Exhibit D – Research Project Requirement Template

The Mobility Dashboard (TMD)

Recipient/Grant (Contract) Number: The University of Texas at Austin; Arizona State University/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): Irfan Batur, Ram M. Pendyala

Project Partners: N/A

Research Project Funding: $100,000

Project Start and End Date: 6/1/2025 - 5/31/2026

Project Description: The transportation landscape is undergoing rapid and far-reaching change, fueled by emerging technologies, shifting work arrangements, demographic transitions, and evolving lifestyles and consumer attitudes. These developments are challenging long-standing assumptions in transportation planning – particularly those related to the stability of travel behavior, the predictability of demand, and the foundational drivers of mobility choices. As daily life becomes increasingly dynamic and multi-centered, the ability to monitor mobility trends in a timely and nuanced manner is more critical than ever. Traditional household travel surveys, while serving as the blueprint for most transportation planning and decision-making activities, are either infrequently collected or limited in scope. For example, they rarely capture in-home activity time allocation or detailed information about the sequencing of activities surrounding travel episodes – elements that are essential for understanding how, when, and why travel takes place. The American Time Use Survey (ATUS), which provides continuous, nationally representative daily activity/travel and time use diaries since 2003, offers a valuable (yet underused) resource for contextualizing emerging mobility patterns within broader, full-day activity and time-use structures. However, leveraging ATUS to extract insights into travel behavior requires extensive technical expertise and custom effort. This project proposes to develop an interactive, web-based platform that makes ATUS travel episode data more accessible, interpretable, and actionable for a broad range of users. Called The Mobility Dashboard (TMD), the platform will offer dedicated pages for trip purposes, travel modes, zero-trip days, and trip chaining structures, with capabilities for both person- and trip-level analysis. It will enable segmentation by demographic attributes and facilitate trend analysis over time. This project will also serve as one of the dashboards within the TBD Center's broader Travel Behavior Data (TBD) Hub initiative, thereby expanding the field's capacity to interpret mobility shifts and support responsive, evidence-based planning.

US DOT Priorities: This project supports USDOT's transformation priority by providing an innovative platform to monitor and interpret shifting mobility trends in real time. By democratizing access to the American Time Use Survey, TMD enables planners, policymakers, and researchers to track emerging travel patterns, examine trip purposes and modes, and analyze dynamic behaviors such as zero-trip days and trip chaining. This effort directly responds to the need for more adaptive and timely data resources in an era of rapid societal and technological change, equipping decision-makers with actionable insights to guide transformative investments and modernize transportation planning practices.

Outputs: The anticipated outputs of the TMD project are as follows. The primary deliverable is an interactive, publicly accessible dashboard that enables users to explore ATUS travel episode data through intuitive visualizations and flexible filtering tools. The dashboard will offer analytical capabilities at both

the person and trip levels, supporting the study of trip purposes, travel modes, trip chaining, and zero-trip making patterns. In addition, the project will produce open-source coding scripts for preprocessing and analyzing ATUS data, along with documentation to support reuse and replication. These tools will contribute methodological advances in structuring time use data for mobility analysis. The project's innovations will be disseminated to the broader research community via online seminars and conference presentations. The dashboard software and visualization methods may also support/inspire new applications in behavioral modeling and policy analysis. Together, these outputs will inform planning practices while enhancing the accessibility and utility of ATUS mobility data.

Outcomes/Impacts: This project anticipates a range of outcomes. By making ATUS travel episode data accessible through an intuitive platform, the project will promote greater understanding of evolving mobility patterns among researchers, planners, and policymakers. It is expected to support improved practices in demand forecasting and trend monitoring, particularly in contexts where traditional data sources fall short. TMD may also lead to the adoption of new analytical techniques for studying person- and trip-level behaviors, while contributing to the training of transportation professionals in the use of large-scale behavioral datasets. Ultimately, the project seeks to inform more responsive, efficient, and data-driven planning decisions.

The TMD project is expected to make meaningful contributions to both transportation practice and broader societal understanding of mobility. By providing an accessible platform for exploring trip-level and person-level travel behaviors, TMD will support improved demand management strategies, more nuanced planning responses, and greater awareness towards user needs – particularly for populations with limited mobility or high rates of zero-trip days. The platform's ability to reveal temporal and contextual dynamics of travel will strengthen scenario planning, resource allocation, and service delivery. In addition, the project will contribute to the advancement of data processing and visualization methods, expanding the body of scientific knowledge on the use of time use data for mobility research. TMD will also support transportation workforce development by equipping professionals, students, and analysts with new tools to interpret complex behavioral datasets. Ultimately, the project is expected to foster more responsive, efficient, and evidence-informed practices within the transportation system and its associated policy domains.

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