Digital Project Delivery

Jon Starr

Digital Project Delivery Manager

NEBRASKA

Good Life. Great Journey.

DEPARTMENT OF TRANSPORTATION

Presentation Objectives

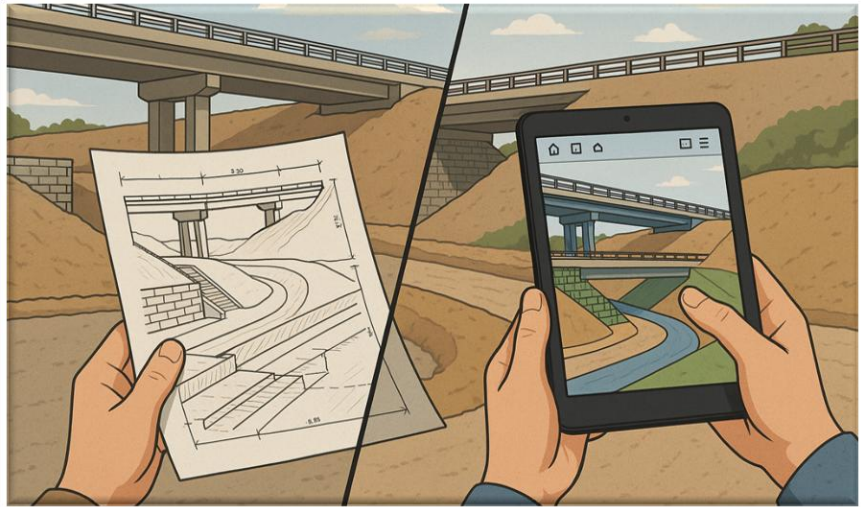
- What is Digital Delivery at NDOT?
- How is Digital Delivery supported and advancing nationally?
- What is NDOT’s Digital Delivery path?
- Overview of NDOT’s first MALD project> Jct 34/US 50 Roundabout (August 2027 Letting).

What is Digital Project Delivery?




NEBRASKA
DOT

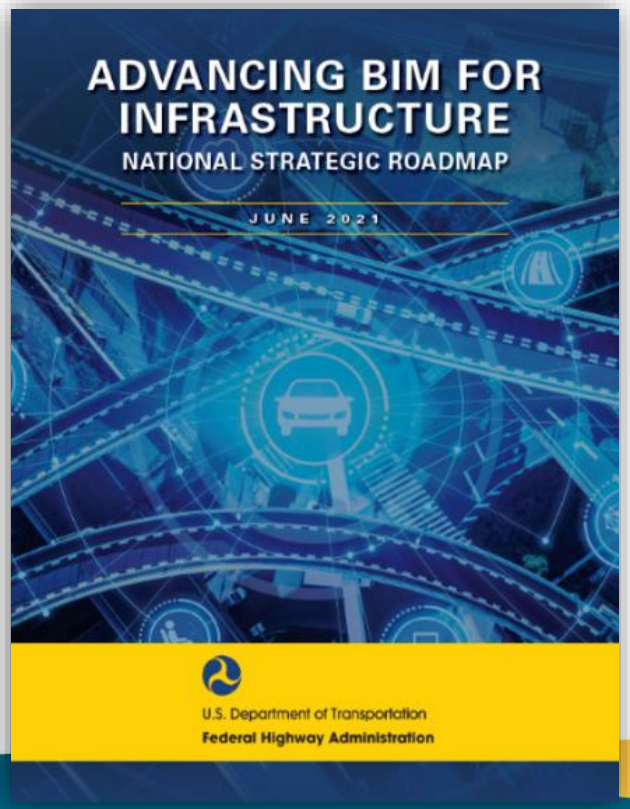


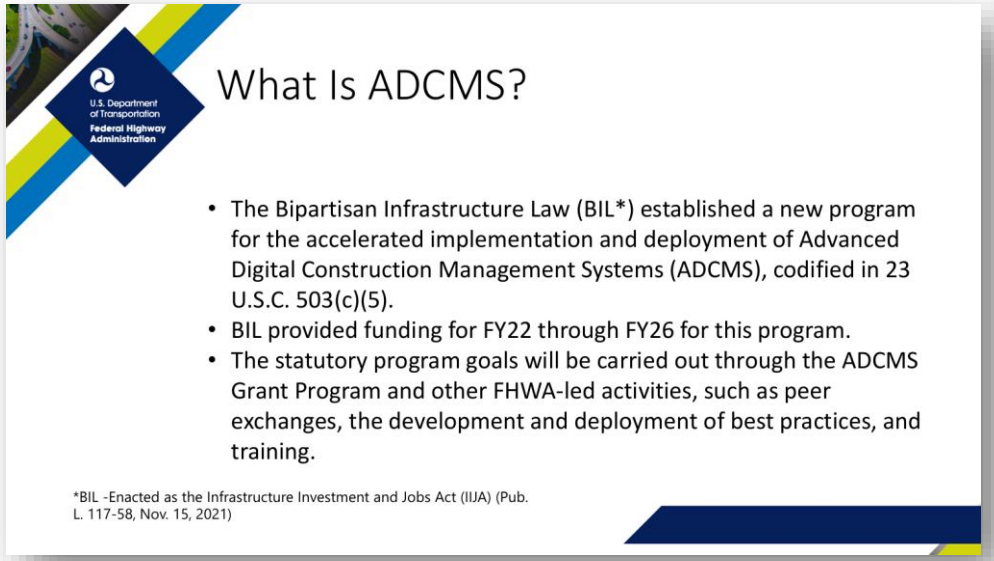


National Initiatives

American Association of State Highway and Transportation Officials

AASHTO







ACEC

American Council of Engineering Companies

Position Paper on Digital Delivery in Engineering
Developed by the ACEC Technology, Transportation, and Risk Management Committees
November 2024

Introduction

The American Council of Engineering Companies (ACEC) recognizes the transformative paradigm shift in the engineering industry from traditional 2D plans to a model-based digital delivery approach. Numerous public agencies have developed and adopted implementation plans and are moving towards digital delivery and Model as the Legal Document (MALD).[1] Effective integration of digital tools and processes in infrastructure project delivery is crucial for improving efficiency, accuracy, collaboration, and sustainability and meeting our clients' needs. This ACEC committee-produced position paper outlines the expected benefits and challenges of digital delivery and provides recommendations for successful adoption and implementation of digital delivery practices in the engineering sector.

Anticipated Benefits of Digital Delivery

1) Enhanced Collaboration and Communication:
   Digital delivery facilitates real-time model/data-based collaboration among stakeholders through cloud-based 3-D/data-centric platforms, reducing misunderstandings and improving project coordination. This efficient communication and collaboration enhance the integration of diverse multi-disciplinary expertise, leading to more innovative and effective engineering solutions. It also helps ensure project staff are using the correct design data and the "single source of truth."

2) Increased Efficiency and Productivity:
   As adoption and proficiency increase, the use of digital workflows can streamline the design and construction process. Automated processes such as clash detection and automated quantity take-offs help reduce manual errors and save time, which may ultimately increase productivity and allow for faster project completion.

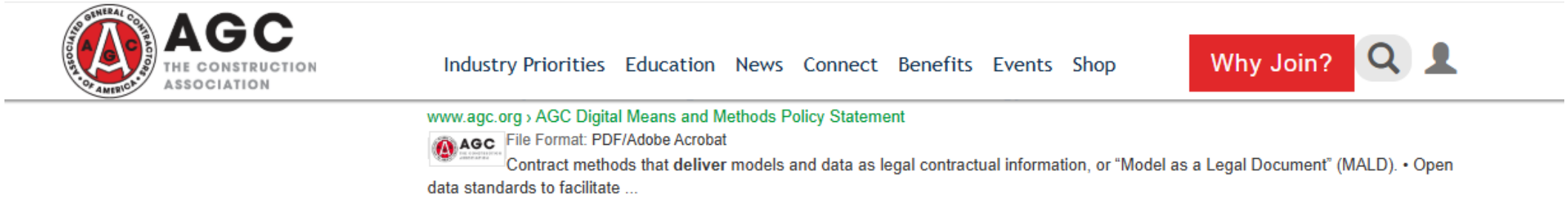
3) Improved Accuracy and Quality:
   Digital delivery provides repeatable digital data exchanges between design and construction, providing enhanced clarity on design intent and streamlined digital workflows. MALD provides reliable and accurate digital data, enabling client agencies and contractors to have a

[1] While varying definitions have been developed by different agencies, ACEC generally understands "digital delivery" to mean an exchange of asset and project information that occurs using digital data as opposed to analog representations comprised of paper or from which the information must be extracted manually, whereby construction projects have the ability to be bid using 3D technology and no longer only be delivered in a traditional construction plan format (see e.g. PennDOT Digital Delivery Glossary of Terms and Utah DOT Glossary of Terms). "Model as the Legal Document" means a form of digital delivery in which a model comprises the primary construction contract document.

Conclusion

The American Council of Engineering Companies is committed to championing the adoption and integration of digital delivery in the engineering industry. By leveraging the benefits of digital tools and addressing the associated challenges, we can pave the way for a more efficient, accurate, and sustainable future. ACEC will continue to advocate for policies and initiatives that support digital delivery while protecting the financial, professional, and ethical interests of engineering companies, ensuring that our members are at the forefront of this digital transformation.

Source: ACEC-Digital-Delivery-Position-Paper-Nov-2024.pdf



Source: https://www.agc.org/sites/default/files/users/user33405/Policy%20Statement/AGC%20Digital%20Means%20and%20Methods%20Policy%20Statement.pdf

AGC THE CONSTRUCTION ASSOCIATION

AGC Policy Statement on Digital Means and Methods

Technology is rapidly changing how construction projects are procured, planned, and executed. Information modeling and digital-based means and methods afford contractors new opportunities to construct America's future. AGC members already utilize technology to digitize tickets, automate communication, survey, estimate quantities, guide heavy equipment, develop work plans, schedule, visualize projects, and more. Studies demonstrate the value of integrating these technologies, and contractors cannot advance adoption at scale without joint effort and support from industry partners.[1] AGC fully supports initiatives that standardize how digital information is created, transmitted, and permitted for use, including:

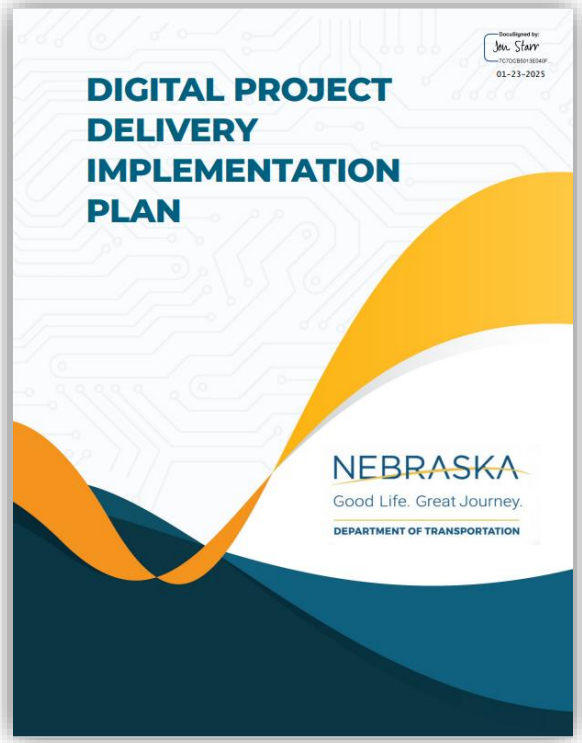
- Contract methods that deliver models and data as legal contractual information, or "Model as a Legal Document" (MALD).
- Open data standards to facilitate downstream consumption of data, regardless of software or proprietary file types.

Additionally, AGC acknowledges and supports the integration of digital construction technologies to provide mechanisms and processes that will decrease and more properly allocate project risk, reduce schedule uncertainty, increase productivity, and efficiency while lowering cost and delivering safer, higher quality, and environmentally sustainable infrastructure projects.

industry partners.[1] AGC fully supports initiatives that standardize how digital information is created, transmitted, and permitted for use, including:

- Contract methods that deliver models and data as legal contractual information, or "Model as a Legal Document" (MALD).
- Open data standards to facilitate downstream consumption of data, regardless of software or proprietary file types.

Progression to Digital Delivery at NDOT



- 2014> NDOT Model in 3D (Roadway Design)
  - Established model guidelines for grading over 5000 CY Earthwork
  - Deliver model files at contractor request
- January 2025> Release Implementation plan and mass communications
- April 2025> Standup NDOT/AGC DPD Workgroup
  - Jan 2025-Current> Presentations at AGC, ACEC, Industry Events multiple times a year
- September 2025> Digital Centerline SOP's and Memorandum
- October 2025> Release For Information Only digital files on all projects
- November 2025> Stakeholder engagement for digital projects (Crosswalk)
- August 2026> First MALD project scheduled to let

NDOT/AGC DIGITAL DELIVERY WORKGROUP



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AGC NEBRASKA
THE CONSTRUCTION ASSOCIATION

Objectives

- Liaison between industry/standing committees
- Comms/collaboration with stakeholders
- Issue resolution for DPD
- Engage Subject Matter Experts as needed
- Identify cost/quality improvements

Sponsor:
Jon Starr - Digital Delivery Manager
Team Leaders:
Drew Wilson - District 7 DCE
Team Members:
Lorraine Legg - Assistant Construction Engineer
Toby Fierstein - Roadway Design Unit Head
Kyle Zillig - Assistant Bridge Engineer
Todd Hill - Assistant Design Engineer
Jason Sindelar - District 1 DCE

Sponsor:
Katie Wilson – AGC Nebraska Chapter
Team Leaders:
Sean Vontz- Vontz Paving
Team Members:
Jordan Spaulding/Josh Anderson- Adams Construction
Jared Michl- Constructors
Alan Hayes- Hawkins Construction

NDOT/ACEC Digital Delivery Workgroup

Objectives

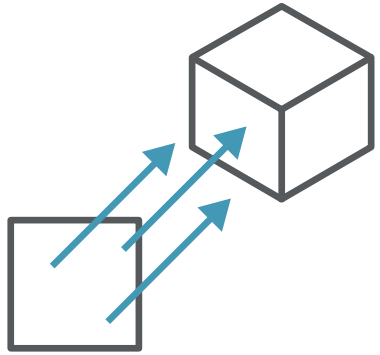
- Liaison between industry/standing committees
- Comms/collaboration with stakeholders
- Issue resolution for DPD
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Sponsor:
Jon Starr - Digital Delivery Manager
Team Leaders:
Austin White- Digital Delivery SH
Team Members:
Barbara Gerbino-Bevins (Construction)
Open- Roadway Design
Craig Branch- Survey
Kyle Zillig- Bridge

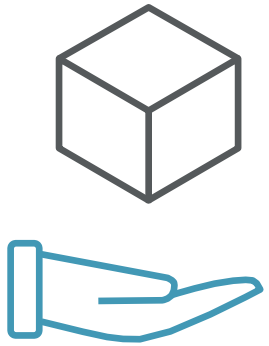
Sponsor:
Matt Bryant- Wilson & Company
Team Leaders:
Josh Kleitsch- Olsson
Team Members:
Shawn Muhle- HGM (Construction)
Mark Templeman- JEO (Design)
Andrew Pokorny- RW Engineering (survey)
Aaron Buettner- Benesch (Bridge)

US State DOT Efforts: The Shift to Digital Delivery



LEVEL 1

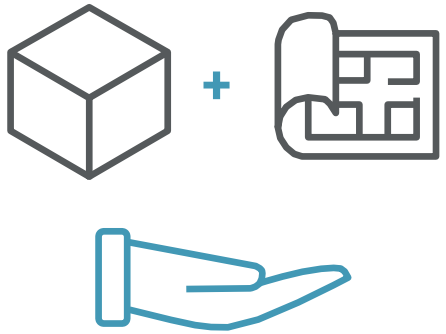
Transition from 2D to 3D for plan production



For Information Only

LEVEL 2

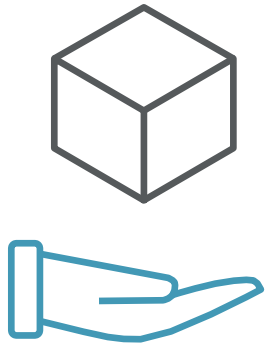
Deliver 3D model for information only



MALD

LEVEL 3

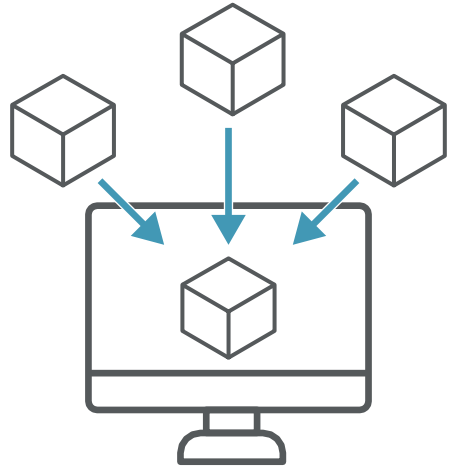
Deliver 3D model contractually with conventional plans



MALD

LEVEL 4

Deliver 3D model contractually without plans

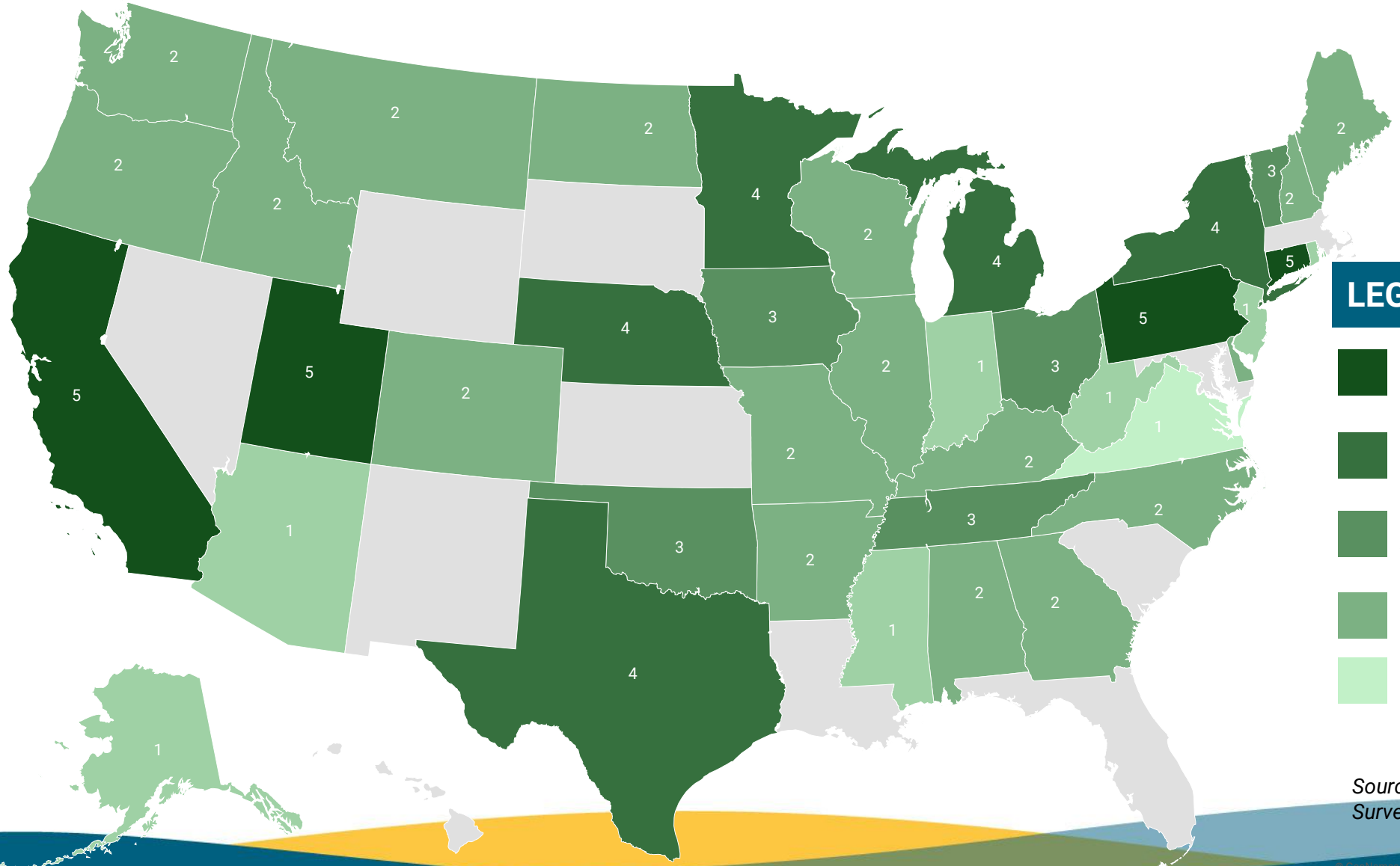


As-Built

LEVEL 5

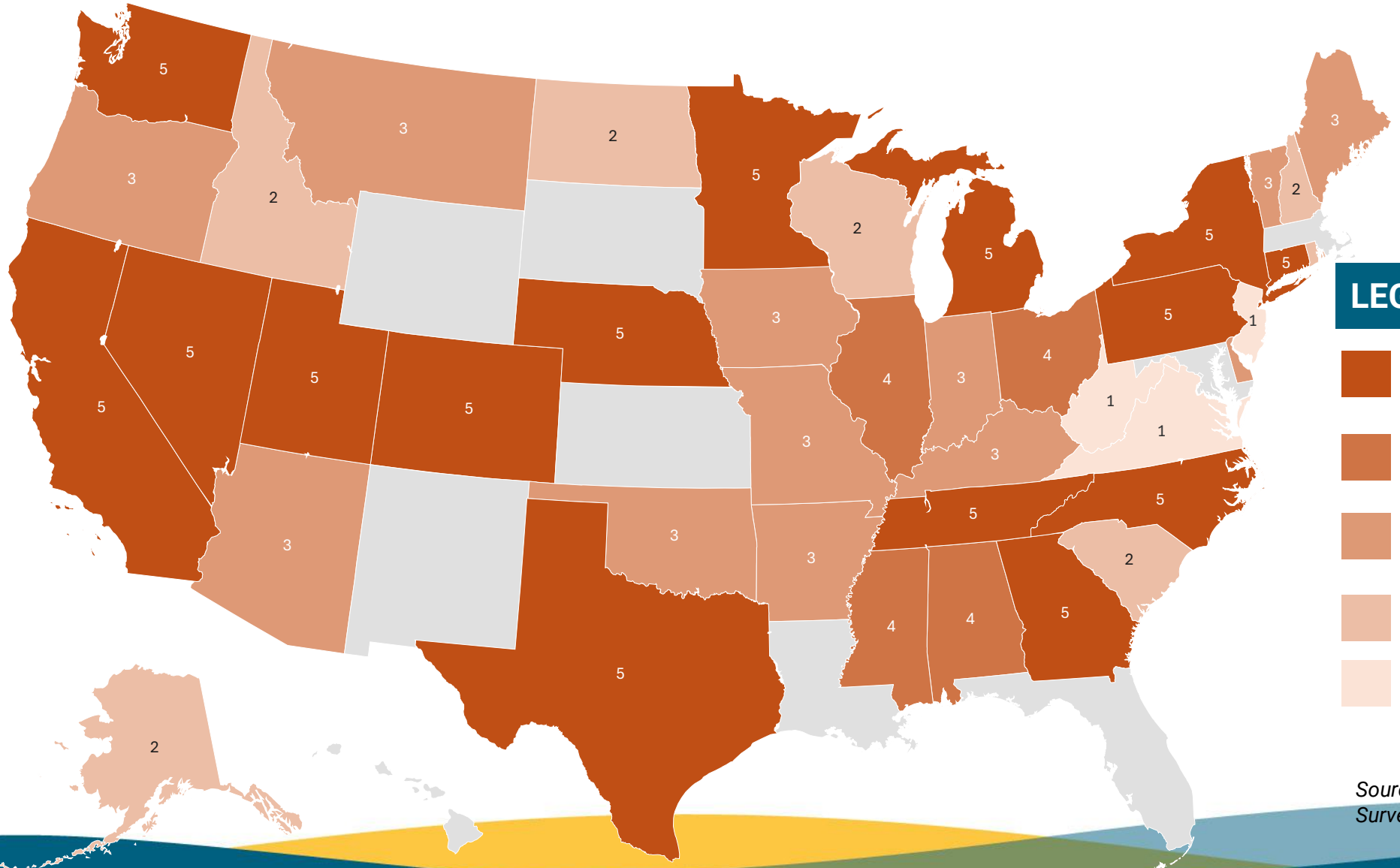
Collect digital as-builts

US State DOT Digital Delivery Efforts: Maturity Today



Source: AASHTO JTCEES – August 2026 Survey – Draft Results

US State DOT Digital Delivery Efforts: Maturity in 1-2 Years



LEGEND

- Level 5 – Contractual Model Deliverables (MALD) Pilots and Collect Digital As-Builts
- Level 4 – Planless Contractual Model (MALD) Pilots
- Level 3 – Contractual Models (MALD) with Plans Pilots
- Level 2 – Models Provided for information only (FIO)
- Level 1 – Transition from 2D to 3D for plan production

Source: AASHTO JTCEES – August 2026 Survey – Draft Results

NDOT'S FIRST MALD PROJECT JCT US34/N50

NDOT DPD Construction Phase

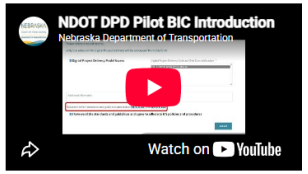
How plan information is found in the Model Viewer

The following document was developed using a similar set of plans to CN13515, with the intent of showing how information found on traditional plan sets is now found on CN13515 through the model viewer. This document complements the video library, one showing where plan data is now found in the model viewer, and the videos providing training on how to navigate around the viewer and the information contained within it.

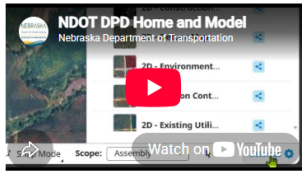
13515 Crosswalk - Plans to Digital

Model Viewer Training Videos

NDOT DPD Pilot BIC Introduction



DPD Home and Model



Requesting Model Viewer Access

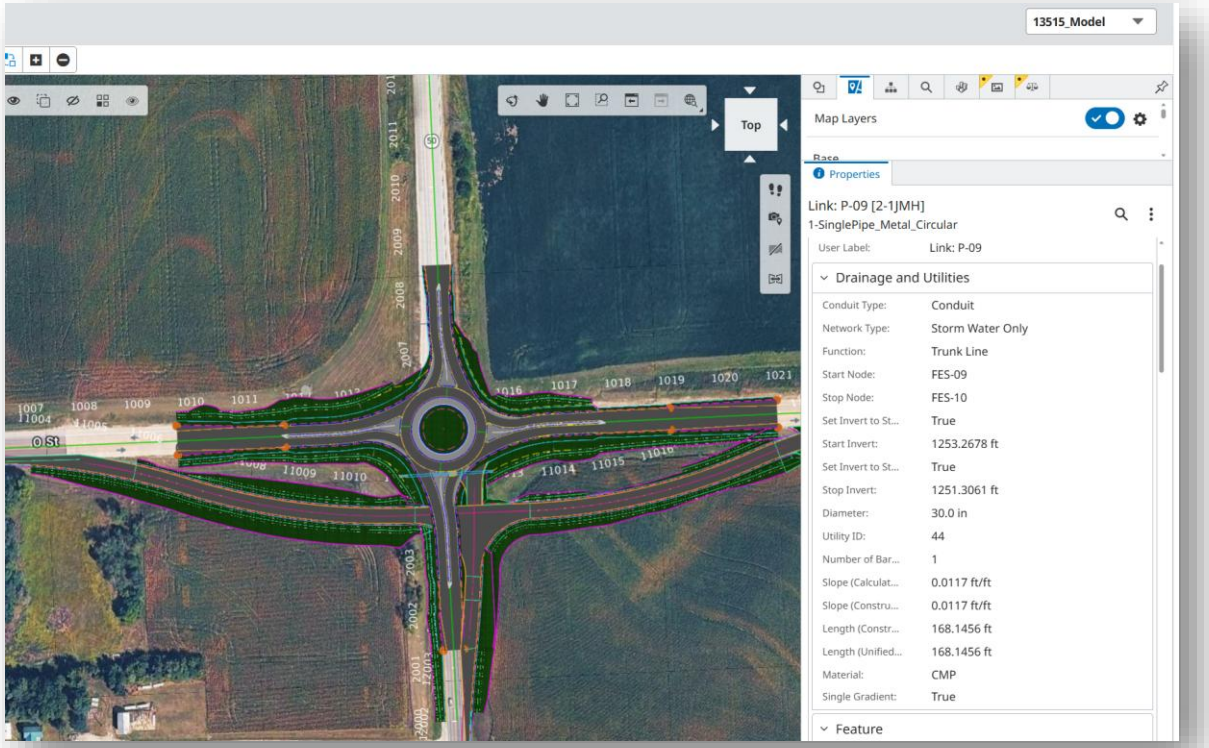
NDOT is providing access to a model viewer on Project CN13515. This viewer runs in an internet browser and provides access to the content contained in the contractual digital deliverables for viewing purposes. This tool essentially replaces what plan sheets would have delivered on a traditional plans based deliverable project.

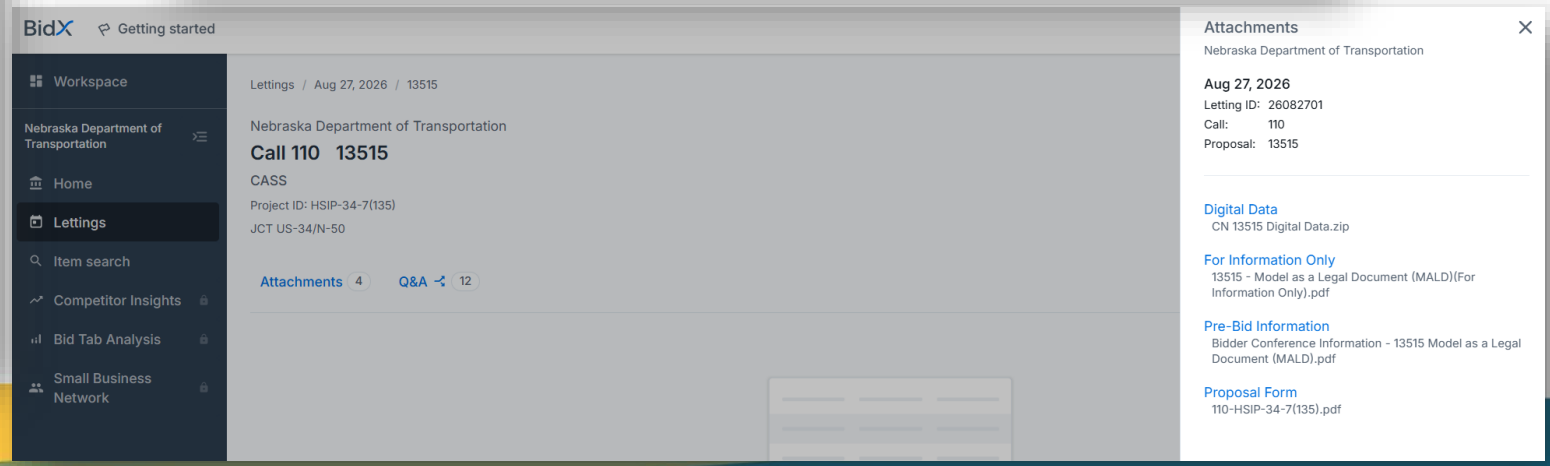
How to Obtain Access:

NDOT DPD BIC Account Request

NDOT DPD BIC Project Invitation

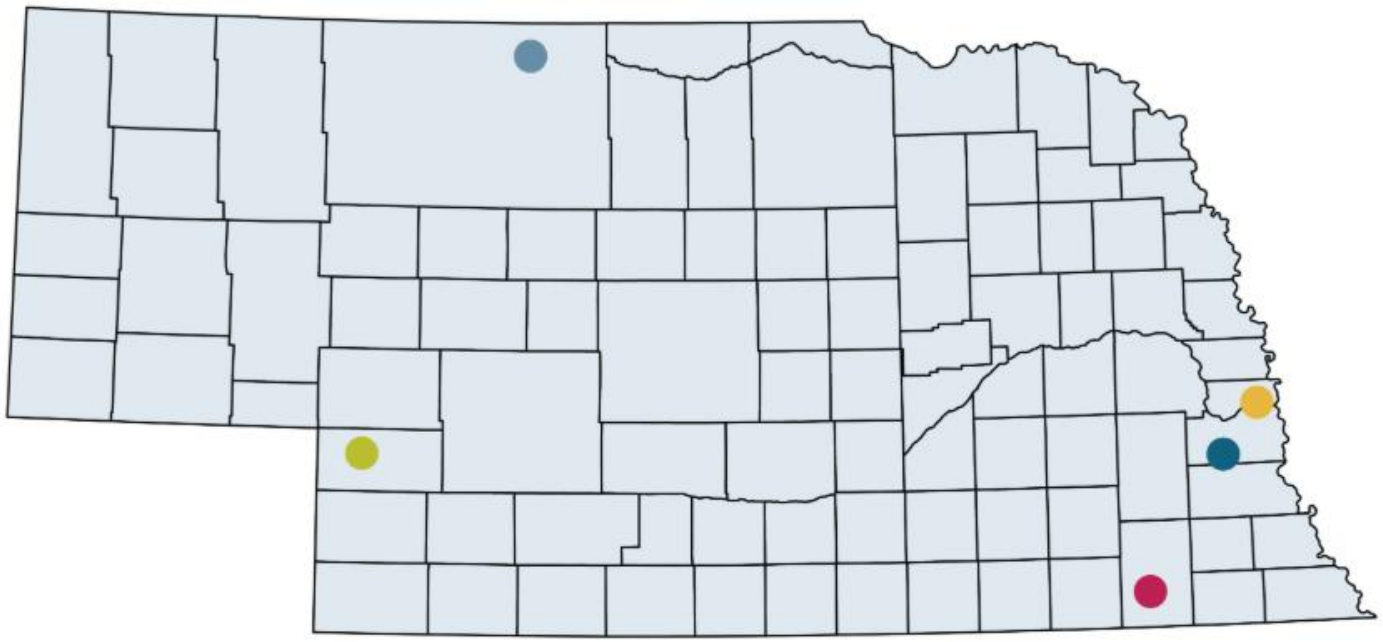
NDOT DPD Creating New Bentley Account





NDOT'S CURRENT DIGITAL DELIVERY PROJECTS

Pilot Project Map



CN	Project Name	Highway No.	Letting
13515	Jct US-34/N-50	US-34	Aug 2026
22883	US-75 Fairview & Capehart On-Ramps	US-75	Aug 2027
71214	E Jct N-61 - Madrid	N-23	Aug 2027
81138	Hackberry Lake Spur North & South	US-83	Aug 2027
13504	Cub Creek Bridge	N-4	Aug 2028

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https://ndot.info/dpd