MOBILITY ON DEMAND (MOD) SPECIAL STUDIES

Opportunities and Challenges of Shared Micromobility: Safety and Infrastructure

Photo Source: U.S. DOT

Shared micromobility—the shared use of a bicycle, scooter, or other low-speed mode of travel—is an innovative transportation mode that provides users with short-term access to transportation on an as-needed basis.

The U.S. Department of Transportation conducted a research study to:

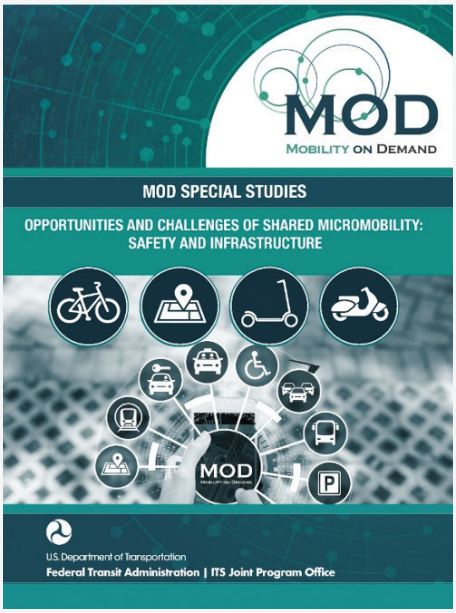
1. Understand the impact of shared micromobility on safety and infrastructure
2. Explore strategies to reduce risk and increase the service potential of these modes.

Literature Review Findings

The existing literature illustrates shared micromobility's potential safety impacts, including collisions with other road users (e.g., pedestrians, vehicles); unsafe operations if users do not follow existing rules and regulations; and impeding pedestrian right-of-way access. Existing literature suggests that the addition of infrastructure elements by state and local transportation departments, including protected bike lanes and parking areas, may improve the safety of all road users, while also benefiting shared micromobility. The literature review revealed that altering shared micromobility devices (i.e., creating more stable designs) may also improve rider safety and encourage use by riders of more diverse skill and comfort levels.

Expert Interview Findings

The research team conducted interviews with professionals from a variety of fields including public transit agencies, academic research institutions, shared micromobility companies, and non-profits. The interviews covered several micromobility issues that could impact use, safety, and infrastructure needs, such as trip types, impacts of



Study Approach

To meet the objectives of the research study, the research team used a three-phased, multi-method, qualitative approach:

Step 1: The research team conducted a literature review to gain an understanding of the current state of practice for shared micromobility.

Step 2: The research team gathered information from experts and practitioners with knowledge of and experience with shared micromobility.

Step 3: The research team conducted focus groups in Berkeley, CA, and Arlington, VA, to gain insights from micromobility users and non-users.

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micromobility on rights-of-way, modal connections, and infrastructure that can enhance safety for users and non-users.

Some of the findings from the expert interviews include the following recommendations for transportation agencies:

- Implement protected bike lanes to improve safety for the riders of shared micromobility devices
- Develop and implement policies to regulate shared micromobility devices
- Plan to manage shared micromobility programs during harsh weather conditions
- Use new technologies (e.g., global positioning systems) to track and regulate shared micromobility devices to ensure safe usage.

Focus Group Findings

The research team conducted focus groups in Berkeley, CA, and Arlington, VA, to gain insights from both micromobility users and non-users regarding their use of shared micromobility devices, their perceptions of micromobility safety, and their opinions on potential additions to the built environment for shared micromobility devices that would improve safety. Shared micromobility users and non-users have various concerns regarding the use of shared micromobility devices including cost, personal data security and sharing, rider liability, safety, access by people with disabilities, and access by people who cannot afford smartphones or data plans.

Shared micromobility users and non-users have varied concerns and views specifically related to micromobility's safety, operational aspects, and growth behavior. Users tend to be more concerned with operational elements (e.g., what they can be ticketed for or which devices are easiest to operate). Non-users were more concerned with rider behavior, including riding under the influence of drugs or alcohol and failing to adhere to safety regulations. Both shared micromobility users and non-users identified potential benefits and disadvantages to the growth of shared micromobility, such as the use of these services for a range of purposes (e.g., transit connections, improved sustainability of travel habits); lack of familiarity with devices; and concerns regarding the longevity of affordable pricing structures.

Recommendations for Future Research

The findings from the literature review, expert interviews, and focus groups demonstrate the need for further research on this topic area. Public agencies, private operators, and/or third-party research institutions can:

- Monitor current shared micromobility programs to help inform practices for integrating and regulating this transportation mode
- Study the accessibility of shared micromobility and related concerns
- Conduct research to understand the different environmental contexts (e.g., communities with harsh weather conditions) in which to implement shared micromobility.

For more information about this initiative, visit https://www.its.dot.gov/research_areas/mod/index.htm or contact:

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