

## Exhibit D

### Research Project Requirement Template

#### A Dynamic Analysis of the Built Environment-Travel Behavior Relationship Using Three Activity-Travel Surveys in the Austin, Texas Region

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

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

**Research Priority:** Improving Mobility of People and Goods

**Principal Investigator(s):** Ming Zhang

**Project Partners:** N/A

**Research Project Funding:** \$100,000 (Federal + non-Federal funding)

**Project Start and End Date:** 9/1/2023 - 5/31/2025

**Project Description:** The relationship between the built environment (BE) and travel behavior (TB) has long interested scholars and practitioners in transportation, urban planning and design, health, and other fields. The proposed research aims to advance knowledge of the BE-TB relationship by taking a dynamic analysis approach. The study will pool three activity-travel surveys (1998, 2007, and 2017) in Austin, TX, and analyze how variations and changes in TB revealed in the surveys relate to BE variations and changes in the timeframe corresponding to the surveys. The three activity-travel surveys do not provide longitudinal observations, strictly speaking, since the sampled travelers and households differ between surveys. The 20-year timeframe, however, enables us to investigate 1) TB changes over time by groups, which can be defined by socioeconomic, demographic, and geospatial (e.g., neighborhoods) characteristics, and 2) changes in TB attributable to changes in BE. The proposed research is expected to gain new insights into the BE-TB connection and inform effective, BE-based planning and policy interventions to achieve broad goals of efficient and equitable transportation and sustainable cities and regions.

#### US DOT Priorities:

**Transformation research priority** (page 59: strategic insight): This section highlights a data-driven approach to transportation planning, including computer-aided modeling for travel demand analysis, and assesses potential scenarios for policymaking and investment decisions. Our study will apply computer-aided modeling to advance the knowledge of BE-TB relationship, which will directly contribute to travel demand modeling and improve the effectiveness of BE-related policies by ensuring informed decision-making.

**Climate and sustainability priority** (page 46: desire outcome [4th point]) and **equity priority** (page 36: desire outcome [2nd, 3rd, 4th, and 6th points]): These sections emphasize the improvement of transit and micromobility and pedestrian and bicycle infrastructure through integrated land use-transportation planning, which will reduce car dependency and encourage walking, biking, and transit use. Our research will explore BE-TB connections in depth to assess the scope of reducing car usage and enhancing modal equity through integrated BE-TB interventions.

**T2 Priorities:** Ensure research investments are fully leveraged through the demonstration and deployment of the resulting products and technologies. **2022-2026 Objectives: Research Planning:** Require that T2 performance measures be incorporated into research project lifecycle planning at an early stage (p.67).

We plan to have three meetings with the potential users of our project results and products. The potential users include Capital Area MPO (CAMPO), City of Austin, and private transportation consulting firms (Alliance Transportation Group, and NOVUS-ITS [www.novus-its.com](http://www.novus-its.com)). The meetings will take place at the early, midpoint, and ending stage of the project. We expect that the metrics of the BE-TB relationship we will derive from the proposed research can help refine the users' travel demand models and facilitate their transportation-related initiatives such as Equitable-TOD. Through the meeting communication we demonstrate the immediate and final results and illustrate how the results could be incorporated into their existing models and plan-making processes.

**Outputs:** From this research, we are expecting to publish 1~2 impactful journal articles in reputed journals as well as convey the findings of the research work to academics and practitioners through conference presentations. A policy document will also be published and provided to the relevant organizations so that they can use the findings of the research in their practices. A pooled BE-TB database will be produced and shared on an open platform, which can be used for further research.

**Outcomes/Impacts:** The outputs of this research project will help the Metropolitan Planning Organization (MPO) and municipal and transit agencies to understand the effectiveness and potential of BE-based policies and regulations to reduce car dependence and enhance the usage of transit and active modes. As a result, these organizations can implement more effective policies and regulations. Also, this research will provide extensive insights and new information on travel behavior-BE connections, which can be used by MPOs for travel demand modeling and forecasting.

The findings of the project will help promote the use of sustainable modes and reduce the usage of cars. As a result, the outcome of the study will help formulate policy interventions aiming to reduce traffic congestion, social inequity, energy overconsumption, and environmental pollution; develop and implement smart growth strategies (e.g., transit-oriented development, compact development) and integrated land use-transportation plans; and improve the effectiveness of strategies for travel demand management. Overall, the outcome of the study will have an impact on the sustainable development process.

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