Exhibit D

Research Project Requirement Template

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

Trends in Time, Travel, Transit, Telework, and Treasure (T^5)

Center Name: Understanding the Future of Travel Behavior and Demand (TBD)

Research Priority: Improving Mobility of People and Goods

Principal Investigator(s): Steven E. Polzin and Ram M. Pendyala

Project Partners: N/A

Research Project Funding: $200,000 (Federal + non-Federal funding)

Project Start and End Date: 9/1/2023 - 5/30/2025

Project Description: Over the past two decades, the transportation landscape has undergone a significant transformation, driven by a confluence of factors, including technological innovations, demographic shifts, and evolving socio-cultural norms and preferences. The advent and proliferation of Information and Communication Technologies (ICTs) have revolutionized how and where individuals undertake and perform daily activities, increasingly substituting physical travel with virtual alternatives and reshaping the nature of work through the rise of telework. With the accelerated adoption of ICTs during and post-COVID, and the flexibilities provided to employees during this period, we have reached a point where the traditional concept of a single morning and evening peak hour throughout weekdays is redefined. We are now experiencing multiple peak hours throughout the day; the homogeneity of weekdays has become ambiguous; even the lines between weekdays and weekends have blurred.

Concurrently, demographic changes, the taste heterogeneity of the population, and other dynamics have potentially led to altered travel needs and preferences. The population is aging. People are spending extended years in educational systems. Labor force participation rates have been declining. These demographic shifts are further complicated by significant migration trends from urban centers to suburban and rural areas, as well as between different metro areas, raising critical questions about service levels and infrastructure needs in regions and places experiencing population changes. Additionally, the increasing diversity in lifestyles, attitudes, norms, and values among the American populace has added complexity to travel choices and patterns of activity, mobility, and time use.

Another key facet of this changing landscape is the evolution in transportation-related expenditures. Variations in income levels, purchasing power, and the distribution of wealth, coupled with fluctuating energy prices, have likely influenced travel behaviors and needs. The Great Recession in this era impacted economic conditions and subsequently, spending patterns in transportation. This financial downturn may have contributed to shifts in how individuals and households allocate their resources to transportation. Additionally, the recent notable shift towards alternative fuel vehicles and micromobility options, which might be primarily motivated by cost savings, has further contributed to changes in travel patterns.

Overall, this period of change holds profound implications for transportation planning and policy development. This multi-stage project aims to navigate this complex terrain to shed light on the trends in time, travel, transit, telework, and treasure (T5) during this period. Understanding these trends is crucial for effectively addressing current and future challenges and seizing opportunities in transportation management, economic resilience, and societal wellbeing.

US DOT Priorities: This project aligns with two of the US DOT's research priorities: transformation research and equity. Its primary contribution lies in the area of Data-Driven Insight. By compiling and

analyzing various publicly available data sources to generate insights into the evolving transportation landscape, it will fulfill objectives such as “conducting exploratory research on transformational mobility data analytics” and “developing and making accessible data sources, data analysis, and visualization tools to support transportation stakeholders and researchers” (as outlined on pages 58-59). The project's secondary contribution is in the area of Equity and Accessibility Assessment. Through the exploration of trends in time, travel, telework, transit, and financial aspects using cross-sectional survey data, the project will facilitate the identification of disparities across different market segments in the population. This supports the objective of “developing data and analytical methodologies to measure the transportation needs of underserved and disadvantaged communities” as mentioned on page 33.

Outputs: The anticipated outputs of this project include a unique dataset, academic papers, and policy briefs. The dataset will be distinctive because it is generated by integrating various publicly available data sources, such as The American Time Use Survey (ATUS) and the Consumer Expenditure Survey (CES). This integration aims to provide a holistic picture of the transportation landscape. The final dataset, along with relevant data dictionaries and readme files, will be made available in an appropriate public repository. This will allow other researchers to access and use the data for further inquiries. Our research team will conduct our analysis of this dataset and produce an academic paper discussing overarching trends in the transportation landscape. This paper will be shared at academic conferences and submitted as a peer-reviewed journal article. Additionally, throughout the project timeline, the project team will disseminate some of our findings, particularly those that are time-sensitive and more relevant to policymakers and planners, through policy briefs.

Outcomes/Impacts: The expected outcomes of this project are as follows. First, the study will offer a thorough analysis of trends in time, travel, telework, transit, and treasure over the past two decades, which will be instrumental in transportation planning and policy development. By examining when, where, who, how, and (potentially) why travel behaviors have changed, the study will provide insights into shifts in user habits, activities, and preferences. It will also identify any disparities across market segments during this process. Furthermore, this project will contribute to the field by identifying the most relevant metrics, measures, and statistics for tracking these trends.

This project, by characterizing the overarching trends shaping the transportation landscape over the last decades and potentially identifying the driving forces behind these trends, will facilitate more data-driven and insightful policymaking. By revealing travel demand over this period, the project will enhance transportation demand management. Furthermore, the project's investigation of these trends at a more granular level (at the market segment level) will uncover how different demographics have been disproportionately impacted by these trends in recent years. This nuanced understanding will enable the development of strategies and policies aimed at creating more equitable transportation systems.

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