

2020 UDOT RESEARCH PROBLEM STATEMENT

Problem Statement deadline is March 16, 2020. Submit statements to UTRAC@utah.gov

All submitted problem statements become the property of UDOT and authors are not guaranteed a contract for related work.

Title: Exploring the Impact of On-demand Microtransit Service on Travel Behaviors

No. (Office Use): 20.07.05

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Select **ONE** Subject Group Materials/Pavements Maintenance Traffic Mgmt/Safety Structures/Geotech
 Planning Aeronautics Public Transportation Other

1. Write a brief research project objective:

- To understand medium- and long-term impacts of on-demand microtransit service on users' travel behaviors and identify the modal shift effect of microtransit service in current and future service scenarios.
- To explore factors influencing riders' adoption of on-demand microtransit services.

2. Explain the problem and why this research is important: (*Importance reflects 50% of the statement score*)

Microtransit is an on-demand flexible route transit service that can help with the first-mile and last-mile challenges of traditional fixed-route transit service; it provides an alternative transit service in low demand areas that are not suitable for fixed-route transit services. Furthermore, microtransit can enhance paratransit services for individuals with disabilities by providing a more efficient and flexible option. Enabled by widespread adoption of smartphone technology, on-demand microtransit services are gaining popularity and being piloted by a handful of transit agencies across the country. UTA recently partnered with Via and launched a pilot microtransit service in southern Salt Lake County. Because microtransit is an emerging shared mobility mode, the impact of this mode and the characteristics and travel behaviors of its users are not yet well understood. Our study intends to fill this research gap by conducting empirical research for UTA microtransit riders. This will be a first-of-its-kind study investigating travel behaviors of on-demand microtransit users.

3. Describe how the research results will be implemented and benefit Utah: (*Implementation reflects 50% of the statement score*)

Research results from this study will provide empirical evidence to support UTA's comprehensive evaluation and future policy making for microtransit services. More specifically, the study will generate insights into (1) benefits and measures of success of microtransit (e.g., mode shifts, emission/congestion reduction, travel time savings), (2) demographic profiles and differences in user behaviors as well as responses for different demographic groups, and (3) potential use of different transit services if microtransit becomes more popular and better utilized. In addition, the survey will employ stated preference techniques to explore riders' travel mode preferences under future service scenarios. The results will help UTA develop a better understanding of mode substitution among the different competing modes as well as the trade-offs of various service performance measures.

4. List the major research tasks:

- Literature review: Review research on microtransit related to travel behavior and transit service.
- Survey design: Develop the questionnaire and surveying methodology. The user survey can ask about the following topics: travel behavior before/instead of using microtransit (e.g., trip and mode substitution), willingness to use fixed route or other transit services if provided (e.g., with variations based on frequency, wait time, walk distance), willingness to use microtransit under different conditions (e.g., with variations based on wait times, traveling with others, travel deviation, longer travel time to pick up/drop off others), perceptions and attitudes about (micro)transit service (including fares, waiting, and walking), and demographics (e.g., age, gender, household income, number of workers, vehicle ownership).
- Survey implementation: Implement the user survey following the developed methodology. This may include one or more of the following methods: on-board intercept survey (a student researcher rides with the driver and asks questions of the passenger), on-board handout survey (the driver offers the passenger a paper/electronic tablet survey to complete during the ride), on-board postcard (the passenger receives a postcard with a link to an online survey), and/or app-based survey (pushed to users with the Via app). To incentivize participation, microtransit users may be offered a discounted or free trip or a chance to enter a drawing to win a gift card.
- Data analysis: Analyze survey data using advanced statistical methods, discrete choice modeling, and qualitative content analysis (as appropriate).

5. Product preparation: Prepare the final report and presentation.

5. List the expected research deliverables (reports, manual, specification, design method, training, video, etc.):

1. A technical report documenting the survey findings and policy recommendations.
2. The survey dataset.

6. Requested from UDOT: \$40,000
Briefly explain funding sources:

Other/Matching Funds: \$

Total Cost: \$40,000

7. Outline the proposed schedule, including start and major event dates:

The proposed research will be carried out over a period of 12 months after the project is funded. The project will follow the schedule below:

- Literature review: 2 months
- Survey design: 2 months
- Survey implementation: 3 months
- Data analysis: 3 months
- Report preparation: 2 months