

Research Summary

Translating Data Generated by the Transit App into Insights on Transportation Use in Greater Boston

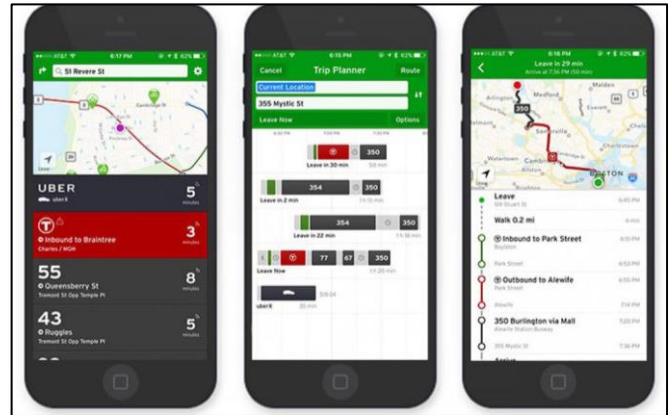
Research Need

The purpose of this research project was to use data from the Transit App to gain a more full understanding of customers' journeys to improved bus networks, improve real-time response to disruptions and information provision, and allow more holistic planning.

Goals/Objectives

This project addressed three main objectives:

- 1) Constructing and documenting a process for making the content of *Transit* data available to the MBTA for both historical analysis and real-time tracking;
- 2) Matching the data with other data sources describing the places, events, and conditions of transit usage in greater Boston; and
- 3) Demonstrations of the substantive value of the *Transit* data through a series of initial studies that address questions of mobility, public transit experiences, and resiliency in the Boston area.



Methodology

Transit data describes each user session with information presented to and actions taken by the user. To directly examine decision-making, our primary scale of analysis is the user session.

The most used features in Transit are the “nearby views” and “trip planning” interfaces. Trip Planning was the focus of this analysis as it permits the comparison of preferences across options. The interface allows users to input an origin and destination, then returns multiple potential routes using a variety of modes. The app includes all public transportation as well as walking, biking, and rideshare (TNC). Routes often combine multiple transportation modes.

The data generated by the app are in a nested package containing a user's activity for a day. When flattening the data, it generates five tables, each describing a different set of objects or actions. The team then merged in weather data for the date of the session and built a process for merging general transit feed specification (GTFS) data from the MBTA based on proximity to coordinate app information with vehicle availability.

Key Findings

The research team uncovered the following trends within the Transit App Data:

- The overwhelming majority of trips user sessions occurred either within the core of Boston/Somerville/Cambridge or the edges of the MBTA service area
- TNC trips corresponded more closely with transit waits and the walking distance to transit service than trip distance
- Roughly half of TNC trips include a transit component
- Many urban core TNC trips would be multi-stage transit trips (reflecting the “hub” model of most transit service), indicating ease/speed of trip may have influenced choice
- Weather did not appear to be a strong determinant of TNC/transit mode choice
- Contrary to common belief, regular commute time (when transit service is most available) users were most likely to use TNC services rather than transit

Use of Findings

The results validated several previously studied features of transit that may be driving mode shift from public transportation to TNC, but also added greater nuance and detail. In highlighting features of the transportation network that drive users to choose TNC over public transit, it demonstrates the potential danger for future disinvestment in public transit to exacerbate existing trends in mode shift. Rather than improving efficiency, such choices may serve only to push more away from shared buses and. There is some promise, however, in capitalizing on the natural intersections of TNC and public transit that increase overall efficiency and effectiveness of the transportation system. Further exploring these dynamics as people and transportation systems adapt to shifting services and policies will be critical for shaping the transportation systems of the 21st century.

Project Information

This project was completed as part of the Massachusetts Department of Transportation (MassDOT) Research Program with funding from Federal Highway Administration (FHWA) State Planning and Research (SPR) funds.

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