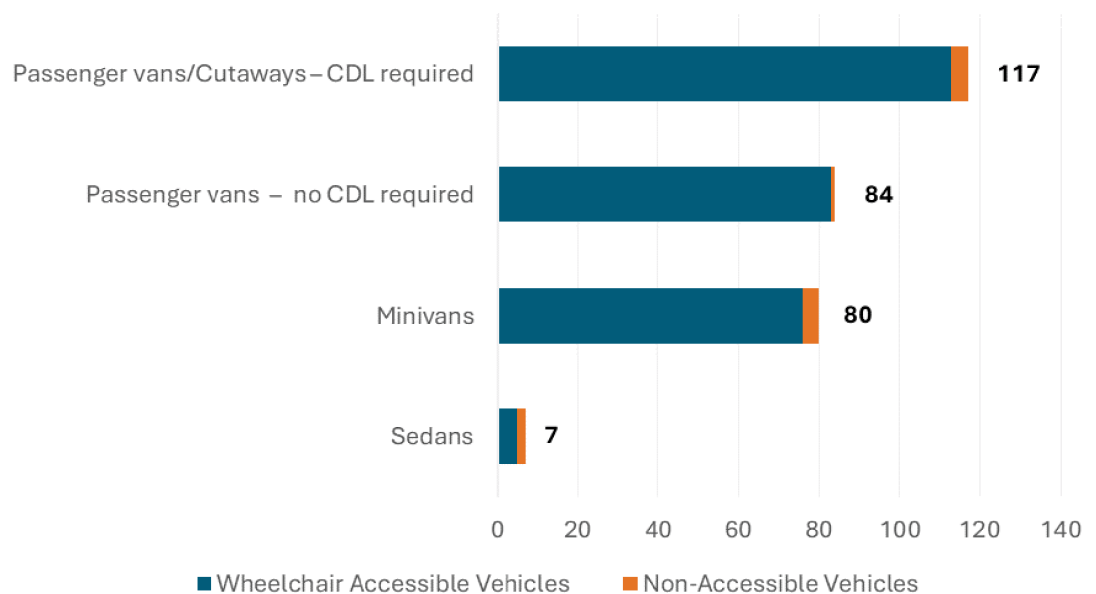


Figure 5. Distribution by type of all vehicles used to operate microtransit service among survey respondents.

- Access
 - Expand transit access for service and hospitality industry workers.
 - Improve access for individuals who live in the more rural areas of the county.
- Operations and efficiency
 - Reduce operator downtime.
 - Transition to smaller, more efficient vehicles.
 - Decrease the amount of time trip schedulers are on the phone with customers.
 - Reduce operating costs.
 - Eliminate one scheduler/dispatcher position.
- Level and quality of service
 - Increase quality of life for older adults and persons with disabilities through offering same-day service seven days a week.
 - Provide flexibility by allowing people to book and pay for trips via an app.
 - Maintain on-time performance.
 - Meet 100 percent of ride demand during operating hours.
 - Improve customer satisfaction.

To establish performance metrics, agencies reported analyzing past and current performance, using best practices from peer agencies, and using the same metrics as their demand response service. Performance metrics, including current performance and goals, are listed in Table 5. (The survey asked agencies to list their current performance. Agencies filled out the survey between March and mid-April 2024.) In the table, maximum load refers to the maximum number of passengers who can ride in the vehicle at one time, and average vehicle count refers to the number of vehicles in service at any given time. Ten agencies (56 percent of 18 respondents) reported that they have adjusted their service in response to performance. This includes adding additional terminals and hubs to reduce deadhead miles, hiring new drivers in some areas to maintain short wait times and high on-time performance, and adding vehicles to accommodate more riders and reduce the number of trip requests it is unable to book.

Procurement and Funding

Fifty-three percent of agencies used a request for proposals (RFP) to procure their microtransit technology (Figure 6). Two agencies, both international agencies, had already used technology for a different demand response service and did not undergo new procurement. Among U.S. agencies, 69 percent used an RFP and 16 percent were sole sourced. Two U.S. agencies (15 percent) listed the technology vendor in a grant application as a partner.

Most agencies (56 percent) established performance metrics to evaluate the software vendor's performance. Among agencies that did, reasons included wanting software that would be able to grow with them and adding new features unique to rural transit. One agency reported establishing metrics such as number of service outages, number of unfulfilled journey requests, and passenger trips per hour.

The most common sources of funding are state (or provincial) funds and federal (national) government funds (Figure 7). Of U.S. agencies, 85 percent use federal funds and 85 percent use state funds. The next most common sources are local funds (69 percent of U.S. agencies) and fare revenue (54 percent). One agency reported using contract and advertising revenue, and one agency created a nonprofit that allows the service to tap into funds that were previously not available to it.

Trip Booking and Technology

For a service to be considered on-demand microtransit, it must offer a smartphone application for trip booking, among other functionalities. While all the survey respondent agencies

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Table 5. Performance metrics—current performance and goals.

Agency (Monthly Ridership)	Passenger Trips per Hour		Cost per Passenger Trip		Maximum Load		Average Wait Time		Average Trip Length		Average Vehicle Count		Customer Satisfaction	
	Current	Goal	Current	Goal	Current	Goal	Current	Goal	Current	Goal	Current	Goal	Current	Goal
Baldwin Regional Area Transit System (8,465)	2.2	2.5	\$28.82	\$27.00	–	–	–	–	8.47 min.	8 min.	26	35	4.9	4.9
Battle Creek Transit (687)	1.81	–	\$37.00	–	3	–	–	–	15–20 min.	–	2	–	9+	–
Bay Area Transportation Authority (9,625)	2.4	2.5	–	–	–	–	–	–	–	–	–	–	4.7	4.8
Bay Transit (1,490)	*	*	\$13.33	\$15.00	–	–	18 min.	15 min.	–	–	3	3	4.9	–
Cheshire West and Chester Council (1,487)	3.72	3	\$16.10	–	16	–	–	–	–	–	–	–	4.9	5.0
City of Gainesville / Hall Area Transit (7,340)	*	*	–	–	3	6	15 min.	15 min.	5 miles	5 miles	9	15	4.9	5.0
Heart of Iowa Regional Transit Agency (6,604)	*	–	\$37.50	–	–	–	6.2 min.	–	12.2 min.	–	–	–	4.9	–
Hertfordshire County Council (3,189)	2.38	2	–	–	–	–	–	–	–	–	7	7	95	97
Mountain Empire Older Citizens (4,333)	3.2	4	\$8.06	\$7.50	8	8	10 min.	8 min.	6 miles	5 miles	4	5	4.94	5
North Central Regional Transit District (1,165)	–	–	\$30.25	–	–	–	–	–	–	–	6	–	–	–
PICK Transportation (1,811)	*	–	*	–	8	–	11.2 min.	–	4.1 miles	–	35	–	4.5	–
Southeast Vermont Transit (558)	2.75	3	\$27.18	\$25.00	8	8	15 min.	15 min.	2 miles	2 miles	1	1	99%	100 %
Town of Great Barrington, MA (1,207)	2.64	–	\$19.58	–	–	–	–	–	–	–	4	–	94.1	95
YVEDDI Public Transportation (1,389)	1.9	2.5	*	\$10	–	–	–	15 min.	4.71 miles	–	6	6	9	10

YVEDDI = Yadkin Valley Economic Development District, Inc.

*Indicates cases in which data were provided but appeared to be based on assumptions that were different than those of the project team (e.g., total passengers per hour across all service vehicles instead of passenger trips per vehicle hour).

– Indicates no information provided.

Note: GoWake Access Transportation, Moray Council, North Lincolnshire Council, TransLink, and Warwickshire County Council are not shown in this table because they did not respond to the question about metrics results.

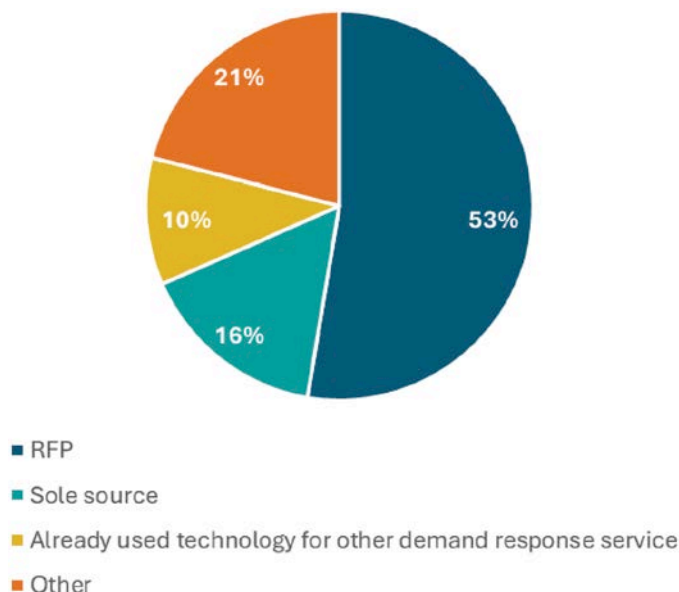


Figure 6. How agencies procured microtransit technology.

have an app, the proportion of app-based booking varies dramatically—from 5 percent to 92 percent (Figure 8). The average proportion of app-based booking among all survey respondents is 40 percent. Call centers conduct a significant proportion of trip booking: 10 responding agencies (including all but two responding U.S. agencies) report that half or more trips are booked through call centers. Three of the top four agencies in the sample in terms of highest percentage of booking through the app are in the U.K. There is not a strong correlation between agencies’ monthly ridership and percentage of trips booked by app.

The most common reported barrier to app-based booking is riders not being comfortable using a smartphone; this is followed by issues understanding the app interface (Figure 9). Among the agencies with the lowest app-based booking proportion (20 percent or lower), all four reported discomfort using a smartphone as a barrier.

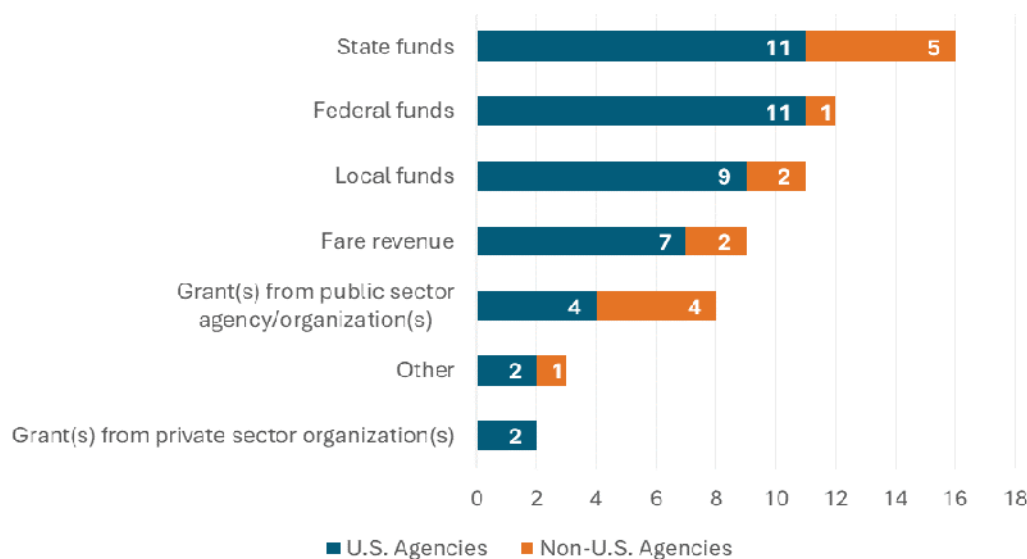
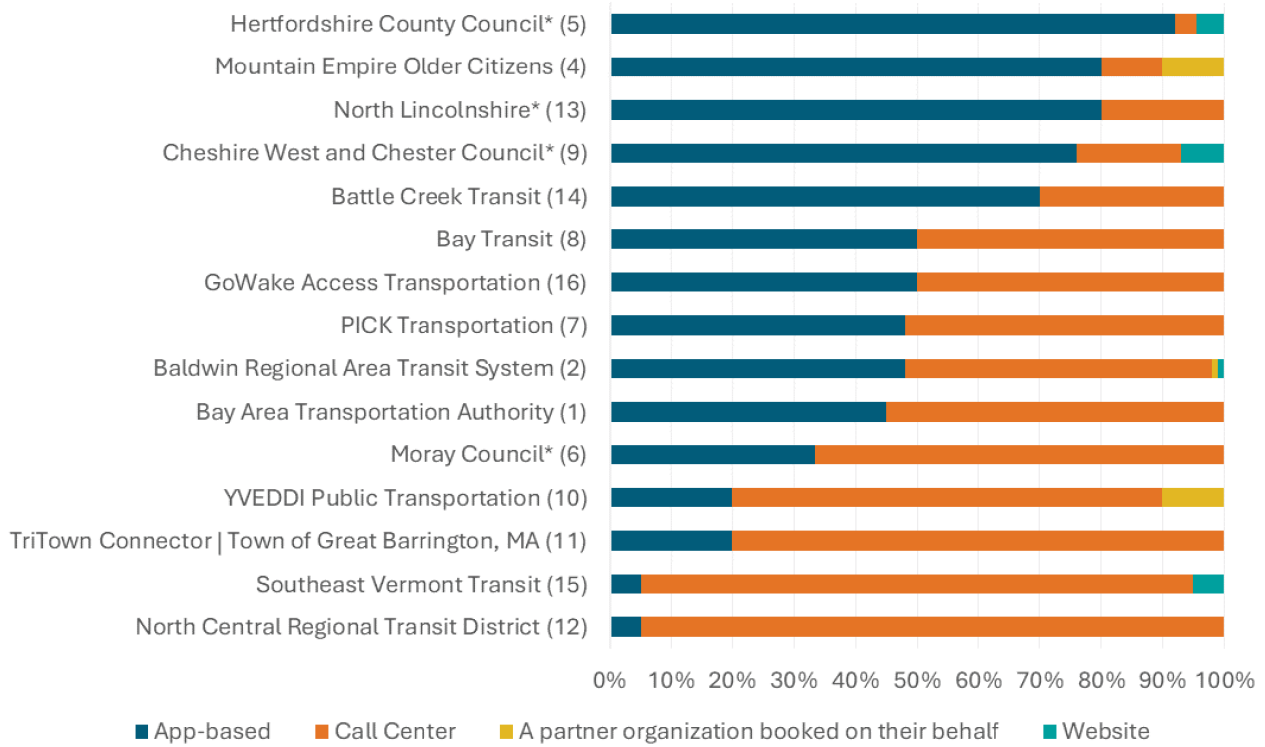


Figure 7. Funding sources. Based on 19 respondents; respondents could choose more than one answer.

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() The number in parentheses is the agency's relative rank for monthly ridership among survey respondent agencies that answered at least one of the questions for which this report shows results by agency. Monthly ridership numbers for the agencies can be found in Table 3 and Table 4. The third-ranked agency in terms of ridership did not respond to this question.
 * Agencies with an asterisk operate outside the United States.

Figure 8. Proportion of trips by booking method by agency.

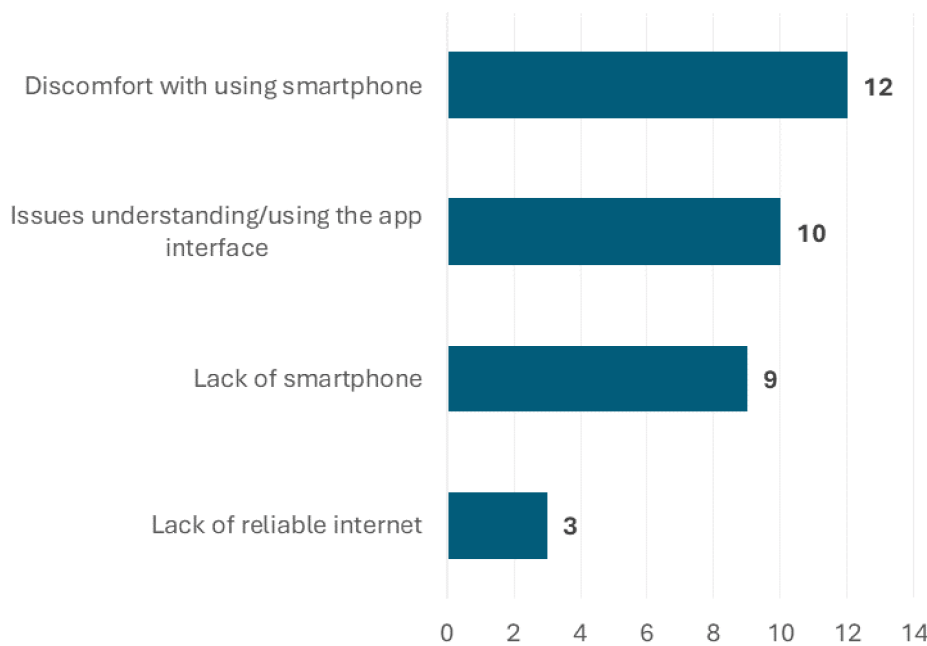


Figure 9. Barriers to app-based booking. Based on 18 respondents; respondents could choose more than one answer.

One of the benefits of microtransit service is the convenience it provides to customers by offering immediate service rather than requiring more advance notice. For the purposes of a question about the type of trip reservations available, “same-day service” is service booked a minimum of two hours in advance (but on the same day the passenger wishes to travel), “advance reservations” is service booked at least two days in advance, and “subscription trips” are regularly recurring trips that do not need to be booked each time. Of the 18 agencies that responded to the question, 15 offer same-day service (83 percent) and 13 offer immediate/on-demand service (72 percent) (Figure 10). Of the 12 U.S. agencies that responded to the question, 10 offer same-day service (83 percent) and 11 offer immediate service (92 percent). Two agencies, TransLink and GoWake Access Transportation, reported offering only immediate reservations.

Fare payment methods varied significantly by agency and service. Paying by voucher refers to riders using cash to load money into their account. Eight agencies reported a proportion of fares being paid by a debit or credit card through the app, and six of those have one-third or more trips paid for by a debit or credit card (Figure 11). Six agencies have half or more of their trips paid for by cash. Three agencies operate fare-free microtransit. There is not a strong correlation between app-based or cash payment and ridership.

Marketing and Customer Education

Of the 18 agencies that answered a question about how they marketed their service, 17 used social media posts and a website (Figure 12). Fourteen agencies reported attending pre-existing community meetings, such as civic association or homeowner association meetings to get the word out about the service, and 13 agencies targeted outreach to specific demographic groups and used brochures and flyers. Other strategies include press releases and word of mouth. Agencies reported that the most successful strategies were those in which the agency could speak to members of the public one-on-one; examples provided included attending hands-on clinics, pop-up events, and roadshow events.

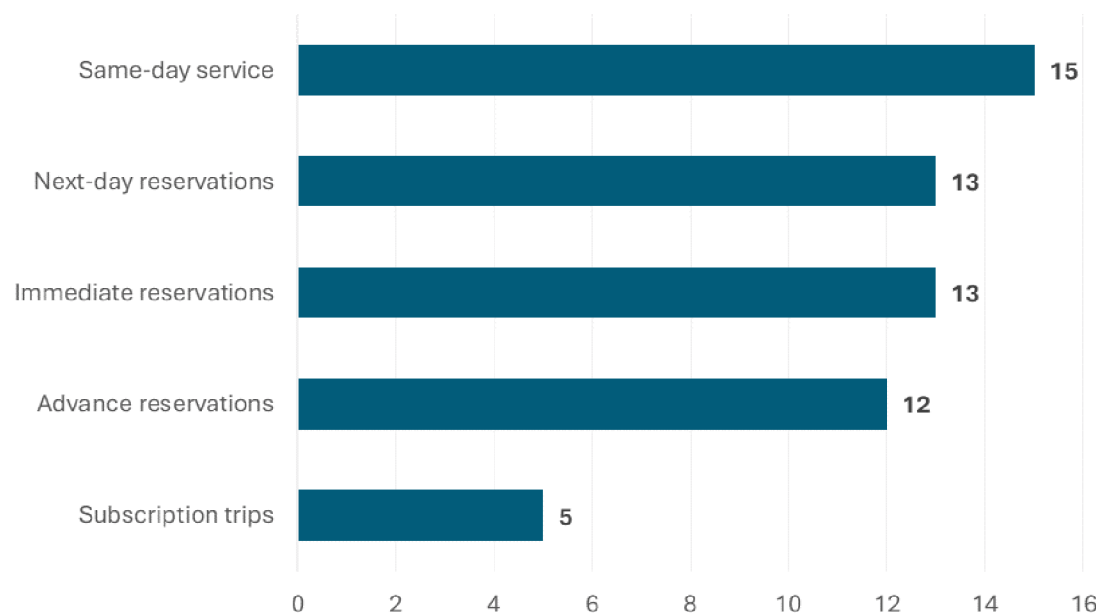
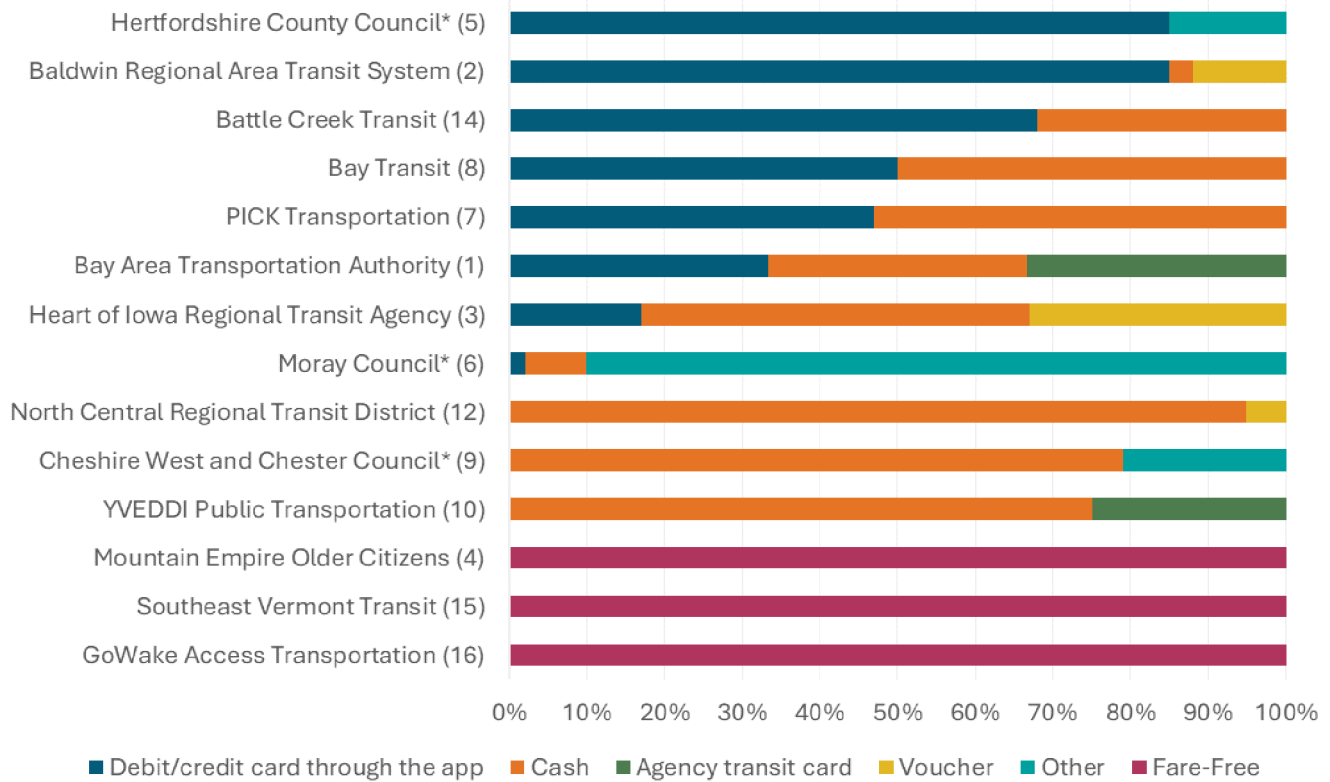


Figure 10. Reservation types offered for microtransit service. Based on 18 respondents; respondents could choose more than one answer.

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() The number in parentheses is the agency's relative rank for monthly ridership among survey respondent agencies who answered at least one of the questions for which this report shows results by agency. Monthly ridership numbers for the agencies can be found in Table 3 and Table 4. The 11th- and 13th-ranked agency by ridership did not respond to this question.

* Agencies with an asterisk operate outside the United States.

Figure 11. Proportion of microtransit fare payment by method.

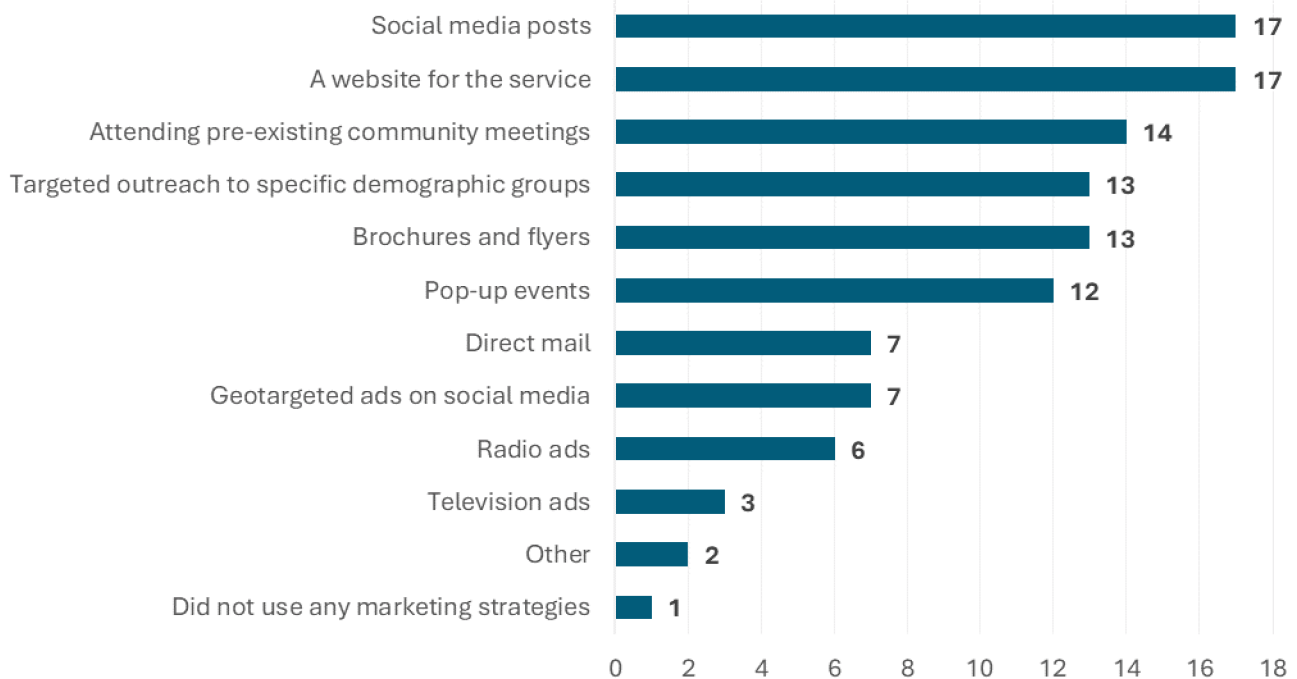


Figure 12. Strategies used to market microtransit service. Based on 18 respondents; respondents could choose more than one answer.

To educate customers on how to use the service, agencies opted for in-person training (69 percent), flyers and brochures (63 percent), and how-to videos (56 percent) (Figure 13). Other strategies include driver assistance and call center staff helping to educate the riders.

Ten agencies reported that they devoted over 10 hours per week to marketing the service pre-launch, with 33 percent devoting between 11 and 20 hours weekly (Figure 14). Post-launch, most agencies (59 percent of 17 respondents) devoted less than four hours per week to marketing and education.

Most agencies reported forming partnerships with local government (81 percent), community-based organizations (75 percent), and medical institutions (63 percent) to support marketing activities (Figure 15). One agency did not partner with any organizations.

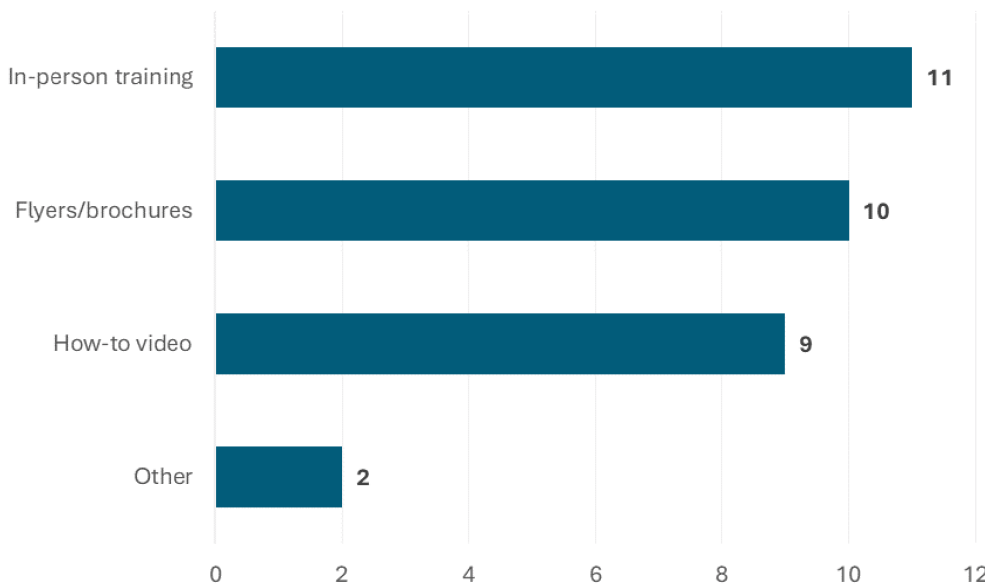


Figure 13. Customer education strategies. Based on 16 respondents; respondents could choose more than one answer.

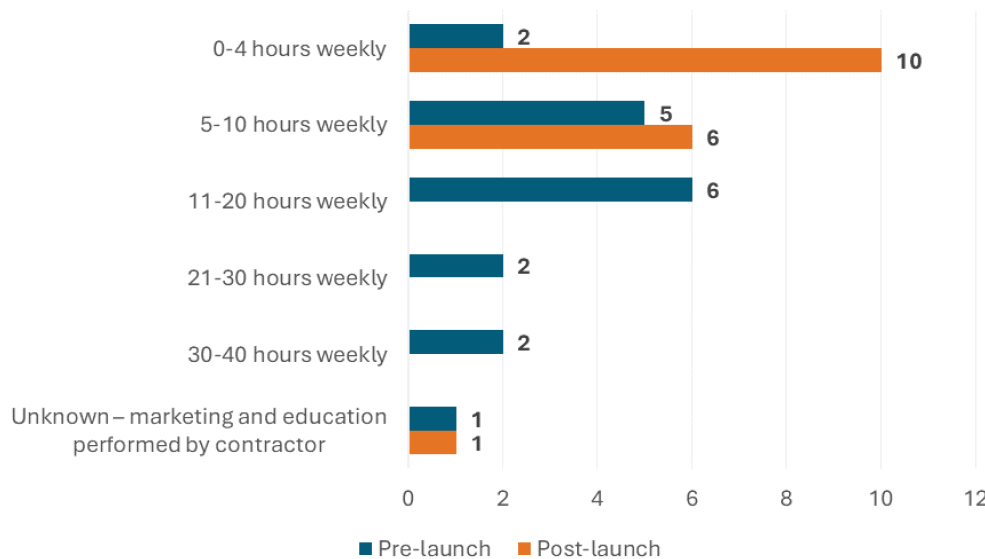


Figure 14. Staff hours devoted to marketing. Based on 18 respondents to pre-launch question and 17 respondents to post-launch question.

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Figure 15. Partnerships to support marketing activities. Based on 16 respondents; respondents could choose more than one answer.

Service Benefits and Lessons Learned

Agencies reported highly positive customer feedback regarding their microtransit service. Most agencies reported that riders appreciate the flexibility of the service and using an app to book. Three agencies noted that passengers said the service has been life changing. The biggest concerns from riders are on-time performance and lack of availability of vehicles, resulting in long lead times for bookings or difficulty making a trip due to lack of capacity. Multiple agencies indicated that feedback from drivers and staff was negative at first because offering on-demand service completely transformed how they do their jobs. However, agencies also reported that drivers adapted to the service.

When asked how microtransit service affected their agency's overall performance, most agencies reported a decrease in cost per passenger trip and improved service efficiency. All agencies reported an increase in customer satisfaction. Agencies saw mixed impacts to total service costs: two agencies reported a higher overall cost, two reported a lower total service cost, and one said total costs have remained stable.

Agencies reported a variety of lessons learned and advice for agencies considering microtransit:

- Implement microtransit in a small geographic area or on a small scale initially and expand the service over time.
- Fully test the technology ahead of time and ensure you understand the software's capabilities.
- Ensure you have a plan for sustaining the service beyond the pilot period (if it starts as a pilot).
- Implement measures to maintain availability, such as providing strategic deployment and assignment of vehicles to zones, reducing advanced booking periods, and offering alternative times if the first request is unavailable.

CHAPTER 4

Case Examples

This chapter highlights the key takeaways of interviews with a sample of transit agencies that have implemented microtransit in rural settings. Each case example section contains information about the service offered, including motivations for implementing on-demand microtransit service, key challenges, notable practices, and lessons learned. Seven service providers, listed as follows, were interviewed as part of this synthesis (Figure 16).

- Baldwin Regional Area Transit System (BRATS On-Demand), AL
- Battle Creek Transit (BCGo), MI



Figure 16. Map of case example agencies.

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- Bay Area Transit Authority (BATA Link), MI
- Hall Area Transit (WeGo), GA
- Heart of Iowa Regional Transit Authority (HIRTA On Demand), IA
- North Central Regional Transit District (MyBlue), NM
- PICK Transportation, OK

Summary information about their services is provided Table 6.

Table 6. Case example service information summary.

Service and Location	Service Description	Population and Population Density	Service Days and Hours	Other Services Offered	Fleet Information	Fare Information
BRATS On-Demand: Baldwin County, AL	Countywide (1,590 sq. mi.)	231,770 (146 per sq. mi.)	Monday–Friday 7:00 a.m.–4:30 p.m.	Commuter service to Mobile, AL	On-Demand Fleet: 46 Total Fleet: 46	Distance-based, cashless; \$2.00 for < 5 miles up to \$5.00 for up to 35 miles
BCGo: Calhoun County, MI	Countywide (719 sq. mi.)	134,310 (187 per sq. mi.)	Monday–Friday 6:00 a.m.–7:00 p.m.	Fixed-route bus, ADA complementary paratransit, paratransit	On-Demand Fleet: 5 Total Fleet: 24	Distance-based; \$3.00 for < 6 miles to up to \$15.00 for > 20 miles, \$3.00 for additional passengers
BATA Link: Grand Traverse and Leelanau counties, MI	Countywide (950 sq. mi.)	117,540 (124 per sq. mi.)	Monday–Friday, 6:00 a.m.–10:30 p.m. (limited availability outside Traverse City after 7:00 p.m.) Saturday and Sunday, 7:00 a.m.–7:30 p.m. in Grand Traverse and Leelanau counties and 7:00 a.m.–10:30 p.m. in Traverse City	Fixed-route service, deviated/flexible fixed-route service	On-Demand Fleet: 30 Total Fleet: 85	Flat fare, cash or card; \$6.00 one-way trip
WeGo: Hall County, GA	Countywide (361 sq. mi.), including the City of Gainesville	203,140 (563 per sq. mi.)	Monday–Friday, 5:00 a.m.–9:00 p.m.	Seasonal fixed-route trolley	On-Demand Fleet: 31 Total Fleet: 33	Distance-based, cashless; Before 6:00 p.m.: \$2.00 for < 5 miles plus \$0.50 for each additional mile; after 6:00 p.m.: \$4.00 for <5 miles plus \$0.50 for each additional mile

Table 6. (Continued).

Service and Location	Service Description	Population and Population Density	Service Days and Hours	Other Services Offered	Fleet Information	Fare Information
<p>HIRTA On Demand: Boone, Dallas, Jasper, Madison, Marion, Story, and Warren counties, IA</p>	<p>Seven-county zone (4,177 sq. mi.)</p>	<p>365,100 (87 per sq. mi.)</p>	<p>Monday–Friday, 7:00 a.m.–5:00 p.m. (Note: Story’s and Ames’s service starts at 6:30 a.m. and service ends at 8:00 p.m. in Ames) Saturday, 7:30 a.m.–6:00 p.m. in Ames Sunday, 8:30 a.m.–6:00 p.m. in Ames</p>	<p>Flexible route</p>	<p>On-Demand Fleet: 72 Total Fleet: 72</p>	<p>In town: \$2.50 In county: \$5.00</p>
<p>MyBlue: Taos and Española, NM</p>	<p>Three zones: Taos Zone: within a 2-mile radius along major arterial in town (approx. 43 sq. mi.) Española Zone: within 15-mile radius of the city center (approx. 652 sq. mi.) Pojaque/Nambé Zone (within Española zone): Nambé and Pojaque pueblos, and Pojaque Valley Schools Jacona Campus (approx. 26 sq. mi.)</p>	<p>2,050 (48 per sq. mi.); 43,550 (67 per sq. mi.); 3,240 (125 per sq. mi.)</p>	<p>Monday–Friday, 6:00 a.m.–6:00 p.m.</p>	<p>Fixed-route bus, deviated fixed-route service</p>	<p>On-Demand Fleet: 10 Total Fleet: 75</p>	<p>Flat fare; \$1.00 for all zones except Pojaque/Nambé (which is no charge)</p>
<p>PICK Transportation: Cities of: Bartlesville, Catoosa, Claremore, Coweta, Grove, Kiefer, Miami, Owasso, Ponca City, Poteau, Prior, Sallisaw, Sapulpa, Skiatook, Tahlequah, and Vinita, OK</p>	<p>19 zones (ranging from ~15 sq. mi. to ~45 sq. mi.) in 16 jurisdictions</p>	<p>Population ranges per zone from 3,800–40,000; Population density ranges per zone from 226–1,546 people per sq. mi.</p>	<p>Monday–Thursday, 5:00 p.m.–9:00 p.m. Friday, 5:00 p.m.–10:00 p.m. Saturday, 10:00 a.m.–2:00 p.m.</p>	<p>Daytime service varies by agency, mostly demand response</p>	<p>On-Demand Fleet: 44 Total Fleet: varies by agency</p>	<p>Flat rate, cash or card; \$3.00</p>

Baldwin Regional Area Transit System, BRATS On-Demand

Service Overview

Service Location	Service Description	Population	Service Days and Hours	Other Services Offered	Fleet Information	Fare Information
Baldwin County, AL	Countywide (1,590 sq. mi.)	231,770 (146 per sq. mi.)	Monday–Friday 7:00 a.m.–4:30 p.m.	Commuter service to Mobile, AL	On-Demand Fleet: 46 Total Fleet: 46	Distance-based, cashless; \$2.00 for < 5 miles up to \$5.00 for up to 35 miles

Interviewee: Ann Simpson, director of transportation



Source: Brown, 2020. WKRG

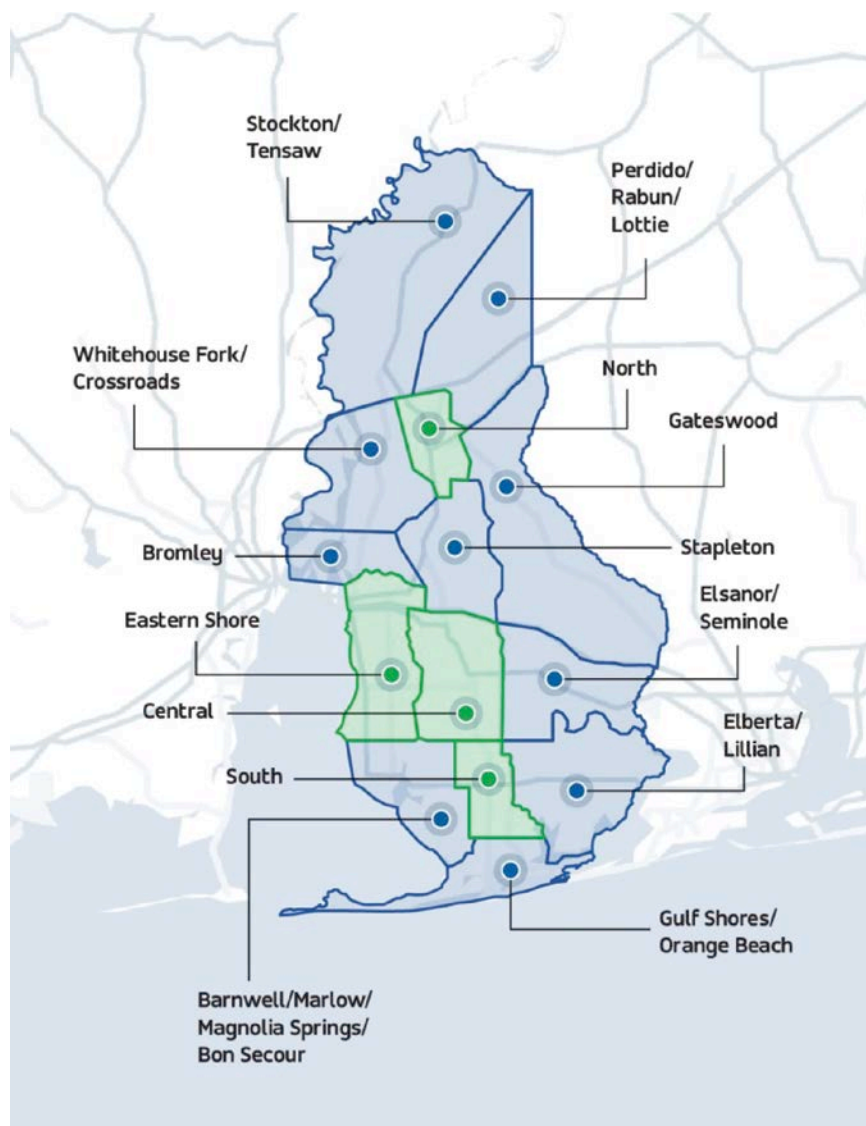
Background and History

Baldwin Regional Area Transit System (BRATS) is responsible for public transportation service in Baldwin County, AL, which is located on the eastern side of Mobile Bay. BRATS operates countywide on-demand microtransit service as well as a limited-stop fixed-route commuter service to Mobile County.

Using funding from the Federal Transit Administration (FTA), BRATS replaced its dial-a-ride service with technology-enabled on-demand service in September 2020. In implementing on-demand microtransit service, BRATS had key goals, in addition to improving the quality of service overall, of improving transit service in the most rural areas of the county and being able to offer more customer trips. Additionally, the agency hoped that replacing dial-a-ride service would create operational efficiencies by reducing significant amounts of operator downtime, eliminating operator fare collection, improving scheduling, and eliminating a scheduler/dispatcher position. BRATS also saw implementing the new service as an opportunity to transition to smaller, more fuel-efficient vehicles.

Service Description

BRATS first planned its on-demand microtransit service to operate in seven geofenced zones covering the entire county (Figure 17); intra-zone trips could be booked for immediate service while inter-zone trips required advance notice. However, within days of launching, Hurricane Sally hit Baldwin County, and BRATS pivoted to offering a full countywide service with no limits on trip length or destination, which has continued into the present with one exception: customers in the northernmost part of the county are still required to book in advance because of the area's remoteness. The agency found that the seven-zone network did not meet the needs of



Source: Shared Use Mobility Center, <https://learn.sharedusemobilitycenter.org/casestudy/a-county-wide-transformation-of-demand-response-service-into-microtransit-baldwin-county-alabama/>

Figure 17. Baldwin Regional Area Transit System service area.

residents because some customers would no longer have been able to make short trips across zone boundaries, a service that had been possible under the demand response service the microtransit replaced.

While BRATS intended its new service to be primarily on demand (i.e., the majority of trips would be booked for immediate service), demand grew significantly and quickly outpaced the supply of on-demand service that could be provided given current resource levels. Currently, 93 percent of the trips are booked up to two weeks in advance. Priority for booking is given to critical care customers, such as those seeking dialysis or cancer treatments, whose trips are booked on a subscription basis as far as four weeks ahead to ensure they get on the schedule. BRATS is able to book just under 60 percent of trip requests; however, about 42 percent of requested trips are ultimately completed because a significant portion of trips are cancelled. BRATS indicated that its cancellation rate has increased, because of the ease of cancelling through the app, and that its no-show rate has decreased, due to both the ease of cancellation and the repeated text reminders to passengers about their upcoming trips.

Technology

Since the service launched in 2020, BRATS has partnered with the same software vendor, which is responsible for scheduling the on-demand microtransit service as well as maintaining the mobile app. BRATS has worked closely with its vendor to ensure that the software is configured so that the trip-matching algorithm works well to maximize efficiency. Additionally, BRATS has worked with its vendor to adapt and adjust its systems as demand significantly outpaces supply, and today a majority of customers must rely on advance booking rather than on-demand trips.

Despite challenges in configuration, implementing the on-demand software and launching the mobile app have resulted in improved customer communication and relationships. BRATS is now able to push messages, such as service alerts, to customers en masse, which has significantly improved its ability to communicate with customers. Additionally, the mobile app allows for direct communication with customers about their trips. Before launching on-demand microtransit service, BRATS had a high percentage of no-shows; however, with the mobile app, the agency's no-show rate has declined significantly. The mobile app notifies customers when their ride is booked and provides real-time status updates about their trip.

Funding

BRATS used an FTA Integrated Mobility Innovation (IMI) grant to fund the procurement and implementation of its automated and dynamic scheduling technology, mobile app, and passenger notification system and replace its previous dial-a-ride service. Today, the operations of BRATS are funded through a mix of federal, local, and directly generated sources (e.g., fare revenues). The State of Alabama does not contribute funds for operations.

Funding remains a challenge for the agency, as the cost of providing service and the level of demand have both increased. Without support from the state, BRATS must rely on local funds to match federal formula grants. Currently, one of Baldwin County's 14 municipalities contributes financially to the service. This funding limitation, coupled with supply chain delays and operator shortages, has contributed to a mismatch between supply and demand for BRATS service.

Reception and Results

Baldwin County was motivated to implement on-demand microtransit service to provide a higher quality of service to more county residents compared to its previous service, which it has achieved. Since launch, the public support for BRATS's on-demand service has been largely positive. The service aligns with countywide goals to support economic development and the environment, which has helped ensure support from the county's governing commission.

With the success of BRATS's on-demand microtransit service, Baldwin County is increasing its investment in shared mobility options. The county is in the process of entering into a partnership to offer a vanpool service for commuters (Leibold, 2024). A large portion of BRATS's on-demand microtransit trips are for work commutes, so the agency hopes implementing vanpools will help shift this segment of demand from the on-demand microtransit service to an alternative—and likely more reliable—mode, thereby increasing capacity for service for other trips and customers. Vanpool can be operated at a lower cost to the county on a per-trip and per-hour basis than on-demand microtransit service and provides a level of reliability not possible with BRATS On-Demand.

While feedback from the public and stakeholders has been positive, feedback and support from agency staff in general, and operators in particular, were initially more mixed. The majority

of BRATS's operators are retirees who work part-time with the agency, so the transition to a new system was challenging. The new technology assigns trips more efficiently than BRATS's previous software, resulting in less downtime between trips for operators. Over time, operators have become used to the new operating model.

At the same time, implementing the service on a large scale has posed challenges. On-demand microtransit service was a completely new operating model for BRATS, and agency leadership concluded that starting smaller and expanding over time may have made implementation smoother.

Case Example Summary – BRATS On-Demand

BRATS provides countywide microtransit service over a large service area, and doing so requires tradeoffs. In choosing to provide countywide service, BRATS is able to provide service to all its residents, even though that means operating mostly with advanced booking. Providing more immediate on-demand service, given the agency's existing financial and equipment constraints, would require BRATS to limit its service area to smaller, geofenced zones.

- **With demand outpacing supply, BRATS's service no longer functions primarily as an "on demand" service, essentially transitioning back to pre-booked service as it originally offered.** Since launching, the demand for BRATS's on-demand microtransit service has surpassed supply and continues to grow. BRATS found it was more important to reserve capacity for critical trips (e.g., customers accessing life-saving medical care) than to retain its on-demand functionality. Funding limitations as well as vehicle and operator shortages have contributed to capacity constraints.
- **BRATS's experience demonstrates that revisiting the stated goals of a service is key.** In the case of BRATS, the agency determined that its goal of expanding public transportation service into more rural areas was its highest priority, and that goal has been achieved. While starting small and expanding incrementally may have resulted in higher service reliability and efficiency, that would not have met the agency's highest priority goal for the service.
- **BRATS leadership indicated that additional staff engagement could have resulted in smoother implementation.** The transition to a new software and operating model was a change that some operators found challenging to adapt to. Adapting to a new way of operating can be difficult, and operators should be engaged as early as possible to ensure they are given the time and resources needed to become comfortable with the new system and way of operating.
- **Offering countywide on-demand microtransit that struggles to meet all of the demand has led BRATS to pursue implementation of other modes to meet the transportation needs of customers.** A large portion of BRATS's on-demand trips come from work commuters, for whom lack of availability impacts their ability to maintain employment. Baldwin County has decided to begin providing vanpool service as another public transportation option. The agency hopes implementing vanpools will provide an alternative to on-demand service at a lower cost and with a higher rate of reliability, while also easing some capacity constraints.

Battle Creek Transit, BCGo

Service Overview

Service Location	Service Description	Population	Service Days and Hours	Other Services Offered	Fleet Information	Fare Information
Calhoun County, MI	Countywide (719 sq. mi.)	134,310 (187 per sq. mi.)	Monday-Friday 6:00 a.m.–7:00 p.m.	Fixed-route bus, ADA complementary paratransit, paratransit	On-Demand Fleet: 5 Total Fleet: 24	Distance-based; \$3.00 for < 6 miles to up to \$15.00 for > 20 miles, \$3.00 for additional passengers

Interviewees: Mallory Avis, public transit director, and Kristy Grestini, mobility manager



Source: Battle Creek Transit

Battle Creek Transit (BCT) is a department of the City of Battle Creek, MI, that provides fixed-route and paratransit—including ADA complementary paratransit—service primarily in Battle Creek, as well as countywide on-demand microtransit service (BCGo) in Calhoun County.

Funded through a grant from the Michigan Department of Transportation (DOT), BCGo is a pilot that expanded BCT’s service offerings. In implementing BCGo in 2021, BCT’s ultimate goal was to improve transportation access for Calhoun County residents, especially those who live in harder-to-access areas. Operationally, the goal of the pilot project was to integrate the multiple demand response service providers in the county (described in the next section) by having them use the same scheduling, dispatching, and routing software, thus achieving service and financial efficiencies.

Service Description

BCGo operates on-demand microtransit service across Calhoun County. Most (around 80 percent) of BCGo trips are booked from locations within Battle Creek, with a much smaller percentage of trip requests in rural areas of the county. Six percent of trips are requested outside of Battle Creek and Springfield. The on-demand microtransit service fills in service gaps left by BCT’s fixed-route service, which has been reduced due to operator shortages, as well as the previous lack of countywide demand response service available to the public outside the cities of Battle Creek and Marshall. The City of Marshall, which has a population of just under 7,000

and lies about 12 miles east of Battle Creek, has operated its own dial-a-ride service for decades. The Marshall Dial-a-Ride service offers trips within the town and up to 1 mile outside the town boundaries and is funded by a combination of federal and state funding, local property tax revenue, and fares. The City of Marshall also operates the Albion-Marshall Connector service, which is a flexible route operating between Marshall and the City of Albion, which is 12 miles east of Marshall. There is a third nonprofit transit service provider in Calhoun County, Community Action, whose services are available only to people with disabilities and older adults. These services are funded largely through state and county funds as well as a countywide property tax (millage) dedicated to funding services for older adults.

BCGo was intended to offer service that would be primarily on demand; however, due to a high level of demand combined with funding, operator, and vehicle limitations, BCGo is not able to operate most of its service on a fully on-demand basis. Currently, BCGo has capacity to complete only about 20 percent of trip requests.

Over time, BCT has adjusted how BCGo operates to allow for more on-demand trips and trips booked less than a week in advance. Currently, three of the five BCGo vehicles that operate on most days are dedicated to providing pre-booked trips, with most of those vehicles' capacity booked close to two weeks in advance. The remaining two vehicles' capacity is made available for booking on Monday of each week to allow for same-day and same-week trips. However, about three-quarters of BCGo's trips are still booked in the 14-day advance window. For the vehicles reserved for same-week service, the mobile app provides trips within a 60-minute window; however, customers booking through the call center are often able to be accommodated for same-day service only if they have a flexible trip time. The app does not provide customers with the ability to look at availability multiple hours in advance on the same day.

Marshall Dial-A-Ride joined Battle Creek Transit as a collaborating partner for on-demand microtransit service in 2024. While there are no current plans to rebrand Marshall Dial-A-Ride, the service is operating with the same backend software as BCGo, and Marshall Dial-A-Ride customers now have access to the mobile app to book their trips. On the ground, Marshall Dial-A-Ride continues to operate its own zone with dedicated vehicles to ensure that the previous level of service city residents were used to can be maintained. In the future, BCGo will operate in Marshall, both for trips within the town as well as trips to and from the town from other parts of the county.

Technology

For its pilot project, Battle Creek Transit procured a software vendor that had little previous experience operating in the United States and had not previously had to track data in a way that would be conducive to compliance with federal and state reporting requirements. Their partnership was mutually beneficial—BCT was able to procure software at an advantageous cost, and the vendor was able to gain experience in a new market. The partners worked closely together to iron out issues unique to the U.S. market and used “out of the box” thinking to resolve challenges and build a mobile app and backend software to meet BCT's needs.

For customers, technology adoption has been relatively smooth. About 75 percent of customers book their trips through the mobile app. The rate of mobile app usage for booking has steadily increased over time. BCT participated in many community events and conducted one-on-one sessions with community members to educate them on how to use BCGo and the mobile app. Additionally, word-of-mouth advertising among users has encouraged increased mobile app usage.

Funding

BCGo's grant from Michigan DOT was initially for a 12-month pilot. However, BCT has been able to successfully acquire extensions and additional grant funding from the state to continue the pilot for three years, given the time it has taken to get the service up and running and to begin the process of integrating multiple providers. However, the current funding will not adequately sustain the service once the grant funding ceases.

The initial implementation of BCGo has proved that it is viable to extend transit service into rural communities across Calhoun County and, at the same time, that the demand far exceeds supply with the current level of resources. The success of the service has created support from local legislators who are now advocating for dedicated funding for continued countywide service. The county has created a transit authority, and a ballot measure for a property tax (or "millage") that would sustain the service and increase its capacity to up to 20 vehicles will be voted on in November 2024. The countywide transit authority could potentially become responsible for all of BCT's services; however, municipalities within the county that decline to participate in the millage could also cease to receive BCGo service in the future (Jennerjahn, 2023).

Partnerships

The partnership between BCT and its technology vendor has been the most active partnership thus far into the piloting of the service, with the State of Michigan as the primary funding partner. The integration of the City of Marshall's demand response service into the same platform as BCGo, while maintaining separate branding and service capacity (i.e., the same number of dedicated vehicles), has been a successful partnership that has resulted from the pilot project as well. While discussions of operational integration with Community Action are not currently active, the participating partners are open to the possibility of furthering those discussions in the future.

Results and Reception

Since implementation, BCGo has been successful in expanding transit options for Calhoun County residents and attracting new customers. In the first year of service, a survey of customers using the mobile app indicated that 55 percent of users had never used public transportation before BCGo was created, illustrating the latent demand for public transportation service that existed in the county. Additionally, implementation of the new microtransit service was the first major change in transit service provided by BCT in over a decade, which made the new service exciting to residents. Its creation became even more important in meeting the community's transportation needs following the closure of the city's only taxi company in 2019.

Limited funding has resulted in a demand for the service that far exceeds the supply. However, BCGo is filling a gap in fixed-route service within Battle Creek and reducing the demand on Tele-Transit, BCT's ADA complementary paratransit service. While paratransit-eligible customers have priority for booking Tele-Transit trips and a flat \$3.00 fare on Tele-Transit, many customers are forgoing these benefits to use BCGo. BCGo is more flexible than Tele-Transit because it operates outside the city limits of Battle Creek and can be booked via an app rather than exclusively through a call center. In addition, there have been few customer complaints about BCGo's fares, even though they can be as high as \$15.00 for trips of 20 or more miles.

There has also been support from BCT staff for the service. To ensure support for BCGo among the operators, BCT management worked closely with the transit operators' union to ensure a smooth implementation. The parties signed a letter of understanding as part of their collective bargaining agreement that created a new class of noncommercial driver's licensed

(non-CDL) operators and allowed the union to maintain some positions as legacy positions into the non-CDL pool. Having these legacy positions will last for two contract terms and allows some CDL operators to pick a non-CDL shift yet still retain their same rate of pay. These operators must maintain their CDL and, in the case of a staffing emergency, BCT has reserved the right to transition these operators back to operating fixed-route service. BCT made business cards for all operators with information about BCGo that the operators could hand out while on their shift. This helped operators become advocates for the new service.

The biggest challenge for BCT was ensuring that dispatching staff had the support they needed. With the implementation of the new on-demand microtransit software, dispatchers were required to manage and book customers in two separate systems, one for Tele-Transit and one for BCGo. App-based booking has meant that the number of calls dispatched has decreased, while the complexity of the calls has increased. Customers eligible for Tele-Transit can also use BCGo, so dispatchers need to review schedules in both systems to ensure these customers are booked only once and on the service that best meets their needs.

Case Example Summary – BCGo

BCGo has proved that microtransit service can be successful in Calhoun County and has made a case for providing a countywide service. It has also served as a proof of concept for integration of multiple providers on the same technology platform. At the same time, the pilot has highlighted that more funding is needed to meet the demand for transportation in the county. BCGo is able to provide microtransit service across Calhoun County but has found that offering truly on-demand service, especially outside the densest areas of the county, is not feasible within the currently available level of funding.

- **Similar to BRATS, the demand for BCGo’s countywide service has significantly exceeded the supply.** Since launching, the service has been popular. The demand for BCGo has surpassed supply to the point that the service can complete only 20 percent of trip requests and can only operate as an on-demand service if capacity is reserved for same-week and same-day trips. BCT also implemented overlay zones to help manage capacity throughout the county and maintained desired levels of service and service availability. Funding limitations, in particular, have contributed to constraints.
- **Proactive engagement with operations staff and their union resolved potential concerns proactively and made implementation less challenging.** BCT and its operators signed a letter of understanding and amended their collective bargaining agreement to create a new class of operators. Operators were generally supportive of the service, given their interest in serving the transportation needs of the community.
- **The BCGo pilot program has demonstrated the possibility of merging multiple services onto the same platform while maintaining distinct branding and previous levels of service.** Marshall Dial-a-Ride has joined Battle Creek Transit as a partner and now shares on-demand microtransit software. While Marshall Dial-a-Ride remains its own distinct brand, scheduling and dispatching service on the backend are merging with BCGo service, and Marshall Dial-a-Ride customers are now able to use the mobile app to book trips.

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Bay Area Transit Authority, BATA Link

Service Location	Service Description	Population	Service Days and Hours	Other Services Offered	Fleet Information	Fare Information
Grand Traverse and Leelanau counties, MI	Countywide (950 sq. mi.)	117,540 (124 per sq. mi.)	Monday-Friday, 6:00 a.m.–10:30 p.m. (limited availability outside Traverse City after 7:00 p.m.) Saturday and Sunday, 7:00 a.m.–7:30 p.m. in Grand Traverse and Leelanau counties and 7:00 a.m.–10:30 p.m. in Traverse City	Fixed-route service, deviated/flexible fixed-route service	On-Demand Fleet: 30 Total Fleet: 85	Flat fare, cash or card; \$6.00 one-way trip

Interviewee: Adam BeVier, operations manager (demand-response) and dispatch supervisor



Source: BATA

Background and History

Bay Area Transit Authority (BATA) operates public transit service in Grand Traverse and Leelanau counties in Michigan. BATA’s services include fixed-route bus service in Traverse City and deviated/flexible fixed-route service in Grand Traverse and Leelanau counties as well as an on-demand microtransit service, BATA Link.

BATA launched BATA Link to replace its dial-a-ride service in July 2023 after piloting microtransit service during the COVID-19 pandemic. Through BATA Link, BATA aims to increase connections to fixed-route transit services and provide a higher level of performance that is consistent across its service area than was possible with dial-a-ride.

Service Description

BATA Link service operates countywide in Grand Traverse and Leelanau counties, including within Traverse City. This service provides a connection for rural communities into Traverse City

for work, medical trips, and other needs. Most trips starting in Grand Traverse and Leelanau counties end in Traverse City. BATA Link service is comingled with BATA's ADA complementary paratransit service, and ADA customers are afforded priority when booking trips.

Customers can book immediate trips but are also able to book trips up to 24 hours in advance. About 60 percent of trips are pre-booked, while the remaining 40 percent are booked on demand. BATA is able to book and complete about 85 percent of trip requests due to staffing constraints, which is contributing to the higher percentage of pre-booked versus on-demand trips.

While BATA Link offers pre-booking, the current booking approach has resulted in improvements compared with BATA's previous dial-a-ride service, which allowed for trips to be booked up to two weeks in advance. When trips were booked further in advance, BATA experienced high no-show and cancellation rates (30 percent of trips). Introducing the 24-hour booking window through BATA Link has reduced the no-show and late cancellation rate to 2 percent of trips, improving BATA Link's overall efficiency. Passengers initially expressed concerns about the change. In response, BATA's team undertook an effort to educate riders about the benefits of the change, particularly increased service availability (freeing up capacity for trips that would previously have been no-shows). BATA found that customers' concerns went away after they became accustomed to the 24-hour window.

Technology

Technology adoption for BATA Link has been relatively smooth. Prior to service launch, BATA's technology provider spent time on-site testing and troubleshooting the software, including developing a mock schedule for operators. Because the technology provider came in person to BATA's offices, the agency was able to launch several test scenarios before officially going live. This resulted in a smoother launch overall. In addition, BATA Link replaced a microtransit pilot, which had also used a mobile app to book on-demand service, so the public and staff were already familiar with the service model.

BATA also prioritized marketing and education to support customers through the implementation of on-demand service. The agency alerted customers many months in advance that they were transitioning software and conducted both outreach and staff training. Call center staff were trained on how to use the mobile app so that if customers called in, they could help the customer troubleshoot issues. Another staff member trained the public on how to use the mobile app at libraries and community events.

Funding

BATA's initial microtransit pilot, which prepared the agency and its customers for the launch of BATA Link, was funded through a mix of grant funding from the Federal Transit Administration, Michigan Department of Transportation, and the Grand Traverse Regional Community Foundation. However, BATA Link service currently receives no funding through grants. While BATA charges a premium fare (\$6.00 per one-way trip) to ride BATA Link, the fares cover about 10 percent of the operating cost, leaving a large gap that must be covered by other sources.

Results and Reception

BATA Link has achieved the agency's goal of providing a cost-effective, reliable transportation option across its service area. BATA Link is more cost-effective on a per-passenger-trip basis than the dial-a-ride service it replaced. Additionally, operational efficiency is increasing through both the reduction of no-shows and cancellations and more efficient and dynamic routing and trip aggregation. The new software is helping BATA schedule trips in a more efficient manner;

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the agency's average miles per trip is decreasing, and the agency is providing more customer trips. Prior to the implementation of microtransit service, there was more human error in scheduling that decreased efficiency.

Some of the agency's rural fixed-route services that were suspended during the COVID-19 pandemic were never re-implemented since BATA Link is able to serve those areas more effectively. Many customers appreciate the ability to go door-to-door or curb-to-curb on transit rather than having to go to and from a transit stop. The BATA Link mobile app provides information about available fixed-route services if a customer requests an on-demand trip that can be made via fixed route; however, most customers choose BATA Link even though the fare is more expensive (\$6.00 for Link versus \$0–\$3.00 for fixed route).

BATA employees have been supportive of the Link service. When BATA implemented its initial microtransit pilot in Traverse City, a committee of operators met regularly with planning staff to share what was working and not working with the service. These operators were engaged after the pilot to help develop the RFP for BATA's current software vendor. Operators indicated what features they found most useful to perform their jobs, and this information was incorporated into the software requirements. Operators also advocated for extensive staff training and public outreach.

Case Example Summary – BATA Link

Through the implementation of Link service, BATA has found that it can expand service for rural customers in Grand Traverse and Leelanau counties. However, microtransit is one of many tools in BATA's toolbox, and there is a tradeoff between offering a convenient service to customers and a financially productive service.

- **By allowing booking of trips only up to 24 hours in advance, BATA has significantly lowered its cancellation and no-show rates.** BATA was the only agency profiled that did not allow customers to pre-book further in advance than 24 hours before travel, and it appears to have a lower cancellation and no-show rate compared to the other agencies. While customers initially were concerned about the change, BATA educated them about the service availability benefits, and they were able to adapt quickly following implementation.
- **Ongoing engagement with operations staff enabled identification of the capabilities that were most important for the on-demand software to have and enhanced operator advocacy for the new service.** BATA engaged its operators extensively during the initial microtransit pilot, launched in 2020, and relied on operator input when developing the RFP for the current microtransit software. BATA's planning staff gave operators a say in what capabilities the microtransit service would need to offer and provided them the resources to learn the software. As a result, BATA's operators have become advocates for the service with the public.
- **BATA would like to explore incorporation of microtransit customer features, such as app-based booking, into deviated or flexible route service.** While BATA offers deviated fixed-route service in its more rural areas, those requests cannot currently be booked through the mobile app. Technology-enabled flexible route service could have similar features and conveniences to microtransit but would operate more efficiently along rural corridors compared to fully on-demand service.

Hall Area Transit, WeGo

Service Overview

Service Location	Service Description	Population	Service Days and Hours	Other Services Offered	Fleet Information	Fare Information
Hall County, GA	Countywide (361 sq. mi.), including the City of Gainesville	203,140 (563 per sq. mi.)	Monday–Friday, 5:00 a.m.–9:00 p.m.	Seasonal fixed-route trolley	On-Demand Fleet: 31 Total Fleet: 33	Distance-based, cashless; Before 6:00 p.m.: \$2.00 for < 5 miles plus \$0.50 for each additional mile; after 6:00 p.m.: \$4.00 for <5 miles plus \$0.50 for each additional mile

Interviewee: Phillippa Lewis Moss, Community Service Center director



Source: Scott Rogers (in Gill, 2022)

Background and History

Hall Area Transit is responsible for public transportation services in Hall County, GA, including in the City of Gainesville, which has over 45,000 residents. The agency operates a countywide on-demand microtransit service, WeGo, as well as a seasonal fixed-route trolley service in the City of Gainesville.

Hall Area Transit launched WeGo in August 2020, replacing three underperforming fixed routes in the City of Gainesville. WeGo service expanded countywide in early 2021, replacing the county’s dial-a-ride service. Hall Area Transit implemented WeGo for several reasons. Stakeholders and county residents were frustrated by infrequent and limited reach of the county’s fixed-route and dial-a-ride services. With that in mind, Hall Area Transit launched WeGo to try a new way of operating to better serve county residents both inside and outside of the City of Gainesville, while not increasing operating costs.

Service Description

WeGo provides service across Hall County. Within the City of Gainesville, Hall Area Transit aims to limit wait times for customers to no more than 15 minutes, while outside the city wait times

for trips can be as high as 45 minutes. Expanding the service to the entire county helps ensure that rural residents have access to jobs, shopping, and medical facilities regardless of whether they own a vehicle. When initially launched, the service used virtual stops and requested that customers walk up to 250 feet to a pick-up location; this caused confusion with customers, and most customers preferred not to walk, so WeGo converted to provide more direct door-to-door service.

WeGo succeeds in providing a cost-effective on-demand service to its customers. However, it does so despite challenges. The service is popular; low fares make it an appealing option for travelers. However, on most weekdays, WeGo is not able to book all trip requests—on average, 30 percent of trip requests cannot be met. This difference in supply and demand is due in part to an operator shortage. WeGo is only able to operate about half of its fleet at peak times and is unable to operate service on weekends because of staffing constraints.

Many of the trips that WeGo is unable to book are requested in rural areas of Hall County. About 65 percent of WeGo trips are within the City of Gainesville, and about 35 percent are in the rural areas or between the city and the rural areas. When vehicles come online for service each day, they start in the City of Gainesville. Because of high demand there, vehicles end up remaining in the city, with trip requests from outlying areas often not able to be booked. To help address the mismatch between supply and demand, as well as the apparent higher rate of trip unavailability in rural areas, Hall Area Transit is implementing several strategies:

- Instructed some operators to drive outside the City of Gainesville before logging into the system so they are more likely to receive nearby trip requests from rural residents.
- Increased WeGo fares after 6:30 p.m. The agency did this after discovering that most people after that time were not using the service for critical trips like medical appointments and were more likely to be able to afford a higher fare.
- Looking to re-introduce fixed-route transit in the city, where there is a density of people and jobs. The goal is to create a fixed-route service to connect people between key destinations. Having data on travel patterns from the WeGo service allows them to plan the route using high-quality, real (not modeled or estimated) data on where people need and want to travel.
- Considering implementation—after the new fixed-route service is introduced—of a premium fare for WeGo trips that could be made via fixed-route service instead of WeGo to incentivize the use of fixed-route options and free up capacity to meet the demand for trips that cannot be made on a fixed route.

Technology

WeGo experiences technical problems that interrupt service at least once a month (for 15–60 minutes at a time). WeGo operators have been trained to handle these situations. In most cases, operators have been instructed to return to the locations where they dropped off passengers earlier in the day to pick them up and take them home. Hall Area Transit noted that the software company staff are responsive when WeGo operators ask for assistance.

Funding

Hall Area Transit's funding outlook has improved as WeGo service has grown. Over time, the support for WeGo service among local elected officials has grown. Many officials have become advocates for the service, which helps ensure local funding continues.

Reception and Results

Overall, adoption of on-demand microtransit service in Hall County has been positive. The experience with WeGo service has shown the county that on-demand microtransit service is

better suited for areas that can't be well-served by fixed-route service than for its densest areas. Because demand for WeGo is so high within the City of Gainesville, service in the rural areas of Hall County has been more limited.

City of Gainesville and Hall County leadership found value in investing time and resources into alerting the community and helping customers prepare for and adapt to the transition from dial-a-ride service to microtransit. Hall Area Transit's leadership indicated that allowing adequate time for education and training is critical. Even though some vendors can have a new service up and running within a month, a community will need more time to prepare for this transition. This is especially true in rural areas with higher concentrations of older adults who may be less comfortable using a smartphone application.

Case Example Summary – WeGo

Hall Area Transit provides countywide microtransit services and has found great success in operating this service in both the City of Gainesville and more rural areas of Hall County. However, serving dense areas of the City of Gainesville has limited the availability of WeGo in more rural settings. The agency is experimenting with different approaches to manage demand between its two service areas to ensure that rural customers, as well as urban customers, have a high-quality service.

- **The agency's experience with high demand and subsequent pursuit of fixed-route re-implementation offers lessons learned regarding operating microtransit between rural and urban areas.** WeGo began operation as a fixed-route replacement service in 2020, but conditions have changed since then, and Hall Area Transit is re-introducing fixed-route service in some areas of the City of Gainesville. Because the agency maintained its underlying structure when it implemented on-demand microtransit service, it anticipates being able to re-introduce fixed-route service relatively smoothly.
- **The agency has identified a new practice for maintaining adequate service coverage in rural areas as on-demand vehicles are generally "pulled" to the core of the county.** WeGo drivers have started driving into rural areas before beginning to accept trip requests, helping to ensure adequate service levels in the more rural parts of the county.
- **Hall Area Transit has used, and is further exploring use of, fares to incentivize how, whether, and when people use the service.** The agency implemented higher evening fares to encourage people to use the service more judiciously for evening trips, which are more likely to be for social purposes. It is also considering creating financial incentives for people to use fixed-route service when a trip can be made on that service (once it is implemented).
- **Hall County found that mobile app adoption was slow and more difficult for older adults with little smartphone experience.** A significant portion of WeGo's ridership resides in rural areas and struggled to adapt to using the mobile app. Hall Area Transit invested significant resources in advertising WeGo and preparing its ridership for the new service.

Heart of Iowa Regional Transit Agency, HIRTA On Demand

Service Overview

Service Location	Service Description	Population	Service Days and Hours	Other Services Offered	Fleet Information	Fare Information
Boone, Dallas, Jasper, Madison, Marion, Story, and Warren counties, IA	Seven-county zone (4,177 sq. mi.)	365,100 (87 per sq. mi.)	Monday-Friday, 7:00 a.m. – 5:00 p.m. (Note: Story’s and Ames’s service starts at 6:30 a.m. and service ends at 8:00 p.m. in Ames) Saturday, 7:30 a.m. – 6:00 p.m. in Ames Sunday, 8:30 a.m. – 6:00 p.m. in Ames	Flexible route	On-Demand Fleet: 72 Total Fleet: 72	In town: \$2.50 In county: \$5.00

Interviewee: Julia Castillo, executive director



Source: HIRTA

Background and History

The Heart of Iowa Regional Transit Authority (HIRTA) provides transit service across seven counties surrounding the Des Moines metropolitan area, including the City of Ames, which lies 35 miles north of Des Moines and is the home of Iowa State University. HIRTA, as it exists today, is the result of the merger of seven separate third-party operators. Beginning in 2011, HIRTA started consolidating those operators and directly operating the service, one county at a time. By 2020, HIRTA directly operated demand response service in all seven counties.

In September 2022, HIRTA launched HIRTA On Demand, a microtransit service that replaced its dial-a-ride service and allows riders to book trips on demand via an app or through a call center, as before. HIRTA launched microtransit service following the closure of its software vendor and after holding focus groups with riders and learning that they wanted the flexibility of microtransit. HIRTA’s goals for its on-demand service are to provide a service the community wants; gain new riders while maintaining current ridership; provide flexibility by allowing riders to book, cancel, and pay for trips via an app while maintaining cash and ticket fares; decrease the amount of time trip schedulers are on the phone with customers; and maintain on-time performance.

Service Description

HIRTA's service area is over 4,100 square miles, with 72 vehicles in the fleet. The service area is one large zone, with riders allowed to travel across counties. Vehicles are stored in the biggest town in each county, with the exception of two counties that store their vehicles in two towns. If one county has an influx of trips, HIRTA will move vehicles between counties. HIRTA often provides cross-county trips, primarily for life-sustaining medical treatment, which are more important than ever as rural medical providers in the service area have closed. Customers are able to book trips via HIRTA's mobile app and call center for immediate reservations, same-day service, next-day reservations, advance reservations, or on a subscription basis.

Technology

HIRTA has had a positive experience implementing microtransit software. Its technology vendor sent representatives to central Iowa when the service launched to test it and fix any necessary functions in the software. Almost two years after launching, HIRTA still has weekly meetings with this vendor.

In one community with a high proportion of residents who do not speak English as their first language, HIRTA found that people weren't using the microtransit service despite an apparent need for affordable transportation. The authority hired a bilingual mobility coordinator who conducted outreach and learned that people were not comfortable providing personal information on the mobile app. HIRTA started a flexible fixed-route service called Flex Connect in this community in addition to maintaining HIRTA On Demand service, to give people another option.

HIRTA is currently working on a project called Health Connector with funding from an ITS4US grant that will allow people to book medical appointments and transportation at the same time. [ITS4US Deployment Program is led by the Intelligent Transportation Systems (ITS) Joint Program Office of the U.S. Department of Transportation and is supported by the FTA, FHWA, and the Office of the Secretary of Transportation, <https://www.its.dot.gov/its4us/index.htm>.] The app will connect to both HIRTA On Demand and scheduling software at area hospitals that coordinates service from a variety of nonemergency medical transportation companies. HIRTA is planning to roll out the pilot in one county in August 2024 and eventually expand the program.

Funding

In implementing HIRTA On Demand, the agency knew there were available funding streams it was not eligible to apply for as a government agency. To work around this challenge, the team created the Heart of Transit, a nonprofit organization, to be able to apply for funds not previously available. The Heart of Transit receives grants from companies that do not fund government agencies, such as \$200,000 per year from multiple local United Ways, and uses it to fund services in a way consistent with the terms of the grant. The agency has also received funding from casinos, the American Association of Retired Persons (AARP), and community foundation grants to offer service. HIRTA was able to use AARP funds for benches and bus stop signage for the flex route service. In addition to its nonprofit, HIRTA uses federal, state, and local funding to finance its service.

HIRTA On Demand is more expensive for HIRTA to operate than the previous demand response service. The agency is considering raising fares for on-demand trips or reducing the fare on trips scheduled ahead of time to make the service more efficient and cost-effective.

Reception and Results

HIRTA has received positive feedback from the community. The agency has attracted new transit riders while providing better service to original customers who appreciate the increased flexibility offered by on-demand service. Feedback from drivers and staff was not as positive as public feedback because it completely changed how they do their jobs, but this challenge has been alleviated over time.

HIRTA has monitored key metrics and hired more drivers in some areas due to increased demand to maintain short wait times and high on-time performance. HIRTA has not experienced a driver shortage; before the nationwide driver shortage, it had already been changing its hiring practices to make employment at HIRTA more attractive to jobseekers. HIRTA has implemented a practice of carefully reviewing background checks and, in some cases, hiring formerly incarcerated people as drivers. The authority also made the application process easier and more straightforward to ensure that potential candidates can figure out how to apply.

Case Example Summary – HIRTA On Demand

HIRTA has introduced microtransit across seven counties and has overall successfully met demand with a large fleet of vehicles and at least one vehicle hub in each county. However, because the service is more expensive than the demand response service it previously operated, HIRTA is considering raising fares for on-demand trips.

- **HIRTA succeeded in replacing dial-a-ride service with on-demand service across a large geography, possibly due to its large fleet size.** The service has been positively received by the community. It is especially important in the face of some rural medical clinic closures. HIRTA maintains a call center, allowing for riders to call to book their service and book service further in advance than the app allows.
- **HIRTA has identified strategies to pursue more diverse funding sources.** By creating a nonprofit, HIRTA is able to receive funds unavailable to government agencies and to support activities outside the scope of some government transportation programs and funding sources.
- **If the agency were to repeat implementation of on-demand service across the entire service area, HIRTA would “start small” and implement it incrementally.** HIRTA’s leadership indicated a belief that launching service in one county at a time would have allowed it to make adjustments before expanding. That strategy would have reduced the magnitude of the challenges faced during implementation.
- **HIRTA’s Health Connector project, which will enable people to book medical appointments and transportation services at the same time, has potential to be a proof-of-concept that could support more widespread integration of medical scheduling and transportation services.** HIRTA believes this increased convenience could reduce the number of people who miss medical trips due to lack of reliable transportation.

North Central Regional Transit District, MyBlue

Service Overview

Service Location	Service Description	Population	Service Days and Hours	Other Services Offered	Fleet Information	Fare Information
Taos and Española, NM	<p>Three zones:</p> <p>Taos Zone: within a 2-mile radius along major arterial in town (approx. 43 sq. mi.)</p> <p>Española Zone: within 15-mile radius of the city center (approx. 652 sq. mi.)</p> <p>Pojaque/Nambé Zone (within Española Zone): Nambé and Pojaque pueblos, and Pojaque Valley Schools Jacona Campus (approx. 26 sq. mi.)</p>	<p>2,050 (48 per sq. mi.);</p> <p>43,550 (67 per sq. mi.);</p> <p>3,240 (125 per sq. mi.)</p>	<p>Monday–Friday, 6:00 a.m.–6:00 p.m.</p>	<p>Fixed-route bus, deviated fixed-route service</p>	<p>On-Demand Fleet: 10</p> <p>Total Fleet: 75</p>	<p>Flat fare; \$1.00 for all zones except Pojaque/Nambé (which is no charge)</p>

Interviewee: Bryce Gibson, planning and projects manager



Source: NCRTD

Background and History

The North Central Regional Transit District (NCRTD) operates public transit service in north central New Mexico, including Los Alamos, Rio Arriba, Santa Fe, and Taos counties. In addition to operating fixed-route bus and deviated fixed-route bus service, NCRTD operates MyBlue, a microtransit service in Taos and Española that offers an app-based booking option. During the COVID-19 pandemic, NCRTD suspended or decreased the level of service on many of its fixed-route services, and some of these changes remain in place due to ongoing staffing shortages.

NCRTD first launched MyBlue in December 2022, replacing the existing paratransit/dial-a-ride service. Initial recommendations for MyBlue were developed as part of NCRTD’s long-range

planning and were based on extensive community outreach. NCRTD implemented MyBlue for several reasons. Internally, NCRTD wanted to improve operational efficiency and decrease the workload on dispatchers. For customers, NCRTD wanted to provide additional flexibility and the ability to make more spontaneous trips.

Service Description

NCRTD operates MyBlue service in three zones in its service area. Customers can book trips via the MyBlue mobile app or through a call center. Trips must be booked via the mobile app or call center at least 24 hours in advance but can be booked up to two weeks in advance. NCRTD also allows customers to book trips on a subscription basis, which can recur indefinitely. NCRTD plans to allow for same-day reservations as the service expands. MyBlue is fully co-mingled with NCRTD's paratransit service, and paratransit customers requesting trips are prioritized to ensure that their needs are met.

Technology

NCRTD launched the MyBlue mobile app first as a pilot, limiting access to the app to a small percentage of customers and beta testers. While the backend software was fully implemented in 2022, most MyBlue customers did not have access to the MyBlue mobile app until early 2024. This soft launch of the app helped ensure any issues were worked out in advance of full implementation and helped NCRTD manage demand for the service. Operating capacity was limited due to an operator shortage when NCRTD launched MyBlue service, and the agency did not want to open the mobile app to all customers without having the capacity to meet all demand.

While NCRTD's experience implementing the new software has been positive overall, challenges have arisen, and the agency found that it is vital to lay out expectations with vendors from the start. While NCRTD and its vendor have a contract in place, the agency has had to maintain active communication with the vendor to ensure that the contract terms are met. For example, NCRTD requires that its vendor produce reports to be used for federal, state, and local reporting requirements, such as annual reports for the National Transit Database. While the vendor agreed to these requirements, it took time and coordination to build out the reports.

Funding

NCRTD's transit service is funded through a mix of federal, state, local, and directly generated funds.

Results and Reception

Implementing microtransit service with advanced, app-based booking was a major investment for NCRTD and changed how the agency operates its service. This has resulted in improved operational efficiencies, but not as great as initially anticipated. Often MyBlue carries one passenger per trip rather than having a large proportion of aggregated (or grouped) trips. NCRTD attributes the lower-than-hoped efficiency improvements to the large service area and nature of the service operating in a rural, low-density setting. The zones in which MyBlue operates cover large geographies, and it is difficult to group trips without making each rider's trip excessively long. To provide a better customer experience, MyBlue has configured its software to limit how long a trip can take, thereby forgoing some operating efficiencies.

However, the implementation of software allowing app-based booking has ensured that NCRTD operates service in a “better and safer way.” Because the software automates the scheduling and dispatching of trips, dispatchers at NCRTD have found that they do not have the same flexibility to squeeze in a trip as well as they could with the previous dial-a-ride service. For example, the software does a better job of accounting for the time needed for customers to board and alight a vehicle. This can result in fewer trips, but these trips are made in a safer way.

Additionally, while NCRTD has found that its new software makes trips that are as efficient as possible, this sometimes means that operators may have uneven workloads. The algorithm will schedule trips based on where vehicles are located within a zone as well as the origin and destinations of trip requests. This system can result in one operator within a zone having a full manifest and another having a relatively light load. NCRTD has found this to be an issue especially during peak commuting times.

Since the launch, ridership has steadily increased on MyBlue, and the reception has been largely positive. Engaging with and educating the public about the new service has been vital for its success. NCRTD implemented MyBlue to provide a new, more flexible service to its dial-a-ride and paratransit customers, so it was important that those customers feel comfortable with the new system. NCRTD staff focused on one-on-one engagement, meeting customers at bus stops, on fixed-route services, and at key transfer points. The agency also developed step-by-step guides for downloading and using the app to provide a resource for customers. Additionally, while NCRTD invested resources in the mobile app and backend software, it was also cognizant that not all customers own a smartphone or use a bank account. As a result, like most agencies, NCRTD still allows customers to pay for trips in cash and book them over the phone. However, customers can get a discount if they pay for trips through the mobile app.

Case Example Summary – NCRTD MyBlue

- **A slow launch in a smaller geographic area was a beneficial strategy for NCRTD.** NCRTD launched a small beta test of the mobile app before making it available to the public. This allowed NCRTD to work out any issues before sharing it broadly. It also helped NCRTD manage demand.
- **While NCRTD has realized efficiencies from implementing on-demand service, they were not as expansive as hoped.** MyBlue has enhanced operational efficiencies among NCRTD staff; however, these efficiencies have not been as great as initially projected. The agency found a lower-than-desired rate of trip aggregation and found that software could not overcome the efficiency challenges associated with operating across a large and low-density service area. The service still requires pre-booking as well.
- **NCRTD continues to evaluate what transit service type makes sense for different parts of its service area.** The agency has found that, for customers who need to make longer trips, microtransit is operating well as a feeder service to connect them to longer-distance fixed-route services. In NCRTD’s case, microtransit appears to be an appropriate replacement for fixed-route service in some locations and is enabling the agency to focus on fixed-route services primarily along key corridors.

PICK Transportation Service Overview

Service Locations	Service Description	Population	Service Hours and Days	Other Services Offered	Fleet Information	Fare Information
Cities of: Bartlesville, Catoosa, Claremore, Coweta, Grove, Kiefer, Miami, Owasso, Ponca City, Poteau, Prior, Sallisaw, Sapulpa, Skiatook, Tahlequah, and Vinita, OK	19 zones (ranging from ~15 sq. mi. to ~45 sq. mi.) in 16 jurisdictions	Population ranges per zone from 3,800–40,000; Population density ranges per zone from 226–1,546 people per sq. mi.	Monday– Thursday, 5:00 p.m.–9:00 p.m. Friday, 5:00 p.m.–10:00 p.m. Saturday, 10:00 a.m.–2:00 p.m.	Daytime service varies by agency, mostly demand response	On-Demand Fleet: 44 Total Fleet: varies by agency	Flat rate, cash or card; \$3.00

Interviewees: Laura A. Corff, transit director, United Community Action Program, Inc.; Patricia Dinoa Vilches, principal transportation planner, Indian Nations Council of Governments; Kendra McGeedy, director of transit, Pelivan Transit



Source: Shared Use Mobility Center, <https://learn.sharedusemobilitycenter.org/casestudy/bringing-regional-mobility-on-demand-service-to-rural-oklahoma-a-case-study-of-pick-transportation/>

Background and History

PICK Transportation is a consortium of three rural public transit providers (Pelivan Transit, Cimarron Public Transit System, and KI BOIS Area Transit System) and nine tribal nations in eastern Oklahoma, serving rural communities in Bartlesville, Catoosa, Claremore, Coweta, Grove, Kiefer, Miami, Owasso, Ponca City, Poteau, Prior, Sallisaw, Sapulpa, Skiatook, Talequah, and Vinita cities. (The nine tribal nations included in the consortium are part of the Northeast Oklahoma Tribal Transit Consortium, which consists of the Eastern Shawnee, Miami, Modoc, Ottawa, Peoria, Quapaw, Seneca-Cayuga, Shawnee, and Wyandotte.) The consortium operates on-demand microtransit service in designated zones within each community on weeknights and during the day on Saturdays. Service operates within each zone and generally does not allow travel between zones.

In 2020, the Grand Gateway Economic Development Association was awarded an FTA Integrated Mobility Innovation grant for \$1.5 million to develop PICK Transportation. The three transit providers heard feedback from riders about a desire for evening and weekend service, so PICK Transportation was formed to provide after-hours on-demand microtransit service. PICK Transportation service officially launched in June 2021 and continued as a pilot for two years. Following the completion of the pilot program funded through the FTA Integrated Mobility Innovation grant, PICK has continued operations through a partnership with the Oklahoma Department of Transportation.

Service Description

PICK Transportation provides service across eastern Oklahoma, operating in 19 geofenced zones in 16 communities on weekday evenings and mid-day on Saturdays. All service is booked on an on-demand basis (i.e., there is no pre-booking option) and can be booked by phone, a mobile app, or website. While the three providers who created PICK each operate their own systems and call centers, the call center function for the PICK service is consolidated within a single agency.

All members of the consortium manage PICK Transportation service within their own designated communities using vehicles they already own to provide daytime service. While most daytime services operate countywide, PICK Transportation offers travel within its zones, with one exception: PICK Transportation is piloting inter-zone travel between Skiatook and Owasso due to both financial and operational capacity constraints.

Technology

All three agencies that partnered to create PICK felt it was important that the technology vendor be the right fit for the needs of the service. PICK Transportation partnered with one vendor as part of its pilot program funded through the IMI grant. Following the initial pilot period, after the IMI grant funding was expended, PICK Transportation underwent a formal RFP process to procure a technology vendor to continue to support the service. This RFP process enabled the partners to refine and articulate their requirements based on direct experience.

The consortium learned early on that a straightforward and easy-to-use mobile app is vital for customers to adopt the new technology. Booking through the mobile app has increased from about 25 percent when PICK Transportation first launched to over 50 percent in March 2024. Another important feature of the mobile app is that it still allows cash payments, the method used for about half of PICK trips.

Funding

PICK Transportation is currently funded through 5311 federal formula funds with match funding from Oklahoma DOT. While the IMI grant provided a steady source of funding during the initial pilot period for PICK Transportation, it was vital that the consortium obtain a sustainable source of funding for continued operations. The sustainability of the service's funding is a concern for PICK, especially as it is faced with challenges associated with rising operating and capital costs. PICK Transportation's leaders have shared data with local economic development agencies regarding the employment trips the service is providing, as well as the broader transportation need in the community that its service is meeting. As a result, several communities have each contributed \$5,000 to fund the service.

Partnerships

PICK Transportation is unique in that it operates as a consortium of multiple public transportation operators coming together to provide service in their communities that is supplemental and operated differently from their weekday daytime service. Building and maintaining a strong partnership has been vital to success. The sustained commitment among the consortium membership has enabled ongoing operations. The funding partnership with Oklahoma DOT also has been critical to maintaining the service.

To help the consortium operate as a cohesive brand and manage the day-to-day challenges of both daytime and evening/Saturday service, the members developed and implemented

memorandums of understanding (MOUs) and standard operating procedures (SOPs) to ensure each partner has a clear role and every partner is operating in the same manner. The MOUs make clear and formalize each member's role and responsibilities as a consortium member, while the SOP formalizes operating practices across PICK Transportation.

Results and Reception

PICK Transportation fills a gap in service on evenings and Saturdays; customer requests for service during these time periods were the impetus for offering the service. Operationally, separating daytime and evening service can be a challenge for the partner agencies. To be successful, the members of PICK Transportation have needed to become comfortable wearing multiple hats and managing two separate services. For example, the agencies all operate their own call centers during the day, but there is a designated call center for PICK Transportation located at Pelivan Transit. PICK Transportation has one dedicated dispatcher who dispatches the entire system. While the call centers for the daytime services may refer customers to PICK for evening services, they are not cross trained on the software and cannot book after-hour trips for customers. Likewise, the PICK dispatcher does not book services for the daytime agencies.

In the future, PICK Transportation hopes to expand to offer countywide service as funding is available to do so. While the service receives requests to offer service to local casinos, this is not possible given current funding constraints.

Case Example Summary – PICK Transportation

PICK fills a gap in public transit service across numerous rural communities in the state. By creating PICK through a consortium, the partners can leverage resources and provide service that, on their own, each would not be able to afford. The primary challenge is that the agencies are all operating two separate systems and must manage a partnership in addition to regular service operations. There are benefits and drawbacks to this approach.

- **PICK Transportation is a service that is targeted in its scope and purpose.** By focusing on local circulation and the specific hours when there was a gap in existing service, the service has been clear about its targeted role as one service in a broader group of services available across the communities it serves. Offering service in smaller zones with a limited number of vehicles increases the efficiency of the service on a per-trip basis but has the limitation of not being able to offer long-distance trips.
- **PICK is a demonstration of what is possible when agencies partner, and it would not have been possible to establish the consortium absent a sustained commitment among all the members.** PICK Transportation exists today because of the partnership the consortium members created and sustained, as well as financial support from the state. While on their own the consortium members may not have had the capacity (or been able to get funding) to expand service hours and implement on-demand microtransit service, they are able to do so as a team.
- **The ability to generate support from a variety of sources has been critical to the service's success.** Generating support for the on-demand microtransit service at all levels, including operators, transit agency leadership, local political

Case Example Summary – PICK Transportation (*Continued*)

officials, and the state department of transportation, has been necessary for PICK Transportation's success. Having support and a willingness among stakeholders to invest both time and money into PICK ensured the service could continue after the initial pilot period. In addition, PICK shared data regarding the benefits of the service to the community, such as providing employment trips. Through that effort, the service was able to obtain additional funding from local economic development agencies.

- **Establishing clear roles was critical for the success of the agencies' collaborative effort.** PICK Transportation's members wear many hats and have to be comfortable shifting between operating independent daytime service and coordinated evening and Saturday service.



CHAPTER 5

Conclusions

This chapter summarizes the key findings from this synthesis regarding the state of the practice in the provision of rural microtransit service. The section concludes with suggestions for future research.

Key Findings

- **The ability to travel spontaneously or on shorter notice and book trips via mobile app are features of rural microtransit service that customers greatly appreciate and say improve their quality of life.** Nearly all the agencies that responded to the survey noted that they had received widespread positive feedback from customers about the benefits of the service. This message was echoed among most of the case example agencies as well.
- **Several agencies are considering implementing, or re-implementing, other transit service types to meet the travel needs of more customers in their communities and decrease the unmet demand for their microtransit services.** In some cases, agencies have found that on-demand microtransit may not be the transit mode that makes sense for certain locations or to meet certain travel needs. Hall Area Transit is in the process of re-implementing fixed-route service, BRATS is implementing vanpooling, and BATA and Moray Council are both exploring integration of microtransit technology into deviated route service.
- **Most agencies that have tried to implement truly on-demand microtransit service (i.e., with all or most of its trips being same-day or spontaneous trips) across large service areas have transitioned back to requiring pre-booking due to overwhelming demand.** This finding is particularly true for agencies that cover large service areas with limited resources, such as BCT and BRATS. Operator shortages, vehicle shortages, and/or funding limitations are factors that constrain agencies' levels of service. Understanding the level of demand and having enough vehicles and drivers to meet it are important to maintaining reliable service across a large service area.
- **The challenge of not being able to meet high levels of demand when serving large geographies indicates that there is an important trade-off to consider when determining whether to offer a lower level of service everywhere or a higher level of service in a more limited geography.** Effectively addressing this trade-off, which is especially apparent for BCT and BRATS, requires revisiting the goals of the service. Agencies whose primary goal is to extend coverage may prioritize that over offering a more reliably available or efficient service. Agencies offering service after 7:00 p.m. (BATA, HIRTA, and PICK Transportation) provide trips only in smaller zones during those hours (compared to much greater daytime coverage).
- **Most agencies, even when they have stated policies of not prioritizing certain types of customers or trips, still do this by enabling subscription trips.** These agencies are generally motivated by recognition of the need to ensure that customers are able to access life-sustaining or life-saving medical care. Bay Transit; BRATS; HIRTA; Mountain Empire Older Citizens, Inc.;

NCRTD; and Southeast Vermont Transit all allow customers to book subscription trips two or more weeks in advance to ensure they can get on the schedule. The agency that does not prioritize any type of ADA or medical trips during the daytime, BCT, can do so because a separate paratransit service to meet that need is available.

- **Some agencies have implemented or are exploring customized strategies to try to manage demand.** These strategies include reserving capacity to make trip bookings available at more than one point in time (BCT), directing vehicles to certain areas before accepting on-demand trip requests, adjusting fares to encourage judicious use of the service in the evenings, and considering premium fare options to encourage use of more cost-effective modes (Hall Area Transit).
- **Creating partnerships for small and rural agencies to implement microtransit is a time-intensive practice that has produced benefits in some cases, while it has been challenging in others.** PICK Transportation is a successful example of agencies partnering to implement a service in a way that consolidates a key function (call center operations) for improved efficiency. BCT's operational integration of a traditional dial-a-ride service within its service area represents a step in the direction of increasing efficiency by streamlining and consolidating operations. At the same time, other agencies experienced challenges with partnering to provide microtransit service.
- **Many case example agencies said they had achieved significant operational efficiencies by implementing new software with app-based booking and dynamic routing capabilities; however, at least one noted that the efficiency gains were not as high as it had hoped.** Efficiency gains typically came in the form of reducing the workload of call center staff responsible for booking and dispatching trips and manually adjusting schedules to accommodate ADA trips, and reductions in no-show and last-minute cancellation rates. At the same time, some agencies noted that it was still difficult to achieve significant efficiency gains when covering a large geographic area.
- **Adoption of app-based booking requires a population that is receptive to using it, with hands-on training important to help convince hesitant users to try it.** One-on-one customer sessions, participation in community events, conducting in-person workshops at key locations such as senior centers, promotional discounts, and how-to videos were strategies that many agencies found effective. Hands-on assistance from agency staff, including call center representatives, seems to have had the greatest impact.
- **Distance-based and higher fares are common for rural microtransit providers, particularly those operating countywide or across a larger service area.** BRATS, BCT, HIRTA, and Hall Area Transit all charge customers distance-based fares, which range from \$2.00 at the lowest (BRATS and Hall Area Transit) to \$15.00 for more than 20 miles (BCT). They are also the agencies whose service areas are the largest, apart from BATA, whose flat fare is \$6.00, which is higher than the maximum fare for trips of any length for BRATS and HIRTA, and for the cost of trips of 10 or fewer miles on BCT (\$5.00).
- **Most agencies offer service that ends between 4:30 and 7:00 p.m.,** if not earlier, with the exception of service in smaller zones within their larger service areas. In addition, most rural microtransit providers operate Monday through Friday. The agencies that offer evening service operate in smaller service areas than their daytime service areas.
- **Zone sizes vary considerably.** All but one of the agencies operate across zones of at least 300 square miles, and one agency operates across more than 4,000 square miles. Only PICK Transportation operates in relatively smaller zones; however, that service is a supplement to daytime service across larger service areas.
- **Agencies have taken different approaches to combining or co-mingling their microtransit and ADA complementary paratransit services.** Agencies that have maintained separate paratransit and microtransit operations have found some ADA (or other paratransit-eligible) customers organically shifting to microtransit because they prefer it. The different

experiences of BATA and BCT, in particular, suggest that co-mingling can be feasible but requires adequate capacity.

- **Several agencies said a “slow launch” was an effective strategy, and other agencies said that they wished they had implemented service on a more incremental basis.** Incremental implementation allows agencies to test software and a new service model on a small scale, working out any issues before launching the service across a larger area. BRATS and HIRTA were agencies that recommended a slow or incremental launch based on experiences implementing the service across their entire service area at the same time, while NCRTD took the incremental approach and found that it worked well for the agency.
- **Proactive and ongoing engagement with employees was a strategy that benefited multiple agencies in implementation.** BATA, BCT, and HIRTA were all able to find ways to engage with staff to enhance the success of their implementation and reduce hurdles, while BRATS offered some lessons learned about adequately preparing their drivers for an overhaul of how the service functions.
- **Federal and state grant programs for microtransit services in rural areas made implementation of several of the case example agencies’ services possible.** Funding agencies appear to have been willing to support pilots or new services because they see potential for the services to serve as proofs-of-concept and improve the state of the practice, as well as produce lessons learned that can be shared across the industry. BCT, BRATS, Hall Area Transit, and PICK Transportation all noted that they would not have been able to implement, or would have had more difficulty implementing, their services without supplemental funding, and HIRTA is now working with a federal grant to implement a proof-of-concept to advance the benefits of microtransit to customers requiring medical transportation.
- **The state of the practice indicates there is more work that can be done to identify and use innovative, nontraditional performance metrics to measure the benefits of rural microtransit service.** Given that the goal of rural microtransit service is generally to improve customers’ quality of life and health (both physical and emotional), as well as ensure they can access critical opportunities, relatively few performance measures beyond customer satisfaction measures exist to assess whether these goals are being achieved. This may be the case because identifying and tracking such complex metrics on an ongoing basis is a time- and funding-intensive effort that few small or rural agencies have the resources to undertake.

Related and Future Research

Concurrent efforts related to this study include NCHRP Project 08-130, “Best Practices in Coordination of Public Transit and Ride Sharing” and TCRP Project J-07/Topic SB-42, “Operational and Service Factors When Integrating/Consolidating ADA Paratransit and On-Demand Services.”

This project has identified other topics and questions related to microtransit service that could be explored in further research:

- What additional performance metrics could be used to evaluate the impacts and benefits of microtransit and/or other transportation services that are harder to quantify, such as health-care outcome improvements resulting from a reduction in isolation among older adults, or employment retention outcomes?
- As more agencies offer overlapping microtransit and fixed-route transit, what is the state of the practice regarding incentivizing or requiring customers to use fixed-route transit for trips most efficiently made on that mode?
- What are the barriers to small or rural agencies partnering to collaboratively procure and/or offer microtransit service?



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APPENDIX

Survey

Survey Respondents

The survey received 19 responses, listed in the following table.

Agency Name	Microtransit Service
Baldwin Regional Area Transit System (BRATS)	BRATS On-Demand
Battle Creek Transit (BCT)	BCGo
Bay Area Transportation Authority (BATA)	BATA Link
Bay Transit	Bay Transit Express
Cheshire West and Chester Council	itravel
GoWake Access Transportation	GoWake SmartRide NE
Hall Area Transit	WeGo
Heart of Iowa Regional Transit Agency (HIRTA)	HIRTA On Demand
Hertfordshire County Council	HertsLynx
Moray Council	m.connect
Mountain Empire Older Citizens	MET-Go!
North Central Regional Transit District	MyBlue
North Lincolnshire Council	Just Go – North Lincs
PICK Transportation	PICK Transportation
Town of Great Barrington, MA	TriTown Connector
TransLink	Bowen Island On-Demand
Southeast Vermont Transit (SEVT)	MicroMoo
Warwickshire County Council	IndieGo PLUS
Yadkin Valley Economic Development District, Inc. (YVEDDI) Public Transportation	Go Transit "Microtransit for the Yadkin Valley"

Survey Questions

A copy of the full survey follows.

Introduction

This survey is part of the research for TCRP Synthesis J-07/Topic SB-41: Microtransit Solutions in Rural Communities: On-Demand Alternatives to Dial-A-Ride Services and Unproductive Coverage Routes. The research will help practitioners understand the state-of-the-practice of planning for and operating on-demand/microtransit services in low-density (rural) areas. Survey responses will remain anonymous in the Synthesis. The last question asks if your agency/organization is interested in a more in-depth phone interview; these case studies will be tied to your agency/organization name in the Synthesis.

We want to know about your agency’s on-demand/microtransit service. In this survey, on-demand transit and microtransit are used interchangeably and refer to technology-enabled, on-demand, demand response service that is open to the public. This service can operate under a variety of different service models, ranging from agency-operated using on-demand software to completely contractor-operated with only oversight from a public agency.

We understand every service is unique and your answer to some of these questions may be nuanced. Questions with an asterisk (*) are required. Please feel free to select the “Other” option when necessary to explain your response.

Geographic Characteristics of Agencies' Service Areas

* Basic Information

Name

Agency/Organization

Title

Email

Phone Number

On-Demand/Microtransit Service Name

* Organizational Structure

- Agency/organization is a local or regional public transit agency or authority
- Agency/organization is a division/department of a single municipality
- Agency/organization is a private, non-profit organization providing public transportation
- Other, please explain:

* What service(s) does your agency/organization provide? (Select all that apply.)

- On-Demand/Microtransit service (i.e., with an option for app-based, on-demand booking)
- Fixed-route service
- Deviated fixed-route/Flexible fixed-route service
- Traditional demand response (paratransit or dial-a-ride) service (if separate from on-demand/microtransit service) without app-based, on-demand booking
- Other, please explain:

Geographic Characteristics of Agencies' Service Areas

* You indicated that your agency/organization doesn't currently operate on-demand/microtransit service. Have you operated this type of service in the past? (Select all that apply.)

- Yes, and we have since discontinued it; we now offer fixed-route service in its place
- Yes, and we have since discontinued it; we replaced it with another type of (non-fixed route) service
- Yes, and we discontinued it because it was a pilot that ended
- Yes, and we discontinued it because of lack of ridership
- Yes, and we discontinued it because of lack of funding
- Yes, and we discontinued it for another reason
- No

Geographic Characteristics of Agencies' Service Areas

Please describe how the decision to discontinue the on-demand/microtransit service was reached.

Please answer the remaining questions to the best of your ability based on the on-demand/microtransit service your agency previously provided.

Geographic Characteristics of Agencies' Service Areas

Please provide the following information about your operations:

The number of vehicles in your on-demand/microtransit fleet:

The number of vehicles in your total fleet (vehicles across all modes - please break out by mode if you have more than one additional mode):

The number of passengers served by your on-demand/microtransit service in the most recent year (please indicate how long the service operated if it was in operation for less than a year):

Please describe when your on-demand/microtransit service was implemented and how ridership has changed since implementation.

Planning and Service Design

Why did your agency/organization implement on-demand/microtransit service? (Select all that apply.)

- To provide service in a new area
- To replace a flexible route or fixed-route service
- To replace a paratransit/dial-a-ride (not on-demand) service
- To increase connections to fixed-route services (e.g., first or last mile)
- Other, please explain:

Did your agency/organization start on-demand/microtransit service as a pilot program?

- Yes
- No

How is your on-demand/microtransit service geographically structured? Please select Other and explain if necessary.

- The service operates in one or more designated zones
- The service is city- or county-wide
- Other, please explain:

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Planning and Service Design

How many areas does your on-demand/microtransit service operate in?

Planning and Service Design

Please describe the relationship and opportunities for connections between your on-demand/microtransit service and other transit services. For example, are there connections to bus routes within some or all of your zones?

Please describe how you developed your on-demand/microtransit service including any kind of market analysis that was done before determining where to offer it.

What type(s) of on-demand/microtransit service do you provide? (Select all that apply.)

- Curb-to-curb
- Door-to-door
- A set of specified locations/stops
- First/last mile (i.e., many trips in at least one of your zones are to or from another transit service)
- Trips exclusively to or from specific destinations (e.g., hospitals)
- Other, please explain:

* Is your on-demand/microtransit service open to the general public?

- Yes
- No

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Planning and Service Design

Are specific passenger groups or trip types prioritized on your service?

No

Yes, please describe the groups or trips that are prioritized:

Planning and Service Design

You noted that your on-demand/microtransit service is not open to the general public. Please describe who is eligible to use the service.

Service Models and Fleet Considerations

* There are many ways on-demand/microtransit service can be provided in terms of how the functions are divided between a public agency and one or more contractors. **Software as a Service (SaaS)** is a service model in which a public agency acquires on-demand/microtransit technology from a vendor but provides the drivers, vehicles, operations management, and customer service functions. In a **Transportation as a Service (TaaS) model**, or the **“turnkey” model**, a public agency contracts with a vendor or another organization to provide all of the functions of the service including technology, drivers, vehicles, operations management, and customer service functions. A **hybrid** model is one in which these functions are split between a public agency and a contractor.

Under which service model does your on-demand/microtransit service operate?

- Software as a Service
- Transportation as a Service/Turnkey
- Hybrid

Service Models and Fleet Considerations

Please select who is in charge of providing the following functions:

Software	<input type="text"/>
Drivers	<input type="text"/>
Vehicles	<input type="text"/>
Operations management (e.g., scheduling, dispatch)	<input type="text"/>
Maintenance	<input type="text"/>
Customer service	<input type="text"/>
Performance tracking	<input type="text"/>

If you selected other for any of the options above, please explain:

Service Models and Fleet Considerations

Which of these were factors in the decision to use the service model your agency/organization uses? (Select all that apply.)

- Staff/agency capacity
- Staff/agency expertise
- Fleet and facility availability
- Cost
- Other, please explain:

Is your agency/organization's **on-demand/microtransit service** operated with operators who are part of a collective bargaining organization (i.e., members of a union)?

- Yes
- No

Are **any** of your agency/organization's employees part of a collective bargaining organization (i.e., union)?

- Yes
- No

Service Models and Fleet Considerations

If your agency/organization experienced any issues or challenges in implementing on-demand/microtransit service based on the concerns of union members or leadership, please describe them below.

Service Models and Fleet Considerations

In the following questions, CDL refers to a commercial driver's license.

How many vehicles does your agency/organization use to operate on-demand/microtransit service?

Sedans	<input type="text"/>
Minivans	<input type="text"/>
Passenger vans - no CDL required	<input type="text"/>
Passenger vans/Cutaways - CDL required	<input type="text"/>
Other	<input type="text"/>

How many **wheelchair-accessible vehicles** do you use to operate on-demand/microtransit service?

Sedans	<input type="text"/>
Minivans	<input type="text"/>
Passenger vans - no CDL required	<input type="text"/>
Passenger vans/Cutaways - CDL required	<input type="text"/>
Other	<input type="text"/>

Establishing Performance Metrics

In establishing your on-demand/microtransit service, did your agency/organization undergo a visioning or goal-setting process? Please explain.

- Yes
- No
- Other

Please explain:

What are your goals for your on-demand/microtransit service?

For each of the following performance metrics, please list your **current performance**. If your agency/organization does not track a performance metric, please leave it blank. If you operate multiple zones, please specify if the performance varies by zone.

Passengers per hour

Cost per passenger trip

Maximum load

Average wait time

Average trip length

Average vehicle count

Customer satisfaction

Other:

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For each of the following performance metrics, please list your **current target**. If your agency/organization does not track a performance metric or does not have a target, please leave it blank. If you operate multiple zones, please specify if the target varies by zone.

Passengers per hour	<input type="text"/>
Cost per passenger trip	<input type="text"/>
Maximum load	<input type="text"/>
Average wait time	<input type="text"/>
Average trip length	<input type="text"/>
Average vehicle count	<input type="text"/>
Customer satisfaction	<input type="text"/>
Other:	<input type="text"/>

Have you adjusted on-demand/microtransit service in response to performance metrics? Please explain what was adjusted and how often you consider making adjustments based on performance.

- Yes
- No
- Other

Please explain:

How did your agency/organization establish performance metrics?

How does your agency/organization explain the benefits microtransit brings to your community (including in response to scrutiny of the cost of the service, if applicable)?

Procurement and Funding

How did your agency/organization procure the technology/software for your on-demand/microtransit service?

- RFP
- Sole source
- Already used technology for other demand response service; did not undergo new procurement
- Other, please explain:

Did your agency/organization establish performance metrics that would be used to evaluate your software and/or service vendor(s)' performance?

- Yes
- No

Please explain:

What types of funding sources does your agency/organization use to fund operations of on-demand/microtransit service? Select all that apply.

- Federal funds
- State funds
- Local funds
- Fare revenue
- Grant(s) from public sector agency/organization(s)
- Grant(s) from private sector organization(s)
- Other, please explain:

Trip Booking and Technology

What software does your agency/organization's on-demand/microtransit service use?

To the best of your knowledge, what is the proportion of customers that book through the app versus an alternative? (Please estimate a percentage for each booking option, or leave blank if your service doesn't have that option.)

App-based:

Website:

A partner organization booked on their behalf:

Call Center:

Other:

To the best of your knowledge, what barriers do customers face in booking trips via an app? Select all that apply.

- Lack of reliable internet
- Lack of smartphone
- Discomfort with using smartphone
- Issues understanding/using the app interface
- Other, please explain:

Which of the following reservation types do you allow via mobile app? Select all that apply. Select all that apply.

- Immediate reservations
- Same-day service (minimum 2 hours in advance)
- Next-day reservations
- Advance reservations (at least 2 days in advance)
- Subscription - i.e., regularly recurring trips that do not need to be booked each time
- Other, please explain:

To the best of your knowledge, what is the proportion of customers that pay using different forms of payment? (Please estimate a percentage for each form of payment, or leave blank if your service doesn't have that option.)

Agency transit card:

Debit/credit card
through the app:

Cash:

Voucher:

Other:

We don't charge fares.

Marketing and Customer Education

What strategies has your agency/organization used to market the on-demand/microtransit service? (Select all that apply.)

- A website for the service
- Social media posts
- Geotargeted ads on social media
- Radio ads
- Television ads
- Direct mail
- Brochures and flyers
- Pop-up events, such as tables at community fairs or transit centers
- Targeted outreach to specific demographic groups, like visiting senior centers
- Attending pre-existing community meetings (like civic association or HOA meetings)
- Did not use any marketing strategies
- Other, please explain:

Which strategies were most effective and why? Are there any strategies you wish you had used?

What strategies has your agency/organization used to train potential customers in using the on-demand/microtransit service? Select all that apply.

- In-person training
- How-to video
- Flyers/brochures
- My agency/organization did not develop training materials
- Other, please explain:

On average, how much staff time was devoted to marketing and education pre-service launch?

- 0-4 hours weekly
- 5-10 hours weekly
- 11-20 hours weekly
- 21-30 hours weekly
- 30-40 hours weekly
- Unknown - marketing and education performed by contractor
- Other, please explain:

On average, how much staff time is devoted to marketing and education post-service launch?

- 0-4 hours weekly
- 5-10 hours weekly
- 11-20 hours weekly
- 21-30 hours weekly
- 30-40 hours weekly
- Unknown - marketing and education performed by contractor
- Other, please explain:

Has your agency/organization developed any partnerships to support marketing activities and, if so, with what type of organizations? (Select all that apply.)

- Community-based organizations
- Homeowners' associations or civic associations
- Local government (e.g., social services agency, public library, etc.)
- Faith-based organizations
- Businesses
- Medical institutions
- None
- Other, please explain:

Realized Benefits and Lessons Learned

Please describe the type of feedback – both positive or constructive, through formal or informal channels – you have received from the public regarding your on-demand/microtransit service.

How has on-demand/microtransit service impacted your agency/organization's overall performance? (If no impact, please leave blank.)

Service cost per passenger trip	<input type="text"/>
Total service cost	<input type="text"/>
Service efficiency	<input type="text"/>
Customer satisfaction	<input type="text"/>
Other, please explain	<input type="text"/>

Has on-demand/microtransit service impacted other transit services operated in or near your service area(s)? For example, have you seen a change in how, or how much, people use other nearby transit services as a result of implementing on-demand/microtransit service?

What are the most valuable lessons learned that you would want to share with other agencies considering implementing on-demand/microtransit service in a rural area?

Closing Questions

If you have any documents describing successful initiatives, programs, policies, or partnerships related to implementing and operating on-demand/microtransit service in a rural area that you'd like to share with us, you may upload them here. These documents will be used for research internally but will not be shared without your permission.

No file chosen

We would like to follow up with a few interested respondents for a more in-depth discussion. Would someone at your agency be willing to participate in a phone interview (up to 60 minutes) to discuss your on-demand/microtransit service?

Yes, and you can contact me

No

Yes, and there is someone better at my agency/organization for you to contact (please provide their name and email address):

Abbreviations and acronyms used without definitions in TRB publications:

A4A	Airlines for America
AAAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI-NA	Airports Council International-North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FAST	Fixing America's Surface Transportation Act (2015)
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GHSA	Governors Highway Safety Association
HMCRP	Hazardous Materials Cooperative Research Program
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
MAP-21	Moving Ahead for Progress in the 21st Century Act (2012)
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
PHMSA	Pipeline and Hazardous Materials Safety Administration
RITA	Research and Innovative Technology Administration
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S. DOT	United States Department of Transportation

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