



Iowa Transportation Conference
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Adoption of 3D Model-Based Design, Digital Delivery, and BIM

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Adoption of 3D Model-Based Design, Digital Delivery, and BIM

What is Digital Delivery?

Digital Delivery status at State DOTs

Benefits and challenges of Digital Delivery

The future of Digital Delivery


Digital Delivery is BIM for Design and Construction

BIM = Building Information Model(ing)

BIM is a noun

BIM is a verb


BIM is what you need it to be



FWHA-HRT-21-064 Advancing BIM for Infrastructure: National Strategic Roadmap

Digital Delivery is BIM for Design and Construction

MALD = an extremely mad bald person, perhaps causing further hair loss



Digital Delivery is BIM for Design and Construction

MALD =

Model
As
Legal
Document

“Delivery of 3D model geometries as legally binding entities, in lieu of traditional paper or PDF construction documents (plans).”
- Utah DOT

BIM is Advancing

Planning Tools for Incremental Progress

Policy and Standards



TPF Transportation POLICE TUNE
Transportation Policy Panel - Study Report
Building Information Modeling (BIM) for Infrastructure

Transportation Research Board
TRB
Research Board for Transportation Improvement and Innovation Through Projects
TRB Research provides the knowledge, research, and technology of the Transportation

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Why is Digital Delivery Happening?

BETTER PUBLIC INVOLVEMENT DIGITAL TWIN
 REDUCED CONTRACT CHANGE ORDERS
 PROJECT RISK MITIGATION ASSET MANAGEMENT DATA
 INTEGRATED BUSINESS PROCESSES CONSTRUCTABILITY
 IMPROVED PROJECT COMMUNICATION DATA DRIVEN DECISIONS
 IMPROVED PROJECT EFFICIENCY
 REDUCED CONSTRUCTION COST
 IMPROVED CONSTRUCTION SAFETY
 FINISH ON SCHEDULE CONNECTED LIVE DATA
 IMPROVED DESIGN QUALITY PROJECT COLLABORATION

\$ R.O.I. \$

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What is so different about Digital Delivery?

It's the MODEL

BIG Civil Infrastructure Project BIM Problem

- Lack of interoperability:** The existing technology stack used by OWNER for their infrastructure model management may not be compatible with other platforms and systems, leading to silos of data and a lack of collaboration between stakeholders.
- Inefficient workflow:** Without a standardized workflow, the management of infrastructure models can be time-consuming and error-prone. This project aims to streamline the process by identifying workflow needs for each stage and assembling an appropriate technology stack for each stage.
- Ensuring accurate and up-to-date models:** By using IFC as a model of record and maintaining IFC element permanence, this project aims to ensure that models are always accurate and up-to-date throughout the project lifecycle, which can help avoid delays and cost overruns and improve project efficiency.

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Model Repository (Ref. Level 1.1)

Start → Stage 1: Strategic Definition → Stage 2: Planning & Approval → Stage 3: Design → Stage 4: Construction → Stage 5: O&M → Infra Lifecycle

- Workflow needs identified for each Stage
- Appropriate technology stack assembled for this stage
- Custom integrations developed for cross-platform interoperability

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In Summary:

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- The future of Digital Delivery

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