




Welcome to the Hawkeye Track  
**Design Bureau Update**  
 2023 ACEC/IDOT Conference  
 Michael J. Kennerly P.E, Director of the Design Bureau  
 September 19, 2023  
 Des Moines Iowa

### Michael J. Kennerly P.E



Is the Director of the Design Bureau for the Iowa Department of Transportation and Chair of the AASHTO Joint Technical Committee on Electronic Engineering Standards. He has worked for the Department for 40 years, with 21 of those years in his current position. His previous experience includes working as Project Scheduling Engineer, a Resident Maintenance Engineer, Bridge Design Engineer, and in Construction Contract Administration. He is a member of the AASHTO Subcommittee on Design, the recipient of the 2013 National Award from the AASHTO Subcommittee on Design, a graduate of the University of Iowa with a BS in Civil Engineering, and the proud grandfather of five.

### Overview

- General Update
- Recent Consultant Selection
- US 30 Benton MALD Pilot
- Americas Transportation Award Nominee-Adult Changing Tables
- Training Discussions
- Workload
  - On-Call Work
- BIM Week 2023
- BIM for Infrastructure Pooled Fund






### General Update:

- Safety; One of the things that the Department has established as a core principle is safety. One of the things as designers we need to consider is how we can incorporate safety both in construction and operations.
- Continued focus on digital delivery, we are committed to this path and will be focusing more efforts on this moving forward.
- We are working to define deliverables at critical milestones as a result of changes necessitated by the deployment of Bentley's Open Roads Designer (ORD) software in the project development process.
- We have recently reached agreement between the DNR and IDOT to provide advanced warning signs on waterways defined as paddling routes is now published in the Design Manual.
- There is a small group working to identify ways to improve plan clarity to aid railroads in the review of transportation improvement projects with the goals of shortening the overall RR review time. This is an ongoing effort and final decisions will be made available upon completion of this effort.

### General Update:

- We are moving to OpenRoads 10.12 before the end of the year.
- The workspace has been updated to reflect this with updates to the dgnlibs and configurations with testing starting at the end of September.
- Moving to DIGGS software (Data Interchange for Geotechnical and Geo-environmental Specialists) in Geotechnical Section

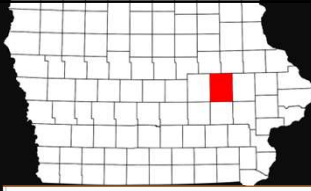

### Consultant Selection

- We selected 8 firms in May of 2023 to provide on-call design services over a the 3-year term.
- Those firms are:
  - HDR Engineering, Inc.
  - HNTB Corporation
  - Snyder & Associates, Inc.
  - HR Green, Inc.
  - AECOM Technical Services, Inc.
  - Stanley Consultants, Inc.
  - WHKS & Co.
  - Foth Infrastructure & Environment, LLC
- A total of 30 proposals were reviewed and scored as part of the selection process.
- The amount of work completed during this 3-year period will be very similar in dollars, project complexity and project numbers as in the past 3-year period.




## Benton County US 30

- Project Details
  - 4.5 mile Grade and Pave
  - Design Estimate:\$31,596,199.41
  - Awarded Amount:\$38,898,997.96
  - Contractor: Moyna and Sons
  - Project was awarded: November 2022.

## Our Approach

- Some of the concerns expressed by the contractors included:
  - Licensing the software
  - Training and Support
  - Sub-Contractors may not be computer savvy and cannot afford to invest in this software.
  - Gathering quotes from sub-contractors
  - How would addendums and revisions be handled.
  - Needing rugged devices that are readable in sunlight

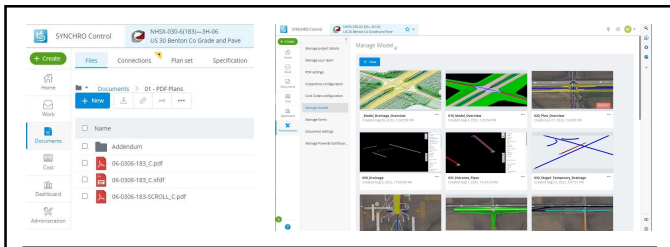


## Information Contractors Will Receive on Benton US 30 Pilot Project



- PDF sheets (what will still be in pdf sheet form):**
  - A sheets (title sheet and map)
  - B sheets (typicals)
  - C sheets (quantities)
  - CD sheets (drainage tabs)
  - CS sheets (soils tabs)
  - G sheets (survey benchmarks)
  - J sheet (traffic control plan and staging notes)
  - Q sheets (wick drain info)
  - RC sheets (roadside quantities and tabs)
  - T sheets (earthwork quantity tab)
  - U sheets (details)
  - V sheets (pipe cross sections)
  - Legend sheets (D, J, L, Q, RR, and T)
- Models (what the models will replace):**
  - D sheets (plan and profile)
  - E sheets (plan and profile)
  - H sheets (ROW sheets)
  - I sheets (staging layout and pavement markings)
  - L sheets (jointing, geometrics and staking)
  - Q sheets (boring log plan view locations)
  - RR sheets (erosion control layout and drainage basins)
  - U sheets (fencing layouts)
  - W,X,Y and Z sheets (cross sections)

## Additional Files that will be Provided

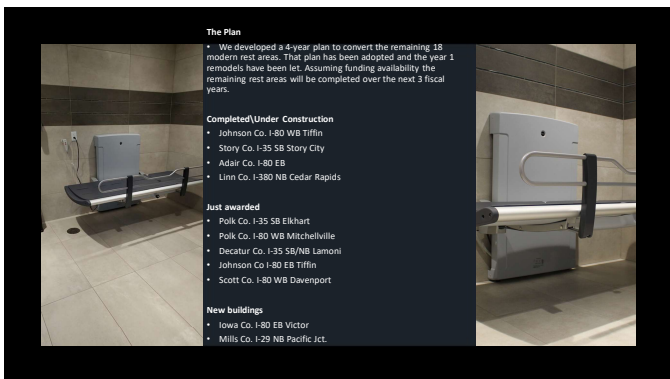
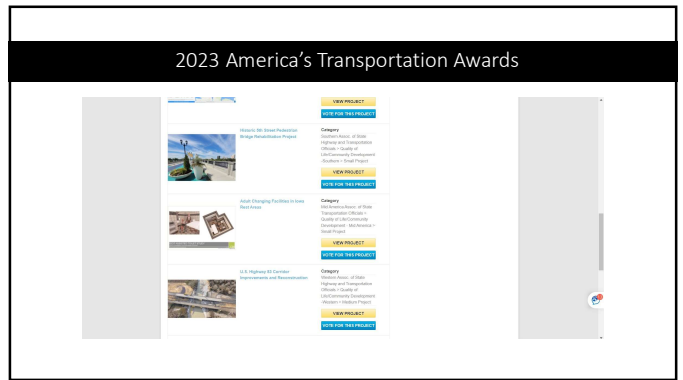
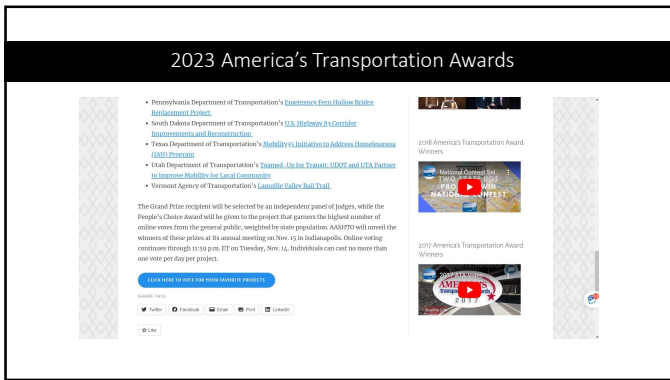
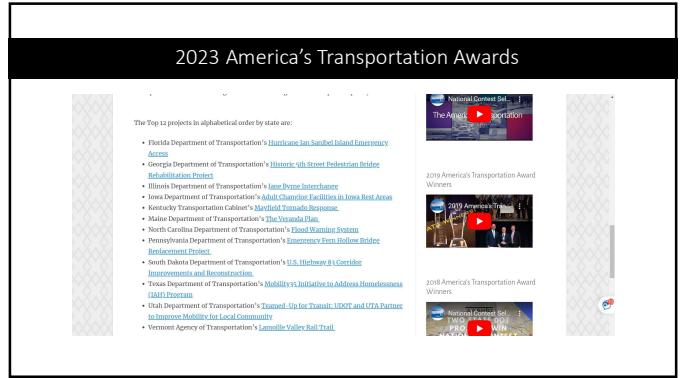
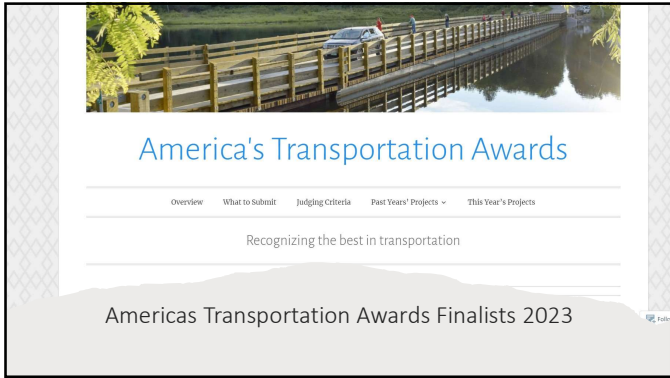
- 3D Breakline Files
- Alignment XML's
- Machine Control Surfaces in XML
- PDFs of soil boring logs
- Shelby tube data
- Structure settlement information
- Earthwork Calculations



We used Bentley Synchro as our tool for sharing the model information


MAASTO 2023 Award Winner in: "Quality of Life/Community Development, Small" category  
 Site of Our First Installation: Victor Rest Area EB on I-80



### Overview of BIM Week 2023

### BIM Week 2023 Recap

- Collaboration was the theme
- JTCEES
- Joint Committee on Data Standardization
- BIM for Infrastructure
- BIM for Bridges
- AASHTOWare
- Michael baker
- WSP
- HDR

### FHWA BIM for Infrastructure Pooled Fund

**ADVANCING BIM FOR INFRASTRUCTURE NATIONAL STRATEGIC ROADMAP**  
JUNE 2021

- Objective: 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 emphasis on increasing coordination and awareness of BIM technologies and activities.
- Posted October 2020
- Funding Goal: \$2,000,000
- To Date: \$1,250,000
- Lead State: Iowa (Michael Kennedy)
- FHWA Technical Liaison: Katherine Petros (initially proposed by Connie Yew)
- Participating States: Iowa, Utah, Michigan, Texas, Pennsylvania, New York, Arizona, Kentucky, Montana, Connecticut, California, Indiana, Illinois, Mississippi, Oklahoma, Wisconsin, South Carolina, Nebraska, Michigan, Minnesota, Florida

U.S. Department of Transportation  
Federal Highway Administration

### Pooled Fund Study Work Areas

WORK AREA:	WORK AREA:	WORK AREA:	WORK AREA:
<b>A. DIGITAL WORKFLOW DEVELOPMENT</b>	<b>B. DIGITAL DATA FLOWS AND INFORMATION MANAGEMENT</b>	<b>C. STAKEHOLDER OUTREACH AND ENGAGEMENT</b>	<b>D. BIM DEPLOYMENT ENABLER DEVELOPMENT</b>
A1: PROCESS MODELING A2: INFORMATION REQUIREMENTS DEVELOPMENT A3: BIM TOOLS AND TECHNOLOGY	B1: DATA MODELING & INFORMATION EXCHANGE FLOWS, STRATEGY B2: DATA STANDARDS FOR INFORMATION EXCHANGE B3: DATA WAREHOUSE & CDE B4: DATA GOVERNANCE	C1: FHWA BIM PROGRAMS C2: AASHTO COMMITTEES: JTCEES, ISTAN, ETC. C3: NATIONAL ASSOCIATIONS: AGC, ACEC, ARTBA C4: SOFTWARE VENDORS C5: STANDARDS DEVELOPMENT ORGANIZATIONS	D1: COMMUNICATION FORUM/PLATFORM D2: CAPABILITY MATURITY MODEL D3: ORGANIZATIONAL READINESS D4: TRAINING PROGRAM D5: BIM BENEFITS/METRICS D6: PILOT PROJECTS PROGRAM

### TPF 5-480 Year 1: 2023 Timeline

Deliverables to be Completed by December 2023

Legend:

- D15-Living Draft-Signing & Sealing a Digital Delivery Model
- D16-Living Draft-Hot Projects/Strategies
- D30-Living Draft-Best Practices for Contract/Legal Document
- D05-Digital Workflow Infographic
- D06-Literature Review on BIM State of Practice
- D03-IFC and its Role in BIM
- D18-Needed Tools/Resources to Utilize Field Application Models
- D05-Searchable Digital Delivery Information Clearinghouse
- D07-State DOT Tools Report
- D17-Living Draft-Information Delivery Manual for Digital Workflow
- D26-Living Draft-Establishing Enterprise-wide Asset Inventories
- Interviews, Workshops, Surveys
- Published Information: Reports, etc.
- Interviews, Workshops, Surveys & Published Information
- Digital Artifact

### BIMfi TPF Deliverables

BIM Implementation Guidebook and Deployment Tools

- Digital Workflows for select Project Types
- Policies & Processes: Signing & Sealing, MALD, Contract Admin., As-Built Handoff
- Standards-based Data Modeling Examples with Software

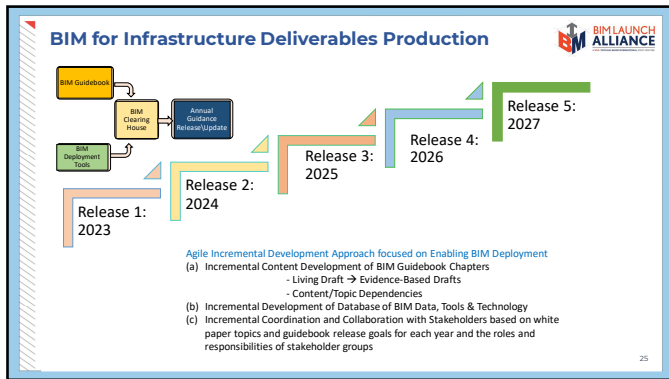
**BIM Implementation Guidebook**

**BIM Deployment Tools**

- Data Models Catalog & Data Catalog
- Information Requirements: Asset, Project, Exchange
- Model Breakdown Structure Standard
- Information Delivery Manual: Specifications
- BIM Software Applications Catalog

**Clearinghouse**  
Technical Guidance to Enable States to Deploy BIM

- Assess BIM Maturity
- Create BIM Deployment Plans
- Design Pilot Programs
- Conduct Staff Training
- Drive Organization Change



#### BIM ROADMAP

**PROJECT SPONSORS**

**Total Commitments Received: \$2,300,000,000\***

**24 INFRASTRUCTURE STATES PLUS FUNDS**

**24 Potential Subject Publications**

**2024**

**2023**

**2022**

**2021**

**2020**

**2019**

**2018**

**2017**

**2016**

**2015**

**2014**

**2013**

**2012**

**2011**

**2010**

**2009**

**2008**

**2007**

**2006**

**2005**

**2004**

**2003**

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#### ADVANCING BIM FOR INFRASTRUCTURE NATIONAL STRATEGIC ROADMAP

U.S. Department of Transportation  
Federal Highway Administration

**One of the Keys to Success will be the Collaboration Between the BIM for Bridges and BIM for infrastructure Pooled Funds**

### A Couple of Random Thoughts

- Asset Owner Handover
- Digital Twin
- Model Viewer in Construction
- bsDD-buildingSmart Data Dictionary
- IDM-Information Delivery Manual, defines the global data exchange for an organizations project delivery process.
- IDS-Information Delivery Specification, defines the exchange requirement for model based delivery.
- Use Cases- specific examples of a single aspect of delivery.

