

Exhibit D – Research Project Requirement Template

Development of Demand Estimation Methodology for On-street Shared Paths

Recipient/Grant (Contract) Number: The University of Texas at Austin/Grant # 69A3552344815 and 69A3552348320

Center Name: National Center for Understanding Future Travel Behavior and Demand (TBD)

Research Priority: Improving Mobility of People and Goods

Principal Investigator(s): Randy Machemehl, P.E.

Project Partners: N/A

Research Project Funding: \$150,000

Project Start and End Date: 06/01/2025 – 5/31/2027

Project Description: This is a human behavioral study designed to develop methodology to predict demand for on-street bicycle, scooter, and pedestrian facilities.

The current design guidance for on-street bicycle, scooter, and pedestrian facilities does not include specific guidance for predicting numbers of bicycle, scooter, and pedestrian users. The available guidance for such facilities suggests designers should consider the number of users, and the modal split among bikers, scooters, and walkers but does not suggest a methodology.

This study’s objective is to develop a procedure for forecasting numbers of users and the modal split.

Procedural guidance for on-street paths contained in the literature and used by states’ DOTs and cities will be identified and evaluated. Data from the Texas Bicycle and Pedestrian Count Exchange, along with data available from city count programs, will be collected. The LASSO machine learning regression technique will be used to develop relationships between bicycle, scooter, and pedestrian counts, and a variety of predictors, including demographic and socioeconomic variables, will be used. An estimation procedure will be derived to apply the relationships to proposed on-street bicycle, scooter, and pedestrian facilities. Estimated modal splits among bicycle, scooter, and walking users of proposed paths will be part of the methodology.

US DOT Priorities: The RD&T strategic goals document, page 67, provides this priority and objectives. These fit perfectly within the proposed research effort. The proposed research will require development of partnerships with cities that have bicycle/pedestrian counts and are designing and implementing bicycle/pedestrian facilities. The research will provide the new methodology to potential users and potentially open new funding opportunities for further efforts.

Outputs: The primary research outputs will be human behavioral methodology that can predict numbers of users for bicycle and walking paths. Demand estimation is a primary part of the planning and design process for virtually every transportation facility except bicycle and pedestrian paths. The general attitude of most bicycle and pedestrian facility planners and designers is “if we build it, they will come”. While this may be partially true, there is a need to be able to compare alternative paths to develop a timewise priority for implementation and to maximize the utility of bicycle and pedestrian facilities.

Outcomes/Impacts: The behavioral methodology produced through this study will provide planners and designers of bicycle and pedestrian facilities a means to predict demand for alternative facility locations. This will add a “demand” criterion to the list of evaluation criteria for such facilities and enable more informed decisions regarding exactly where available funding should be invested. There is almost never enough funding available to do “everything” so investments in bicycle and pedestrian facilities should be chosen to maximize public benefits.

Final Research Report: A URL link to the final report will be provided upon completion of the project.