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# Communities Are Experimenting with Microtransit to Fill Critical Gaps in Public Transit Service – What Have We Learned so Far?

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## What is Microtransit?

Microtransit is a technology-enabled transit service that typically employs shuttles or vans (Figure 1) to provide on-demand transportation with dynamic routing. While many rides are dispatched and paid via a smartphone, many services also provide a telephone booking option. A few services accept cash payment and street hails (similar to taxis). Variations of microtransit can include fixed schedules and routes and larger or smaller vehicles. Typically, microtransit services are operated by or provided on behalf of a government entity or nonprofit organization, although privately operated microtransit programs also might exist.

## How Can Microtransit Be Deployed?

Microtransit serves a variety of use cases depending on the local needs and built environment, including:

**First- and Last-Mile Connections to Public Transportation:** Traditionally, public transit (i.e., rail and bus) has been limited by fixed routes and fixed schedules. Due to these limitations, travelers may find it challenging to complete the first- or last-mile of their journey using public transit. Microtransit may be able to bridge this gap in the public transportation network, by transporting passengers from their home to nearby transit stations. For example, in Richmond, CA, the Richmond Moves microtransit service includes three transit hubs in its service area.

**Low-Density Service:** Microtransit has the potential to provide demand-responsive services in low-density built environments where low ridership may result in inefficient



Figure 1. Sacramento Regional Transit SmART Ride vehicle (Sacramento Regional Transit, n.d.)

and/or cost prohibitive, fixed-route transit service. For example, The Micro Bus in Merced County, CA, operates in four low-density communities (Gustine, Santa Nella, Los Banos, and Dos Palos).

**Off-Peak or Late-Night Service:** Microtransit could augment public transit by providing service during off-peak times when regular public transit service is limited or not offered. Several cities are experimenting with this, including Metro Micro that offers evening and weekend microtransit service in select locations in Los Angeles, CA (Figure 2).

**Paratransit:** Microtransit service may be provided to offer additional mobility options for people with disabilities. In some cases, microtransit may be commingled with paratransit service. Commingling can include commingled fleets, driver shifts, and/or trips. Commingling fleets refers to microtransit vehicles that are shared between paratransit and microtransit services. Commingled driver shifts refer



Figure 2. LA Metro Metro Micro vehicle (LA Metro, n.d.)

to drivers that work for both paratransit and microtransit services. Commingled trips refer to a single service that provides rides for paratransit and non-paratransit customers (i.e., shared rides). For example, High Valley Transit Micro in Summit County, UT, allows drivers to drive both paratransit and general public passengers within the same shift, using the same vehicle, but not at the same time (Via Transportation, 2021).

Other common uses for microtransit include non-emergency medical transit, school transportation, and transportation for survivors of domestic violence and substance abuse recovery participants (e.g., Cecil County, MD).

## How Do Microtransit Services and Operations Vary?

There are some operational variations that exist among microtransit systems. Notable operational variables include:

**Fleet and Service Area Size:** Microtransit can differ by the number of vehicles and service area size. Service areas can vary from a few square miles to more than 5,000 square miles and multiple states in rural deployments, such as the Prairie Hills Transit service in the Black Hills region of South Dakota and Wyoming.

**Fleet Type:** Microtransit can employ a variety of vehicle types, ranging from small passenger vehicles (e.g., sedans) to shuttle buses. Vehicle type can be influenced by labor availability. For example, some public transit agencies opted to use sedans and minivans for microtransit service because these vehicles do not require a commercial driver's license, making it easier to find drivers to operate the

service. Vehicle size can also be influenced by how a service provides wheelchair accessibility.

**Wheelchair Accessibility:** Larger microtransit vehicles (shuttles and in some cases vans) tend to be wheelchair accessible. For example, all Shasta Connect vehicles in Shasta County, CA are wheelchair accessible. In some cases, microtransit services may partner with another provider (e.g., paratransit) to serve people with disabilities.

**Booking:** Microtransit providers may offer a dispatch center for travelers without a smartphone to call and book a ride.

**Fare Payment:** Some microtransit systems may accept cash fares. The SamTrans Ride Plus in San Mateo County, CA, accepts exact cash fares on the vehicle (Figure 3), while the Baldwin Regional Area Transit in Baldwin County, AL, allows users to deposit cash onto an account at the public transit agency's office. Additionally, a handful of microtransit services are fare free, such as Ride Circuit in Chula Vista, CA, which provides complimentary rides to older adults.

**On-Demand and Pre-Booking Services:** Most microtransit services offer on-demand booking. Some microtransit services may allow riders to schedule a ride in advance, e.g., Link On-Demand in Traverse City, MI.

**Fleet Management:** Microtransit services can include a fleet of vehicles owned by or leased to a public transit agency, or provided by a microtransit service provider. For example, May Mobility provides automated vehicles for the microtransit service in Grand Rapids, MI.

**Labor Relations:** Microtransit services can be operated by public transit employees, e.g., BeeLine in Yolo County, CA, or contract labor provided by a service provider, e.g., Calexico On-Demand in Calexico, CA.



Figure 3. SamTrans Ride Plus vehicle (SamTrans, n.d.)

## Where is Microtransit Operating in California?

Microtransit services have expanded across California and the U.S. over the past five years. As of October 2023, microtransit is operating in over 40 California locations using a variety of fleet types (Figure 4).

## What are Some Common Challenges Microtransit Programs Have Faced?

UC Berkeley Transportation Sustainability Research Center studies<sup>1</sup> examining microtransit pilot programs found several notable challenges including:

*Long Wait Times, Long Travel Times, and Limited Service Availability:* Passengers of some microtransit systems reported some services being oversubscribed, e.g., demand exceeds supply, and that they were unable to book a ride and/or a return trip. Passengers also reported excessive wait and travel times, possibly due to oversubscribed or poorly planned service, e.g., too few vehicles per service area size and population.

*Poor Connections with Fixed-Route Public Transit:* Rural passengers frequently reported that they do not use microtransit to connect to fixed-route transit because microtransit does not provide a guaranteed connection to public transit, e.g., the demand-responsive service might arrive at a bus stop after the bus departed.

*Ridership Demand and the Size of Demand-Responsive Service Areas:* Some microtransit demonstrations identified challenges balancing ridership, service area size, and the number of vehicles and drivers. One strategy might involve “right-sizing,” which typically refers to optimizing or fine-tuning microtransit services to better meet the needs of users while ensuring operational efficiency. Right-sizing strategies can include service area optimization, scheduling adjustments, fleet management, and other techniques to balance the supply and demand of microtransit services.

## Future Research Directions

Microtransit presents an additional transportation option and may help fill gaps in the transportation network. However, future research might be needed to better understand and identify potential strategies to address service availability, facilitate connections with fixed-route, and right-sizing microtransit services.

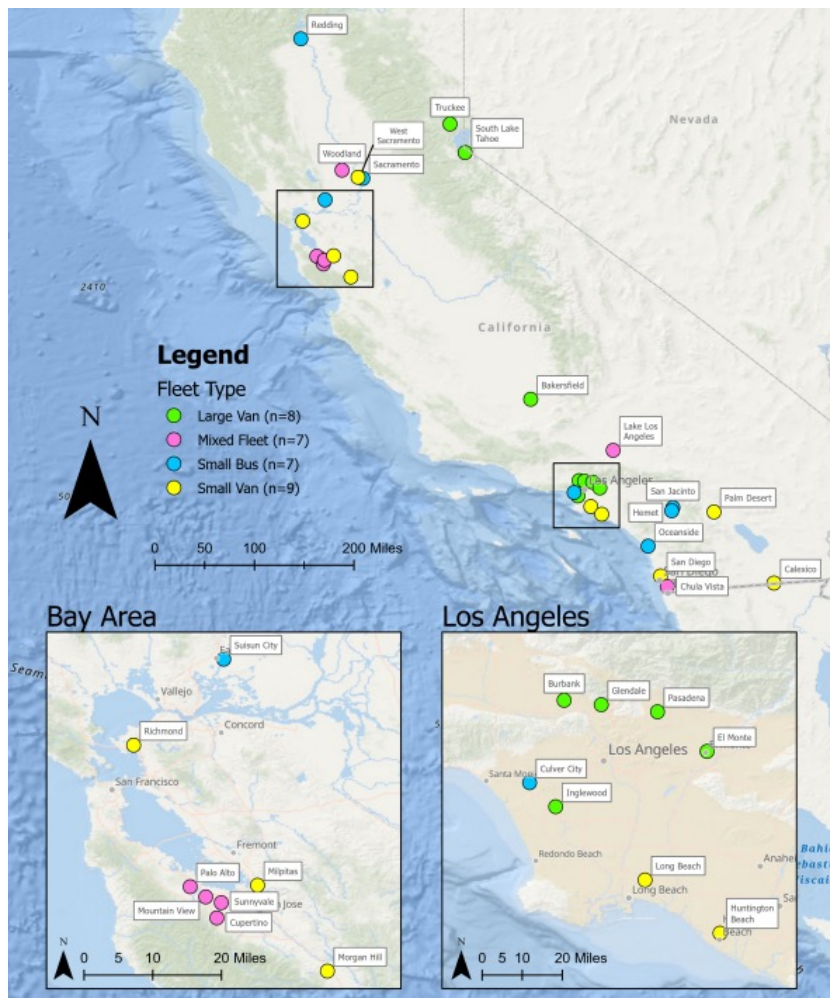


Figure 4. Map of Microtransit Locations and Fleet Types in California (October 2023)

<sup>1</sup>The referenced studies were conducted on behalf of the Federal Transit Administration and the California Air Resources Board.



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\*Some findings presented in this brief are based upon research conducted on behalf of the California Air Resources Board (CARB). In January 2023, Dr. Susan Shaheen was appointed to the CARB Board, though the CARB contract for this research was executed before this date. Dr. Shaheen conducted a substantial portion of this research prior to her appointment, and after her appointment continued her contributions without compensation along with recusing herself as the Principal Investigator (PI). Dr. Daniel Rodriguez is now the PI of the CARB research project.

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