Design

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Project Title: TPF-5(480) Building Information Modeling (BIM) for Infrastructure

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DRISI provides solutions and knowledge that improves California's transportation system.

Building Information Modeling (BIM) for Infrastructure

A mechanism for stakeholders to work collaboratively to advance BIM for Infrastructure, including virtual design construction and civil integration methods.

WHAT IS THE NEED?

BIM for Infrastructure is a collaborative work method for structuring, managing, and using an agency's enterprise-wide data and information for transportation assets throughout their life cycles. BIM integrates and leverages digital information found in lidar/UAS (Unmanned Aircraft System) surveys, 3D design models, eConstruction data, georeferenced assets, and eventually Geographic Information Systems (GIS), to bring profound improvements to project delivery and lifecycle data management. The data capabilities are envisioned to better connect the silos within our agencies towards greater collaboration and real-time, fact-based decision-making in managing our highway assets. BIM is about "liberating" data from siloed systems and making it available in an automated way to anyone who needs it when they need it.

Various studies indicate that the tangible benefits from BIM's 'digitalization' of our highway program delivery and performance management are substantial. How we plan, design, construct, and manage the highway system can harness the power of data and information to increase efficiency. A European Union (EU) study has suggested savings and other economic benefits in the order of billions, which is why many countries have adopted BIM standards and are working more aggressively to deploy BIM practices.

WHAT ARE WE DOING?

Activities that advance the short and medium-term goals of the BIM National Strategic Work Plan will be prioritized and carried out by the pooled fund participants. Meetings will serve as a forum to facilitate knowledge sharing among participants. Proposed activities include:

- Develop BIM foundational use cases and workflows.

Highlight more effective digital exchange of information (e.g., survey to design, design to construction, construction to asset management, etc.).

- Establish BIM Processes (e.g., Develop contract model language to guide BIM procurements.)

- Identify and Execute Capacity-Building Activities (e.g., Establish project selection criteria for BIM implementation; Identify project types and use cases for early pilot projects phase).

- Enhance Skills and Collaboration (e.g., Establish workforce training curriculum to set expectations about required BIM qualifications.

- Deploy Standards-Based Data Management Tools and Techniques (e.g., Develop a catalog of information model requirements to define what data should be created and why. Develop standard information delivery specifications for data exchange between systems).

- Lessons Learned - Identify issues with current implementation efforts and share potential solutions to help move toward to greater BIM maturity.

- Research Priorities - Identify short-term and long-term research needs and strategically prioritize the needs so the most urgent and impactful opportunities are addressed first.

- Information Exchange - Establish a forum/expert hub for practitioners in the highway industry to understand the various tools and technologies being used, promote common modeling formats, and share experiences.

WHAT IS OUR GOAL?

- Identify strategic steps to implement or advance BIM within their organizations

- Discuss the benefits and costs of deploying BIM for infrastructure at the enterprise level

- Identify metrics to calculate ROI

WHAT IS THE BENEFIT?

- The pooled fund serves as the mechanism for stakeholders to work collaboratively to advance BIM for Infrastructure. This will involve building off the foundational work that was charted out in the BIM National Strategic Work Plan, with an emphasis on increasing coordination and awareness of BIM technologies and activities.

- This pooled fund will coordinate with efforts of TPF-5(372) focusing on BIM for Bridges and Structures.

WHAT IS THE PROGRESS TO DATE?

Participate in Building Information Modeling for Infrastructure (BIM4i) meetings. Guidebook converted to Clearinghouse Knowledge Platform

Please follow the below link for further information:

TPF - Study Detail (pooledfund.org)