Exhibit D

Research Project Requirement Template

Identifying Targets for Electric Vehicle Industry Improvement

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): Randy Machemehl

Project Partners: N/A

Research Project Funding: $120,000 (Federal + non-Federal funding)

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

Project Description: Electric vehicle (EV) sales have increased dramatically over the last several years. While Tesla has a growing network of Supercharging stations, owners of the newer, more luxurious EVs cannot necessarily use these charging facilities and are only able to consistently access public charging stations. In general, the public perceives the Supercharger network as more reliable and consistent than most other networks. Users of public charging stations site issues with charger maintenance and rank overall charging satisfaction lower. Though, in March 2023, Tesla announced that it was planning on opening up a portion of Superchargers to the public to qualify for federal funds.

Many perceive the availability of charging facilities as inadequate and forecasts of electrical energy availability for charging may not be adequate to support a complete conversion of ICE cars to EV status. In order to sustain demand for electricity, one would have to upgrade the electrical grid. However, how those costs would be covered is also unclear. There are also questions about whether enough lithium is available on this planet to produce all the batteries that would be required for conversion of all ICE vehicles to electric.

Without significant improvements to features, batteries, and support infrastructure one might wonder whether EVs will boom and then drop in popularity like bikes did in the late 19th century. This research will examine the complete spectrum of the EV industry to identify all the issues that should be identified as targets for improvement. Problem identification will be done from several different perspectives including: potential EV buyers, EV owners, EV makers, public agencies (State DOT, City, and MPO), and engineering researchers. One of the largest EV manufacturing facilities (Tesla) in the world is located in Austin, TX so the research team will work closely with Tesla on this part of the study. A combination of surveys and expert panels will be used to gather perceptions. Potential solutions to improvement targets will be identified and evaluated. Evaluation will include benefit-cost analyses and alternative funding mechanisms.

US DOT Priorities:

Data-Driven Insight: This research will provide Strategic Foresight as it assesses and plans for changes to the transportation system. The conversion from internal combustion engine vehicles to electric vehicles would be a significant change to the transportation system that could provide many benefits environmentally and otherwise. However, many potential problems with EV conversion should be clearly identified and alternative solutions should be evaluated if this conversion process is to actually occur.

Advance coordinated interagency approaches to innovation and re- search solicitations with the goal of reducing barriers to program participation and streamlining access to funding opportunities: Page 67 of the RD&T document provides this priority and objectives. These fit perfectly within the proposed research effort. Solution of the issues to be identified will require joint efforts by private sector car makers, public and private sector power generation agencies, public sector transportation agencies and perhaps most importantly appropriate gauging of perceptions of car buyers and users.

Outputs: The primary outputs of this research will be a prioritized list of EV issues with analyses of alternative solutions and recommended actions. The recommended actions will be clearly directed toward both public and private sector members of the EV implementation process.

Outcomes/Impacts: Anticipated outcomes will include recommendations for or against public action to solve EV issues. The recommendations will be based upon detailed analyses of potential solution methods both including and not including public policy actions. For example, currently virtually all cars are built and sold by private sector entities. The government can influence the car manufacturing process through regulations of many different types, but in the United States, government has not chosen to build and market cars. So recommendations dealing with car manufacturing will only involve the private sector unless the government develops policy implementing the recommendation.

The impacts of the proposed research will reduce the likelihood of EV popularity decreasing significantly in coming years. If potential EV buyers continue to be positively impressed with the EV products being offered, the beneficial impacts of EV's replacing ICE powered cars will likely continue into the future.

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