Research Notes

Integrating Micromobility with Public Transportation

Continuing research on designing public transit stations to enhance access to first/last mile mode choices.

WHAT IS THE NEED?

This project will build upon a previous project nearing completion titled, Designing Public Transit Stations to Enhance Access to First/Last Mile Mode Choices. The research team has conducted site surveys of 19 Bay Area Rapid Transit (BART) rail stations in the California Bay Area, which are served by seven shared micromobility operators (Table 1). In the previous project, the researchers have explored the ways in which the built environment can support first- and last-mile transit mode choices with their partners at BART. Due to COVID-19, BART ridership dropped by 90%, which had an impact on this first phase of the work as it was not possible to observe normal travel behavior in 2020. Many micromobility operators plan to expand their Bay Area fleets in summer 2021, which will be a great opportunity to continue this timely research.

WHAT ARE WE DOING?

This project has three main research objectives:

1. Bay Area Micromobility Transit Map
   The researchers plan to continue their work with the UC Davis Center for Regional Change to map the bicycle facilities around 19 BART stations in the Bay Area in the operation zone of seven micromobility operators. They hope the map will reveal opportunities to develop future bike lanes that would connect last-mile commuters to BART stations. The researchers also expect the map will help regulators see where different companies are permitted to operate and how that affects travel behavior. They will identify and map the different types of cycling infrastructure such as bike paths, bicycle boulevards, cycle tracks, bike lanes, sharrows and yield-flow streets.

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2. Bay Area Stakeholder Interviews and Surveys

Conversations with key stakeholders will help the researchers to consider the challenges that public transit managers experience to keep various micromobility systems organized and available at their transit stations to provide a last-mile solution. They plan to interview transit and micromobility operators and planners by Zoom, and survey micromobility users via outreach posters with a survey link (bit.ly) and QR code posted at BART stations, and announced at regional bicycle and pedestrian meetings.

3. BART Station Micromobility Inventory

In 2020, the researchers surveyed the physical features of 19 BART stations. In 2021, they will return to the 19 BART stations and see how micromobility has changed with COVID-19 recovery efforts. They plan to complete that with both in-person observations and with city-provided data from the Mobility Data Specification (MDS) API that shows anonymous user activity per street segment. For user behavior, they will use a behavior setting approach to document activities at shared micromobility stations, which includes quantifying the number of users and describing activity patterns.

**WHAT IS OUR GOAL?**

This new project would continue stakeholder interviews, update ArcGIS map files (bicycle lane, operator zones, transit stations) (Figure 1), explore travel behavior, and monitor best practices to increase micromobility and public transit ridership post-COVID-19.

**WHAT IS THE BENEFIT?**

The researchers will produce a final report synthesizing the research, literature review, documentation of field work, and design recommendations. They will also produce a policy brief summarizing the work and framing it according to relevant policies or policy opportunities.

**WHAT IS THE PROGRESS TO DATE?**

The researchers completed an IRB review application for their data collection that was approved:

This research involves three methods of data collection:

1) Interviews with stakeholders (i.e., employees of Bay Area cities, transit agencies and mobility service providers). These will be conducted over the phone or the Internet.
2) Observation of BART station design features and patrons’ activities related to micromobility access (density of bikers, parking availability, signage, types of bike lanes and other facilities and related usage patterns). This research will be conducted at the stations primarily, although some information will be gathered online (e.g., crime records, Google maps street view).
3) An online survey of BART patrons who use micromobility (shared or personal bikes or scooters) to access stations. This research will be conducted online, although recruitment will take place at BART stations (via flyers placed at bike facilities) and at community meetings (e.g., announcements at community bike group meetings).

**IMAGES**

Image 1: Bike, e-bike and e-scooter share (docked and undocked) operators permitted in San Francisco, Berkeley, Oakland, and San Jose, July 2020
Image 2: Bay Area Micromobility Transit Map View
ArcGIS, online at https://arcg.is/1jPmXm