

Minnesota's Annual Report to the FHWA On the Surface Transportation System Funding Alternatives Program, January 2019

Minnesota Distance Based User Fee (DBUF) Demonstration

The Minnesota Department of Transportation (MnDOT) is demonstrating a user based fee mechanism with fleet operated Shared Mobility (SM) service providers. SM includes a range of new travel forms that promise greater efficiency, safety, and enhanced mobility to the traveling public. It also provides a platform to explore a practical and implementable path toward wider deployment of distance based user fees as a replacement for the motor fuel tax on appropriately equipped vehicles. By leveraging the advanced technology that has become a standard of SM service providers, MnDOT will advance the user-based fee mechanism using existing embedded vehicle technology. This project will prepare Minnesota for the convergence of shared mobility with broad adoption of vehicle electrification as well as coming vehicle automation.

Project Accomplishments in 2018

Minnesota continues to explore DBUFs as identified in the Phase I proposal in 2016 including planning and high-level design for a future demonstration. Accomplishments in Federal FY 2018 include:

- Developed state of the art white paper on mileage-based user fee projects completed or underway which considers the project design objectives, operations and outcomes among other considerations. **(Attachment 1)**
 - Report contains research and critique of DBUF projects around the US and world, a description of Shared Mobility, Electric Vehicle and Automated Vehicle developments and trends that could impact deployment of distance-based fees, through a shared mobility platform
 - Researched state-of-the-art in distance based fee collections, pointing out successes and shortcomings, and evolving factors and trends that could enhance distance based fees as a viable revenue opportunity
- Completed interviews with stakeholder panel which explored Minnesota's DBUF concept viability, assumptions, advantages/disadvantages, the public and political landscape. Draft report is now available. **(Attachment 2)**
- Completed interviews with Shared Mobility providers.
- Developed high level system architecture for demonstration deployment. **(Attachment 3)**
- Developed a Concept of Operations (ConOps) that defines the operational, user, and administrative scenarios for the potential demonstration. **(Attachment 4)**

- Established contract relationship with Vision Systems Intelligence (VSI) for technical guidance and assistance in development of DBUF proof-of-concept
 - Established the VSI data repository which captured data from HourCar for the proof of concept
 - Extracted data from the VSI data repository to assess the administrative feasibility of a distance-based user fee and test data security protocol
 - Ongoing work with VSI to define what types of Connected Vehicle data could be made available to further support the proof of concept
 - Developed a comparative analysis of existing revenue conditions within the State of Minnesota as well as within Shared Mobility providers
- Developed framework for modeling of appropriate pricing strategies under Shared Mobility. **(Attachment 5)**
 - Conducted a baseline revenue and per-mile rate analysis identifying potential state and federal per-mile rates that could be used in lieu of the state and federal motor fuel tax
- Submitted a request for demonstration funding under latest announcement for availability of funding under Section 6020 of the FAST Act. **(Attachment 6)**
 - Developed a demonstration plan, including the potential demonstration budget, schedule, scope, and stakeholder
- Finalizing model Non-disclosure Agreements, Data Use Agreements, and Memorandums of Understanding to be executed with Shared Mobility Providers. (Available upon request.)
- Created factsheet and on the shared mobility concept **(Attachment 7)**
- Developed survey for current car-share members, to determine baseline attitudes of this population, to compare with general public perspectives recorded in other studies, as well as to measure possible changes in Phase II. (Available upon request.)
- Initiated discussions and collaboration with HourCar regarding distribution of customer survey
- Analyzed HourCar historical data to identify relevant data points needed for DBUF analysis. (Available upon request.)
 - Calculate the Motor Fuel Tax Equivalent (MFTE) Fee
 - Determination of how the MFTE fee would impact car-sharing providers
- Finalizing Proof of Concept **(Attachment 8)**
 - Upload of data from SM provider to secure data repository
 - Tested technology and reporting protocol
 - Analyzed data fields
 - Created invoice template for carsharing providers
- Gathered and provided revenue reports from other state MBUF programs to use as a guideline for the Minnesota DBUF revenue reports. (Available upon request.)
- Submitted two TRB papers
 - Lessons learned from other DBUF projects **(Attachment 9)**

- A Framework for Mileage-Based User Fee Pricing Schemes under Maturing Shared Mobility Scenarios (Available upon request.)
- Conducted coordination activities with the Minnesota's connected and automated vehicles initiative (CAV-X) as the effort relates to future revenue generation models **(Attachment 10: Pg. 8; 53)**

Each of these activities and associated deliverables have helped establish the foundation for conducting a future demonstration where a simulated DBUF would be assessed using shared mobility providers. The majority of work on the Phase I pre-deployment demonstration will be completed by the end of 2018, although several task details will carry over into early 2019.

STSFA Phase II Submittal

On July 16, 2018 the Minnesota Department of Transportation with the University of Minnesota, Humphrey School of Public Affairs, submitted a Phase II demonstration application under Section 6020 of the FAST Act. This demonstration aims to apply our past experience and learning from Phase I to chart a path for the efficient and effective collection of user based fees. Under this proposal we will collaborate with existing car sharing and fleet providers to create a platform for user based fee options that is robust, publicly acceptable, and easy to enforce. Importantly, this concept is affordable, scalable, and portable. The shared mobility technology platform sets the stage for wider applications of user based fees.

The proposal has identified a series of comprehensive tasks and a schedule needed to plan, design, deploy, administer, communicate, and evaluate our demonstration. The tasks identified in this list are the result of several key planning sessions with the project team. The Minnesota DBUF project team is proposing a 24-month period to complete the necessary planning, design, development, testing, deployment, evaluation, and reporting for the 12-month demonstration.

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