Exhibit D

Research Project Requirement Template

Assessing Building Information Modeling (BIM) Maturity and Identifying Barriers to Implementation among Transportation Agencies in Region 6

Recipient/Grant (Contract) Number: 69A3552348306 (CY1-UTEP-03)

Center Name: Southern Plains Transportation Center (SPTC)

Research Priority: Improving the Durability and Extending the Life of Transportation Infrastructure

Principal Investigator(s): Adeeba A. Raheem and Jeffrey Weidner, The University of Texas at El Paso

Project Partners: The University of Texas at El Paso

Research Project Funding: The University of Texas at El Paso: $55,000 (Federal) and $55,000 (Match)

Proposed Start and End Date: 10/01/2023 to 09/30/2024

Project Description: The objective of this project is to provide a systematic roadmap to regional DOTs for the implementation of Building Information Modeling (BIM) at an organizational level based on comparative BIM maturity assessment across the region. BIM maturity refers to the ongoing journey of improvement, evolution, and refinement within the realm of BIM implementation. It signifies a commitment to enhancing several key aspects, namely quality, repeatability, and predictability, all of which are intricately tied to an organization's BIM capability. Competency metrics are integral to shaping a holistic organizational structure and encompass a wide array of critical elements. The research team will focus on the competency elements specified in the national BIM roadmap for the study, including *skills, tools and technologies, data and standards, and policies and procedures*. Each competency element will be assessed based on five BIM maturity levels: Level A (Ad-hoc Initial/Low), Level B (Defined/Medium-Low), Level C (Managed/Medium), Level D (Integrated/Medium-High) and Level E (Optimized/High). The final task involves the development of a BIM Level 2 implementation roadmap with prioritized action items. This roadmap will be crafted based on the insights gathered from the regional survey and the BIM maturity assessment. It will outline clear, actionable steps that each DOT can undertake to advance its BIM capabilities in alignment with the national roadmap. The prioritization of these steps will be determined by considering factors such as the DOT's current maturity level, available resources, and strategic objectives. The roadmap will serve as a practical guide, assisting DOTs in their journey toward achieving BIM Level 2 maturity and fostering collaboration and innovation within the transportation sector. While developed for implementation in Region 6, the framework underpinning the roadmap will be transferable to other states and regions.

US DOT Priorities: The overarching objective of this project aligns well with the US DOT's goal of improving infrastructure durability through data-driven, efficient, and cost-effective design, construction and maintenance processes that can help to extend the lifespan of transportation infrastructure. This team will collaborate with various stakeholders in Region 6 to develop an implementation plan based on the BIM maturity assessment of various DOTs. Measuring BIM capability and maturity across various regional DOTs will be critical to developing and implementing actions and achieving progressively higher degrees of BIM maturity over time in the region.

Outputs: The following outputs are expected from this project: (1) The project will develop an actionable BIM implementation document, which will serve as a valuable resource for Departments of

Transportation in Region 6. This document will provide guidance and establish priorities, all of which will be informed by a thorough comparative assessment of BIM maturity levels in the Region; (2) The project analysis will also be used to develop a BIM module focused on transportation applications for an advanced-level course, taken by many civil and construction management students at UTEP. This module will be leveraged in the Civil Engineering Senior Design capstone sequence as well; (3) A hands-on session will also be developed based on this module to be used for the Summer Upward Bound Program .

Outcomes/Impacts: The outcomes of this project are expected to have significant implications and impact on transportation project management for Region 6 state DOTs. BIM implementation will streamline project planning, execution, and maintenance, resulting in improved efficiency, safety, and a reduction in project timelines. The proposed implementation roadmap will help Region 6 align regionally and progress nationally as leaders in BIM implementation.

As students gain exposure to BIM technology and modern construction practices, they will be better positioned to pursue careers in transportation. This can contribute to the dire need for tech-skills development and broader industry transformation as agencies will experience a high rate of retirements for the foreseeable future.

Final Research Report: