

2019 UDOT RESEARCH PROBLEM STATEMENT

*** Problem statement deadline is Feb. 6, 2019. Submit statements to UTRAC@utah.gov. ***

Title: The Adoption and Impacts of Ride-Sourcing Services on Travel Behavior

No. (Office Use): 19.05.05

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Select ONE Subject Area Materials/Pavements Maintenance Traffic Mgmt/Safety Structures/Geotech
 Planning Perf Mgmt/Data Analytics Public Transportation Other

1. Describe the problem to be addressed:

Transportation planning is reaching a point where transformative innovations change the way we look at the future, in some ways making it less predictable than any time since the proliferation of the automobile. Imminent technological advances such as driverless vehicles have transportation researchers postulating how the current paradigm will adapt to the implementation of these new technologies within the context of existing infrastructure. Even new innovations that have already been implemented are just starting to be understood. Ride-sourcing services or what practitioners describe as transportation network companies (TNCs) have made significant changes to the transportation system, essentially creating a new mode of transport with its own relative utility compared to the other standard modes. With a growing trove of data since Uber and Lyft were first launched in 2011 and 2012, respectively, and subsequently reaching more than 240 US urban areas, it is now becoming possible to analyze the impact that this emerging modal option is having on the transportation system. As city leaders deliberate policies on ride-sourcing, there is an urgent need for independent data on their use and analysis of their impacts.

2. Write the project objective (25 words or less):

This project aims to identify the users of TNCs, reasons for using it, and the impacts of TNCs on public transit and overall vehicle use in WF region.

3. Explain why this research is important:

(In response, consider addressing specific UDOT goals, applicability in Utah or other states, etc.)

It has been almost a decade since TNCs launched in the U.S. cities. Since then, they have been expanding enormously to other cities around the globe and had huge impacts on the travel behavior of citizens. In general, much has been speculated, but not much has been tested regarding the impacts of Uber or other ride-sourcing services on the transportation system. TNCs have the potential to impact VMT, vehicle ownership and provide mobility and environmental benefits in cities, but the major TNCs' rapidly changing business practices and reluctance to share travel data make it difficult to determine how the services are affecting travel behavior. TNCs provide more convenient and less expensive ride-sourcing services which may divert non-driving trips, like transit, walking, or cycling, to driving mode. That would mean higher traffic volume and more congestion. Conversely, TNCs can reduce traffic volume by diverting trips which otherwise would have been made in private and mostly in single occupant car trips (Alexander & Gonzalez, 2015; Stiglic et al., 2018; Fahnenschreiber et al., 2016). This dichotomous behavior of TNCs, especially in terms of the relationship between transit use and the operation of TNCs, has become a heated topic. In other words, for transit trips, ride-sourcing can play a role both as a complement (mainly through first mile/last mile) or as a substitute. Preliminary studies in major metropolitan areas such as Chicago, Los Angeles, and San Francisco/Bay Area have explored the adoption, utilization, and early impacts on travel behavior of TNCs. However, there is absolutely no information about how, when, and why ride-sourcing services are utilized in the Wasatch Front region.

4. List the major tasks:

1. Conducting a comprehensive literature review on ride-sourcing services and their impacts

2. Using quantitative and/or qualitative criteria for identifying key locations expected to have a high concentration of users to conduct an intercept survey
3. Designing and conducting an intercept survey in WF region (sample size: 384. Calculated using Cochran formula)
4. Analyzing the data (e.g., ride-sourcing market share, respondent demographics, trip origins and destinations, trip purpose)

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

1. Educating the transportation planners and policymakers of the Wasatch Front region about how “mobility as a service” models are shaping travel patterns through workshops, meetings, etc.
2. Technical memorandum summarizing findings of the survey data
3. Recommendations for developing a TNC mode into four-step travel demand models.
4. Final report and presentations to UDOT, UTA, WFRC, etc.

6. Describe how the research results will be implemented:

(In response, consider addressing UDOT leader support, process or standard improvement, etc.)

This research will have profound impacts on our region’s ability to predict the impacts of the adoption of ride-sourcing technology. First, four-step travel demand models can be improved based on new knowledge of the effects of Uber/Lyft use on roadway congestion, vehicle miles traveled, trip chaining and car shedding. There are also significant implications of this research on parking pricing and supply policies. If rideshare trips are more frequent during certain hours, then we can assume reduced parking demand as personal vehicles will be left at home as opposed to parked at the destination. Additionally, first mile/last mile considerations affecting transit ridership can also be better understood with the access to rideshare data. Inter-zonal flows can help determine if rideshare is being used to connect people to work or simply as a more expedient means of accessing transit. All of these revelations will help transit planners to model a new and evolving transportation system as it adapts and accommodates technological advances. It is worth mentioning that through an agreement between the Metropolitan Research Center (MRC) at the University of Utah and Uber, we are the first and only researchers (to date) that have access to Uber’s data in Wasatch Front region and 23 other regions across the U.S. This good relationship between the MRC and Uber helps the team to validate the final results of this study with Uber.

**7. Requested from UDOT: \$30,000
(or UTA for Public Transportation)**

Other/Matching Funds: \$

Total Cost: \$30,000

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

- August 15, 2019 – Project start
- October 15, 2019 – Literature Review
- November 15, 2019 – Designing The Intercept Survey
- February 15, 2020 – Survey Completion
- March 15, 2020 – Analyzing the data
- April 15, 2020 – Final Report