

Exhibit D – Research Project Requirement

Analysis of National Travel Trends

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): Steven E. Polzin, Ram M. Pendyala, Irfan Batur

Project Partners: N/A

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

Project Start and End Date: 9/1/2026 - 5/30/2028

Project Description: Over the past few decades, the transportation landscape has undergone a significant transformation, driven by technological innovations, demographic shifts, and evolving socio-cultural norms. The proliferation of information and communication technologies has revolutionized how and where individuals undertake daily activities, increasingly substituting physical travel with virtual alternatives and reshaping work through telework. Changes in technology have also altered mode characteristics and performance and introduced new options such as micromobility, ride-hailing, autonomous vehicles, and robotic delivery.

Concurrently, demographic changes have altered travel needs and preferences. The population is aging, years spent in educational systems are increasing, and labor force participation rates have been declining. Migration trends from urban centers to suburban and exurban areas, as well as between metro areas, raise critical questions about service levels and infrastructure needs. Increasing diversity in lifestyles, attitudes, and values has added complexity to travel choices and patterns of activity, mobility, and time use.

This multi-stage project aims to shed light on trends in time, travel, transit, telework, and transportation spending over the past two decades and beyond. The effort will expand and extend ongoing analysis that the project team has conducted over many years, seeking to identify emerging trends such as behavior stabilization following the COVID-19 pandemic and the pace of influence from emerging travel options. Understanding these trends is crucial for addressing current and future challenges in transportation management, economic resilience, and societal well-being.

The project will utilize data from the American Time Use Survey (ATUS), the Consumer Expenditure Survey (CES), the American Community Survey (ACS), and the new National Household Travel Survey (NHTS 2025), supplemented by national metrics on e-commerce, telework participation, roadway vehicle miles traveled, transit ridership, and airline travel. An advanced data fusion approach will integrate these diverse datasets through compilation, cleansing, merging, and aggregation, applying rigorous statistical tools to ensure accuracy and reliability. Qualitative interpretation and implication narratives will reflect the multi-decade history of monitoring travel behavior by the principal investigators.

The insights derived from this project are expected to support transportation planning and policy development, inform the identification of relevant metrics for tracking travel trends, and contribute to the

Center's Travel Behavior and Demand (TBD) Data Hub by providing a comprehensive, multi-dimensional view of the evolving national transportation landscape.

US DOT Priorities: This project aligns with two of the U.S. Department of Transportation's strategic goals and objectives outlined in the DOT Strategic Plan FY 2026-2030. Its primary contribution lies in the area of Innovation, Strategic Objective 3.3: Invest in Transformative Technologies. By compiling, integrating, and analyzing diverse national datasets to monitor evolving travel behavior, the project supports strategies to "leverage new and emerging data sources" and to apply computational methods that can "process immense and diverse datasets, recognize complex patterns invisible to human analysts, and generate predictive judgments at a scale and speed that is otherwise unattainable" (page 13). The project's secondary contribution is in the area of Infrastructure, Strategic Objective 2.3: Improve System Condition and Reliability. By identifying long-term trends in travel demand, mode use, and time allocation, the study will inform planning, investment evaluation, and system design decisions that support the Department's commitment to "improving the movement of people and goods across the Nation" (page 11).

Outputs: The project will generate a set of research products that contribute to improved understanding of national travel trends and support data-driven transportation planning. The study will produce an integrated dataset combining publicly available national data sources, including ATUS, CES, ACS, and NHTS 2025, along with data dictionaries and documentation made available through a public repository and GitHub. Analysis results will be synthesized in a final research report, peer-reviewed journal article, and conference presentations, building on the project team's extensive prior work documenting national transportation trends.

In addition, the project will produce tangible practitioner-oriented deliverables, including policy briefs disseminating time-sensitive findings to policymakers and planners, PowerPoint presentations, newsletters, and narrative discussions. These products will support the TBD Data Hub and provide accessible data analysis and visualization resources for transportation stakeholders and researchers. Datasets and code will be made publicly available to facilitate verification, replication, and further analysis by other researchers.

Outcomes/Impacts: The expected outcomes of this project are a thorough analysis of trends in time, travel, telework, transit, and transportation spending over the past two decades, which will be instrumental in transportation planning and policy development. By examining when, where, who, how, and why travel behaviors have changed, the study will provide insights into shifts in user habits, activities, and preferences and identify disparities across different market segments.

The project is also expected to contribute to the field by identifying the most relevant metrics, measures, and statistics for tracking national travel trends over time. These insights will directly inform planning, policymaking, investment evaluation, and transportation system design, and will support the development and functionality of the TBD Data Hub.

In addition, the project will generate broader impacts by facilitating more data-driven and insightful policymaking and enhancing transportation demand management. Investigation of trends at the market segment level will reveal how different demographic groups have been disproportionately affected, enabling the development of strategies aimed at creating more productive and equitable transportation systems and supporting informed decision-making by planners and policymakers.

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