

Modernizing Rural Transit’s Toolbox: Microtransit as a Strategy to Achieve High Quality Coverage Service in Rural Areas

Andrea Hamre and David Kack, Mobility & Public Transportation Program

Western Transportation Institute, Montana State University

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Summary: Microtransit modernizes the rural transit toolbox, which in the past has often been limited to the choice between low-performing and circuitous one-way fixed route loops or inconvenient dial-a-ride services that require advance reservations and long wait times.

Transit’s Chameleon – the “Tweener” of Public Transportation

Microtransit is a form of on-demand vehicle-based transportation that focuses on pooled (or shared) trips. Its on-demand nature makes it a type of flexible transit, but its emphasis on the pooling of trips distinguishes it from taxi or ridehailing services (which are typically geared toward serving a single passenger at a time). While microtransit services may be fully private, the term has increasingly come to refer to technology-enabled demand response public transit service. At its core, microtransit is about a modern approach to flexible transit that takes advantage of technological advancements to modernize the booking, dispatching, and routing of demand response services in ways that create improvements and efficiencies for both riders and operators.

The Transit Cooperative Research Program’s (TCRP) Synthesis 141 on *Microtransit or General Public Demand Response Transit Services: State of the Practice* by Volinski (2019) remains the definitive text on microtransit. In that report, Volinski called this form of transit “the chameleon of the public transportation world” and “the ‘tweener’ of public transportation, being less expensive per trip than traditional paratransit services but considerably more expensive per trip than fixed route service” (2019, p. 1). He continued:

It is less efficient than fixed route service in dense areas but more efficient than fixed route service in areas of lower density or demand. From a broader mobility point of view, it is more demand-driven than fixed route transit but generally not as responsive to individual requests or expensive as transportation network company (TNC) services. It is another tool in the toolbox available to public transit agencies as they try to provide the appropriate levels of supply to match the various levels of demand in their diverse service areas (Volinski 2019, p. 1).

How Did Microtransit Develop?

The term microtransit was first coined in 2014 (Volinski 2019, p. 1) and its meaning has evolved rapidly over the past decade; working definitions from just a few years ago are already outdated. For example, the TCRP Research Report 188 on *Shared Mobility and the Transformation of Public Transit* (Feigon and Murphy 2016) emphasized microtransit as a private service, offering “private flexible transit” as an alternative term and defining microtransit as:

IT-enabled private multi-passenger transportation services, such as Bridj, Chariot, Split, and Via, that serve passengers using dynamically generated routes, and may expect passengers to make their way to and from common pick-up or drop-off points. Vehicles can range from large SUVs to vans to shuttle buses. Because they provide transit-like service but on a smaller, more flexible scale, these new services have been referred to as “microtransit” (Feigon and Murphy 2016, p. 5).

However, by the time the Transportation Research Board’s Special Report 337 on *The Role of Transit, Shared Modes, and Public Policy in the New Mobility Landscape* was published in 2021, several private companies attempting to offer exclusively private microtransit had closed due to lack of profitability (TRB 2021, p. 13). Remaining companies, such as Via, have increasingly turned toward partnerships with public entities to provide microtransit as a public service.

When is Microtransit the Right Tool for the Job?

Public transit consultant Jarrett Walker has been a strong proponent of improved understanding of “the ridership-coverage tradeoff” for transit services, as well as clear decisions about this tradeoff in transit planning (Walker 2018). Walker calls out claims that microtransit will solve the frequency-coverage dilemma as “dangerous nonsense” – according to Walker, microtransit “is a kind of coverage service” and “flexible service will never be justifiable if the goal is ridership...[o]nly if the goal is coverage do these services *ever* make sense” (Walk 2019, emphasis in original). Yet, even Walker acknowledges there is a role for microtransit to play – in rural settings:

The *only* places where flexible service is the *most* efficient way to achieve ridership are places with very, very low transit demand, like small towns, rural areas, and the lowest-density suburbs. If there is no demand for fixed routes that could carry more than 4

boardings per driver hour, you might as well run flexible (Walker 2019, emphasis in original).

This aligns with Volinski's (2019, p. 2) acknowledgment that areas with lower transit demand and lower densities, "usually located in more suburban and rural settings, have been frustrating for transit agencies to serve with fixed route services that tend to carry too few passengers to meet the standards of ridership performance service." It is in these settings that microtransit may serve as a helpful tool to support goals like jurisdictional equity and expanding access to opportunities – "general public DRT [demand response transit, or microtransit] can provide less expensive, more effective and more attractive service than fixed route transit in many areas or times of low demand" (Volinski 2019, p. 2). Indeed, Volinski (2019, pp. 14-18) found the following motivations for providing general public DRT/microtransit service from 22 surveyed transit agencies:

- Operational efficiency and reduced costs
- Jurisdictional equity
- Expanding economic opportunity
- Continuing service for seniors and persons with disabilities
- Inadequate or uncondusive built environment features for fixed route stops
- Complementary feeder service to fixed services
- Replacing underperforming fixed service
- Test the market in previously unserved areas
- Customer expectations regarding responsive transportation service
- Affordable technology

That being said, one of the key lessons learned from the survey was to "set realistic goals" as "this is a low ridership service for low-density and low-demand areas or times" (Volinkski, 2019, p. 39). In addition, it is important to be prepared to pivot service design should ridership increase, as microtransit is difficult to scale up. As summarized in the Shared-Use Mobility Center's Learning Module on Microtransit (https://learn.sharedusemobilitycenter.org/learning_module/microtransit/#section-introduction):

If microtransit becomes more popular, the number of vehicles and drivers (i.e. cost) must increase to accommodate the growth and maintain service quality. Often, fixed-route transit might be the more appropriate or cost-effective solution because of its ability to scale.

How Can I Learn More About Microtransit?

A number of organizations have created helpful digests and modular overviews of microtransit. One excellent resource is the Shared-Use Mobility Center's Learning Module on Microtransit: https://learn.sharedusemobilitycenter.org/learning_module/microtransit/. The Module includes key takeaways, as well as information on operations, climate implications, planning and key policies, and procurement issues. Another helpful digest is provided by the Urbanism Next Center, which is part of the University of Oregon's Sustainable Cities Institute:

<https://www.urbanismnext.org/technologies/microtransit>. This overview covers variables to consider, innovation drivers, barriers, key players, use case examples, a timeline of key developments, and further resources.

The Transportation Research Board has produced several reports on microtransit in relation to the evolving landscape of public transportation and shared mobility (Feigon and Murphy 2016, Volinski 2019, Byala et al 2021, TRB 2021). In addition, this year two TCRP Synthesis research projects are focusing on microtransit

(https://onlinepubs.trb.org/onlinepubs/tcrp/docs/TCRP_FY2023_Synthesis_Topics.pdf):

- Microtransit Solutions in Rural Communities: On-Demand Alternatives to Dial-a-Ride Services and Unproductive Coverage Routes
- Operational and Service Factors When Integrating/Consolidating ADA Paratransit and Microtransit

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