



**ITS DEPLOYMENT  
EVALUATION**  
Executive Briefing



## Micromobility Services and Equity

### Highlights

- Micromobility services can provide numerous benefits but may raise equity concerns.
- Experience shows that municipalities should strive for equitable service when planning for the deployment of micromobility services.
- Providing alternative payment options, ensuring equitable geographic distribution, and providing information to travelers can improve the micromobility experience for both users and non-users.

### Introduction

The Federal Highway Administration (FHWA) broadly defines micromobility as “any small, low-speed, human- or electric-powered transportation device, including bicycles, scooters, electric-assist bicycles, electric scooters (e-scooters), and other small, lightweight, wheeled conveyances” [1].

Most typically, travelers do not own micromobility vehicles but rather rent them as part of a micromobility service. Examples of micromobility services include Washington D.C.’s Capital Bikeshare, Los Angeles’s Metro Bike, New York City’s Citi Bike, and numerous other privately owned micromobility services. To rent a vehicle travelers use a cell phone app to locate and book a vehicle and then pay with their credit card. The system will charge users based either on how long they rent the vehicle or how far they ride.

Because of their convenience, micromobility services have seen rapid growth. According to the National Association of City Transportation Officials (NACTO), in 2010 travelers took 321,000 trips on bike sharing services. By 2019, that number had surged, with travelers taking about 50 million trips on bike sharing services. Likewise, e-scooter trips have grown, with NACTO reporting a 45 percent increase in trips taken on e-scooters between 2018 and 2019 [2].

Although micromobility services have numerous potential benefits, users, advocates, and public officials have raised significant equity concerns. Because micromobility systems rely heavily on cell phone apps for booking and payment, this may exclude certain demographic groups who do not have cell phones or do not use electronic payment methods. Additionally, many micromobility services are operated by for-profit companies, their profit motive often conflicts with equity goals. For example, some private mobility providers may seek to deploy their vehicles only in higher-income areas, limiting the ability of lower-income travelers to access these services [4]. Finally, micromobility vehicles sometimes block sidewalks or are ridden in a reckless manner which can create accessibility and quality-of-life issues for other travelers.

Through deployment experience public authorities have gradually developed a set of best practices to regulate micromobility services which can help ensure equitable access to services and shared benefits by all travelers.

*This brief is based on past evaluation data contained in the ITS Databases at: [www.itskrs.its.dot.gov](http://www.itskrs.its.dot.gov). The databases are maintained by the U.S. DOT’s ITS JPO Evaluation Program to support informed decision making regarding ITS investments. The brief presents benefits, costs and best practices from past evaluations of ITS projects.*



## Benefits

Because of their rapid growth, micromobility services have attracted strong interest from planners, policymakers, and researchers. Research shows that micromobility service can help fill gaps in the current transportation system, particularly in dense urban areas, encourage modal shift away from automobiles, and reduce greenhouse gas and criteria emissions. Table 1 summarizes some of the documented benefits of micromobility service.

**Table 1:** Select Benefits of Micromobility

Benefit	Selected Findings
Modal Shift & Reduction in Greenhouse Gas Emissions	The Portland Bureau of Transportation in Portland, Oregon reports the results of its e-scooter pilot, which operated between July and November 2018. The City of Portland granted three companies about 2000 scooter permits. After the pilot period, the City of Portland estimated that the e-scooters reduced vehicle miles traveled (VMT) by 300,000 over 120 days, providing the CO2 emissions reductions equivalent of removing 27 light-duty vehicles from the road for a full year ( <a href="#">2019-01353</a> ).
Modal Shift & Reduction in Greenhouse Gas Emissions	In Rio De Janeiro, Brazil, a research team estimated that deployment of a bike sharing system reduced carbon dioxide (CO2) emissions by 206 tons in 2018 because more users chose bike sharing over of other motorized travel modes. The research team noted that, the reduction in CO2 could be increased by better integrating bike sharing with transit and improving cycling infrastructure ( <a href="#">2021-01523</a> ).
Improved Connectivity Between Modes	In Washington, D.C. a modeling study that looked at the impacts of bike sharing found that a 10 percent increase in bike sharing services increased public transit ridership by about 3 percent which suggests bike sharing can improve the cohesiveness of transport networks ( <a href="#">2020-01453</a> ).

## Best Practices

Through careful planning and learning from deployment experience, agencies have developed a new set of best practices to alleviate some of the equity challenges. These include:

**Understand that equity and barriers to access are multifaceted problems.** A Federal Highway Administration (FHWA) report on shared mobility and transportation equity included a thorough analysis of barriers to



shared mobility use. The study found that barriers to services are complex, and include aspects that are spatial/geographic, temporal, economic, physiological, and social. For example, one physiological barrier is that bike sharing services often do not provision adapted bikes, excluding travelers with certain disabilities from using these services. Frequently, these barriers overlap. In order to begin to address them, municipalities need to understand that there is no single policy that can address every issue [5].

**Educate users on the rules for using micromobility vehicles.** The City of Santa Monica's experience with its shared mobility pilot finds that providing education of the system's rules and regulations can improve safer riding and parking practices. Better riding behavior and parking practices improves safety for both riders and non-riders alike. Safe riding and parking practices ensure micromobility service don't impede sidewalks, right-of-way, or building entrances. They also ensure that users do not ride in an unsafe manner or where they aren't supposed to ride ([2021-01018](#)).

Philadelphia's bike sharing experience further suggests that supporting users during the introduction of micromobility service is important. For example, in association with community partners, the system offered a variety of bike safety and bike riding classes to support and educate residents as the city was rolling out its bike share system. This helped ensure residents were comfortable with the new system and had appropriate knowledge to utilize it ([2022-01084](#)).

**Offer users a variety of payment methods to help promote equitable access to shared mobility services.** Unbanked users are one of the groups most excluded from micromobility service, as these services rely heavily on mobile and digital payment technologies to use them. Cities have found that providing cash payment options can promote equity of access ([2021-01018](#), [2022-01084](#)).

**Require equitable distribution of services.** Private mobility providers often geographically target wealthy neighborhoods, popular entertainment districts, or transportation hubs to maximize revenue. This means that neighborhoods that do not meet these criteria are likely excluded from accessing certain micromobility service. To rectify this, cities have imposed geographic distribution requirements on operators, such as those in Los Angeles which are discussed below ([2021-01072](#)).



**Figure 1:** Offering a variety of payment options improves access for all users.



## Case Study

During the early to mid-2010s the City of Los Angeles (LA) saw a rapid expansion of unregulated, dockless private mobility providers (PMPs). While many welcomed a new mobility option, these unpermitted were also causing a variety of accessibility, right-of-way, and safety issues.

In response to these issues, in 2018 the LA City Council unanimously imposed a moratorium on the operation of dockless micromobility services in LA. However, due to other cities' experiences with these services, such as Santa Monica, the LA Department of Transportation (LADOT) and the LA City Council recognized the potential of these services to provide valuable transportation options to residents [4]. Therefore, LADOT and LA City Council worked together to reintroduce micromobility services in a controlled and regulated manner through the Dockless Vehicle Pilot Program. The program's main goals were:

- Understand the marketplace for micromobility and gather information on mobility trends
- Identify micromobility effects on public safety and accessibility
- Understand and reduce barriers to equitable access
- Introduce and test tools and policies to manage dockless mobility services



Figure 2: A Traveler Using a Scooter in Los Angeles.

During the pilot program, which ran for 12 months between April 2019 and March 2020, LADOT allowed eight PMPs to operate dockless bike sharing and scooter sharing services in LA. LADOT allowed each operator a maximum of 10,500 vehicles. Operators had to comply with several safety and equity requirements throughout the pilot program, including:

- Share data in a specific format, called the Mobility Data Specification (MDS), with LADOT. This allowed to LADOT to track compliance with other requirements and analyze usage patterns.
- Integrate services with LA's 311 telephone-based service, and address parking or other complaints within two hours.
- Submit plans to ensure equitable and safe operation of vehicles.
- Carry insurance and comply with all other applicable laws and regulations.

LADOT also provided operators with incentives, such as additional permits, if operators deployed a certain number of vehicles in Disadvantaged Communities (DACs) as identified by the State of California's CalEnviro Screen tool. LADOT thought that these additional vehicle permits would be sufficient to incentivize operators to spread out their vehicle deployments and thus better serve disadvantaged residents. Overall, the results of the pilot program were positive. During the pilot period, travelers took over 10 million trips using dockless



bikes and scooters. The number of trips would likely have been even higher without disruptions from the COVID-19 pandemic. According to survey results, travelers mostly used these services for commuting and recreation purposes. LADOT also estimated these services helped reduce area transportation CO<sub>2</sub> emissions by over 1,800 tons during the trial period.

Although the LADOT pilot program had a strong focus on equity and had numerous equity requirements built in from inception, LADOT found that several of these requirements did not work as intended.

During the pilot program, LADOT implemented an incentive program to encourage service providers to deploy vehicles in DACs, as discussed above. However, vehicle deployment in DACs never achieved the levels LADOT desired. During peak deployment periods, non-DACs had thousands more vehicles deployed in them than DACs. LADOT found that using DACs as an equity framework in the context of micromobility was relatively ineffective because DACs are geographically too large, not transportations specific, and do not account for the unique transportation context of different neighborhoods.



**Figure 3:** Operators Deployed Fewer Vehicles in Outlying Areas such as the San Fernando Valley.

LADOT also found that their initial equity focus was too narrow. During the pilot program, LADOT focused its equity efforts on those who were unbanked, those with lower income, and those without smartphones. However, over the course of the program, LADOT learned that additional groups such as older adults and travelers with disabilities needed to be included in equity efforts, as these groups also had significant equity concerns that were not initially considered.

To help remedy these issues, LADOT reworked the pilot program for its second year. Important changes included:

- LADOT used a transportation-specific framework for identifying disadvantaged areas. Instead of using DACs to define disadvantaged areas, LADOT designated areas of the city as either Mobility Equity Zones (MEZs) or Mobility Disadvantage Zones (MDZs), with MEZs having more transportation disadvantage than MDZs. These designations use socio-economic and transportation specific metrics to identify areas of equity concern more accurately.
- LADOT broadened and deepened its equity efforts. LADOT capped fares at \$1.25 in MEZs and \$1.75 in MDZs to improve access to micromobility services. Operators were also required to deploy a minimum number of vehicles in the MEZs and MDZs.
- LADOT added new equity-focused program requirements, such as requiring operators to develop engagement plans for older adults and travelers with disabilities.



- LADOT provided more substantial incentives for operators who meet equity requirements. For example, operators who exceeded MEZ and MDZ deployment requirements were eligible for even more vehicle permits.

While this second iteration of LADOT’s micromobility regulations was effective, many providers viewed them as overly punitive, as fines for non-compliance could scale to \$100,000. Thus, LADOT was flexible and decided to give companies a temporary reprieve from compliance. Now LADOT is taking a more middle ground approach with less harsh fines for non-compliance and better incentives for compliance [6].

Overall, Los Angeles’ experience suggests that micromobility services, such as bike sharing and scooter sharing, can be valuable transportation options for a wide variety of travelers. However, there are still issues that LA and other cities must continue to solve. The LA case study demonstrates that if a city is willing to learn from deployment and work with mobility providers and transportation advocacy groups to develop a regulation framework that balances their goals, it can help maximize the benefits of micromobility service while ensuring equity in service ([2021-01072](#)).

## References

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