

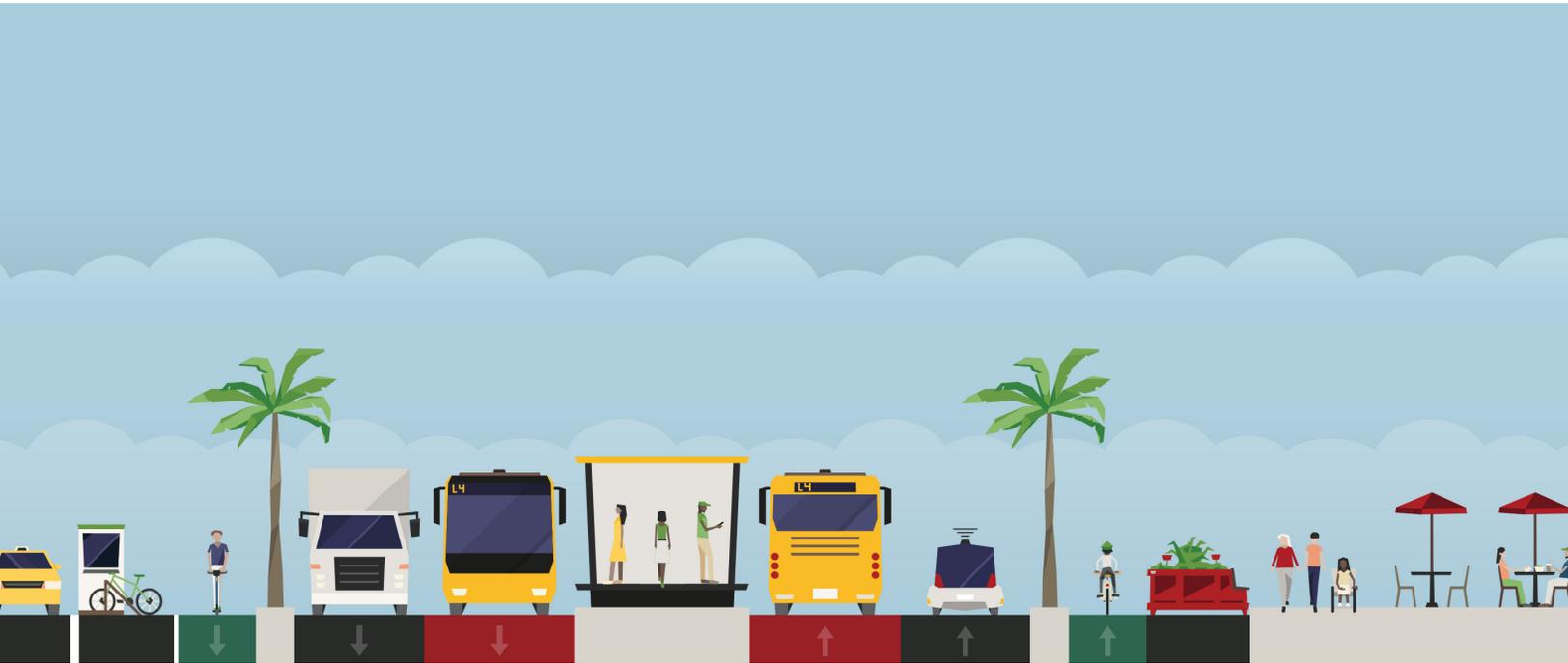
Managing the Curb: Understanding the Impacts of On-Demand Mobility on Public Transit, Micromobility, and Pedestrians

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Introduction

In recent years, innovative mobility and shifts in travel and consumption behavior are changing how people access and use the curb. Shared mobility—the shared use of a vehicle, bicycle, scooter, or other mode—coupled with outdoor dining, curbside pick-up, and robotic delivery are creating new needs related to the planning, management, and enforcement of curb access. This study examines curb planning and management from several angles, such as safety, social equity, and multimodal connections.

Study Method

This research employs a multi-method approach to identify the changing needs for curb space management and how to meet these needs through new planning and implementation policies and strategies. As part of this study, the authors conducted 23 interviews (between September 2019 and September 2020). Respondents were chosen to represent public, private, and non-profit sector perspectives. Additionally, the authors employed a survey

of 1,029 curb users (between August 2020 and February 2021), and 241 taxi, transportation network companies (TNCs), and public transportation drivers (between November and December 2020).

Findings

Changes in mode choice and curbside use can result in a variety of impacts on access, social equity, congestion, device management, pick-up and drop-off, and goods delivery. The curb also has the potential to be disrupted by emerging modes, such as robotic delivery vehicles (also known as personal delivery devices) and automated vehicles. As these emerging developments continue to impact the curb, it is increasingly important for policymakers to have an appropriate framework for planning and managing curb space in urban areas.

The study finds that if shared mobility is not properly planned, it could negatively impact curb access for all

users. Increased demand for curb space could also create challenges for underserved populations and people with disabilities. Curb space planning and management that addresses competition among modes, uses, and users could help ensure safe and socially equitable access for all users.

Key findings from the surveys include:

- The top three modes used by curbspace users include driving alone in a personal vehicle (71%), walking (71%), and riding in a TNC vehicle (e.g., Lyft and Uber) (37%).
- More than half of survey respondents felt moderately or very safe waiting at the curb. Common safety concerns included waiting at night (32%), crime (31%), and accidents (29%).
- Curbspace user survey respondents also raised concerns about micromobility devices (i.e., bikes and scooters) blocking the curb.
- The top three concerns identified by the taxi and TNC driver survey included congestion, street parking, and locating their pick-up location (both passengers and goods).

In the future, curb space planning and management may need to be continually adapted in response to emerging mobility technologies, such as robotic delivery, automated vehicles, and automated micromobility devices.

Policy/Practice Recommendations

Increased understanding of shared mobility's impacts can help improve curb space planning and design. Curb space management practices (e.g., allocating locations for TNC pick-ups and drop-offs, leveraging pricing strategies) can improve curb space access and use. Public agencies can use the "MARVEL" framework (as defined below) to:

1. **'M'**ake a Curb Space Plan: This plan may be informed by considerations (e.g., accessibility, equity) and planning approaches (e.g., Complete Streets, Vision Zero). Shared and standardized data can help inform curb space plans by providing information on the location and frequency of modal use.
2. **'A'**llocate Curb Space: Curb space can be allocated through competitive (e.g., auctions, first-come first-serve) and non-competitive (e.g., collaborative approaches, lotteries) approaches.
3. **'R'**egulate Curb Space Access: Regulations to limit access and use can be applied to curb space. These regulations and strategies may focus on multimodal

management (e.g., fleet permits, flex zones); device management (e.g., bike lanes, parking corrals); loading zones (e.g., commuter shuttle loading zones, reservation systems); and/or vehicle parking (e.g., carsharing parking, electric vehicle parking).

4. **'V'**alue Curb Space: Valuing rights-of-way can help pass curb management costs to users and raise revenue. Common strategies include congestion/temporal, dynamic, flat rate, and zone pricing.
5. **'E'**nforce Curb Space Use: Enforcement measures can help ensure the curb is used as designated.
6. **'L'**earn from Curb Space Use: Curb space use can be monitored and evaluated to determine whether improvements and changes are needed. Evaluations can leverage performance metrics (e.g., productivity, public transit reliability, social equity).

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To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/research/1904



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