BIM FOR INFRASTRUCTURE POOLED FUND
TPF-5(480)

ROADMAP
BIM FOR INFRASTRUCTURE

ELEMENTS
- Digital Workflows
- Data & Information Management
- Stakeholder Engagement
- BIM Deployment Enablers

MARCH 2025

GUIDEBOOK & CLEARINGHOUSE

YEAR 1
Planning the Standardized Roadway Infrastructure Information Model

Develop foundational guidance for BIM for Infrastructure activities as part of a BIM Clearinghouse.

YEAR 2
Develop Initial Information Delivery Manuals (IDMs)

Update Guidebook & Clearinghouse.

YEAR 3
Create and Test Initial Information Delivery Specifications (IDSs)

Update Guidebook & Clearinghouse.

YEAR 4
Support Pilot Implementation of Initial IDMs and IDSs & Explore Additional Use Cases

Update Guidebook & Clearinghouse.

YEAR 5
Continue Implementation Support & Develop New IDMs and IDSs

Update Guidebook & Clearinghouse.

YEAR 1
- Convene a working group of key stakeholders to define initial use cases and data requirements.
- Establish an information model that identifies key data categories for a typical **roadway workhorse project**.
- Create a conceptual data model for the design to construction (D-C) data exchange.

YEAR 2
- Conduct a comprehensive needs assessment to determine detailed data requirements for D-C and Digital As-Builts (DABs) use cases.
- Define the requirements for data exchange among stakeholders, including designers, contractors, and asset managers.
- Develop an IDM that integrates rules for real-time data use, validation, and quality control.

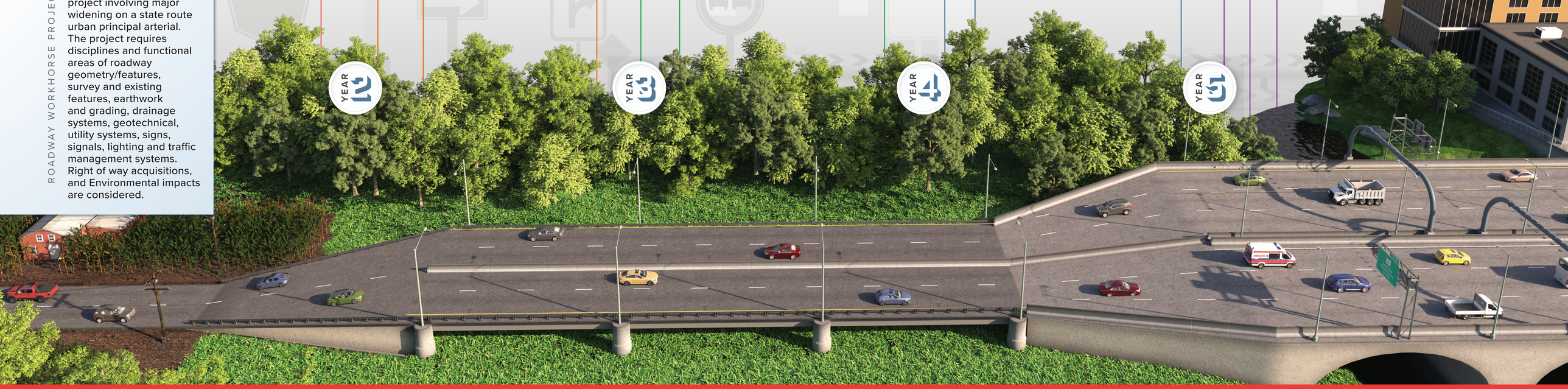
YEAR 3
- Use the IDM to develop modular IDS components that address specific data elements, constraints, and workflows (e.g., drainage designs, pavement thickness, utility integration).
- Include testing protocols and validation processes for data exchange to ensure compliance with interoperability standards like IFC 4.3.
- Prepare for implementation testing on high-priority use cases and setting up pilot projects for real-world validation.

YEAR 4
- Collaborate with software vendors to ensure compliance with the interoperability specifications and identify gaps in data integration.
- Validate software compatibility through pilot implementations at select agencies.
- Develop mapping tools to connect standardized data sets with existing software used in roadway design, construction, and asset management.

YEAR 5
- Monitor success and gather feedback from early adopters to refine data models and information delivery specifications.
- Prioritize additional data needs, such as intelligent transportation systems (ITS), traffic flow data, and safety measures.
- Create additional IDMs and IDSs as needed.

ROADWAY WORKHORSE PROJECT

A full reconstruction project involving major widening on a state route urban principal arterial. The project requires disciplines and functional areas of roadway geometry/features, survey and existing features, earthwork and grading, drainage systems, geotechnical, utility systems, signs, signals, lighting and traffic management systems. Right of way acquisitions, and Environmental impacts are considered.



OUTCOME

Year 1: Establish the baseline for the information exchange model for the prioritized exchanges. (e.g., D-C and DABs).

Year 2: Fully defined IDMs that outlines requirements, process maps, data dictionary, and information architectures to support standardized D-C and DABs exchanges.

Map to international open data standards (IFC and OGC).

Year 3: Establish IDSs that provide modular, standardized data requirements for D-C and DABs exchanges.

Begin work with software vendors to implement specifications.

Expand project types and use cases.

Year 4: Complete software testing for initial use cases and advance toward certification to support standardized data exchangeto ensure alignment with interoperability frameworks.

Begin work on additional use cases.

Year 5: Provide ongoing support for implementation, refine the framework, and expand use cases leveraging the scalable, adaptable information framework to meet evolving needs.