

Exhibit D – Research Project Requirement Template

Understanding Household Vehicle Fleet Evolution

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): Eleanor Hennessy, Irfan Batur, Ram M. Pendyala

Project Partners: N/A

Research Project Funding: \$50,000

Project Start and End Date: 1/1/2026-12/31/2026

Project Description:

The composition of the U.S. vehicle fleet is changing rapidly in response to emerging technologies, evolving consumer preferences, and shifting prices. Larger vehicles are becoming increasingly popular, with SUVs and trucks representing nearly $\frac{3}{4}$ of new vehicle sales in 2024. At the same time, consumers are choosing more fuel-efficient vehicles to reduce their operating costs. Simultaneously, vehicles have become more expensive, with the average price of a new car approaching \$50,000. The composition of the nationwide vehicle fleet is determined by household-level decisions and understanding how households approach vehicle transactions is important for predicting how fleet-level characteristics will evolve. Fleet characteristics have important implications for traffic congestion, safety, and infrastructure development and operations. A shift to SUVs and trucks will likely lead to increased traffic congestion due to the vehicles taking up more road space. Likewise, increased vehicle weight will put additional strain on roadways, bridges, pavement, and other transportation infrastructure, leading to increased maintenance costs and reduced infrastructure longevity. In addition to impacting traffic and infrastructure, the increase in large vehicles may lead to safety concerns for pedestrians, bicyclists, and smaller cars. Understanding these dynamics will be important for transportation planners and infrastructure managers. While many consumers are choosing larger vehicles, many are also choosing more efficient vehicles. Increased fuel economy reduces operating costs for drivers but may lead to issues with current funding mechanisms for transportation infrastructure. The Highway Trust Fund is the main federal funding source for U.S. transportation projects including highways, bridges, and mass transit. More than 80% of its revenue comes from the federal excise tax on gasoline and diesel. As fuel economy has improved, revenues have decreased, presenting a challenge to maintaining the fund. Understanding shifting consumer preferences relating to vehicle fuel economy will be important for predicting gas tax revenues and decision-making around how to continue to maintain the Highway Trust Fund. While there has been substantial research to understand how individuals make decisions about individual vehicle acquisitions, little work has been done to understand how decisions are made in the context of household vehicle fleets. In this project, we will characterize the current state of household vehicle fleets across heterogeneous population groups and assess how they are likely to change. We will use data from a new survey, the National Household Vehicle Survey (NHVS), a nationally representative survey expected to be completed in 2026. The survey contains questions related to current household vehicle specifications, factors considered when acquiring household vehicles, and planned additions and removals from the household vehicle fleet. We will categorize current household vehicle fleets based on the number of vehicles, types of vehicles, and size of vehicles (e.g., SUV, sedan). We will compare fleet categorization across demographic groups to gain understanding into how

fleet composition varies across heterogeneous population groups. We will pair this analysis with an assessment of what vehicle attributes different populations consider most important. We will then categorize households based on planned vehicle transactions (i.e., planned retirements and additions by vehicle type and size). We will compare trends in planned transactions across demographic groups and quantify how the current vehicle fleet will evolve given planned transactions. This project will provide insight into current vehicle preferences and expected changes in demand for different vehicle types.

US DOT Priorities: This section is left blank until USDOT's new priorities and RD&T strategic goals are available in Spring 2026.

Outputs: The primary outputs of this project will be academic papers and conference presentations. We anticipate submitting the results of this analysis to the Transportation Research Board Annual Meeting for oral presentation and publishing the results of the analysis in a top transportation-related peer reviewed journal.

Outcomes/Impacts: The results of this project will provide actionable insights into how household vehicle fleets are evolving and how these trends differ across heterogeneous populations. The project will deepen understanding of the factors driving vehicle acquisition and retirement decisions within households, including preferences for vehicle type, fuel type, and size. These insights will inform policymakers, planners, and researchers and support alignment of transportation infrastructure, energy policy, and consumer behavior.

One of the key outcomes will be insights into evolving demand for different vehicle types and larger vehicles such as SUVs and trucks. This will support more effective planning for infrastructure projects, roadway design and maintenance, and fuel consumption forecasting. The emphasis on differing trends across different population groups will support more targeted transportation policies. The project will also contribute to the growing body of research investigating household vehicle fleet dynamics. Ultimately, this project will support a more efficient transportation system by enabling key stakeholders (e.g., automakers, policymakers) to anticipate shifts in vehicle ownership and usage patterns. The findings will inform long-term planning and investment decisions and provide key insights into shifting consumer preferences.

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