CONFERENCE PROGRAM

IHEEP 2021

GET CONNECTED

HARTFORD, CONNECTICUT

November 30 – December 2, 2021

HIGHWAY ENGINEERING EXCHANGE PROGRAM

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TABLE OF CONTENTS

IHEEP 2021 GET CONNECTED

WELCOME TO CONNECTICUT

62nd Annual International Highway Engineering Exchange Program

November 30 – December 2, 2021
Hartford, Connecticut

The Highway Engineering Exchange Program (HEEP) is an international organization that promotes advances in transportation engineering through the exchange of knowledge and information technology.

PRESIDENT

Elaine Richard
Connecticut DOT

VICE PRESIDENT

Vern Danforth, P.E.
Florida DOT

SECRETARY

George Lukes
Utah DOT

PRESIDENT'S WELCOME

IHEEP 2021 Attendee,
It is my pleasure to welcome you to Hartford, Connecticut for the 62nd Annual International Highway Engineering Exchange Program (IHEEP) Conference. Hartford is Connecticut's capital and one of New England's oldest cities, home to the nation's oldest public art museum, the Wadsworth Athenaeum, and the oldest public park, Bushnell Park. Make sure to take some time to explore the city, enjoy dining at the many local restaurants or catch a Hockey game at the XL Center, both the Hartford Wolf Pack and the UCONN Huskies will be playing during our conference. A visit to Hartford would not be complete without a tour of the Mark Twain House. "Of all the beautiful towns it has been my fortune to see, this is the chief. You do not know what beauty is if you have not been here" -Mark Twain.

My first IHEEP conference was in 2015, held just a short distance away in Pittsburgh, PA hosted by PennDOT. It is here that I met the team of dedicated individuals that keep the HEEP vision alive year after year. One conversation that stands out was with Mike Dyrdahl (2016 HEEP President), I asked "How do I become a HEEP member?" he replied, "You already are, you are here." I left the conference with many fresh ideas and was excited to bring them back to share with my agency. The HEEP Family truly goes out of their way to welcome new members and stay engaged with all members. This is true with both in-person IHEEP Conferences as well as our webinars held throughout the year.

The theme for this year's conference is "Implementing Change and Growing Technology". The IHEEP Conference is a unique opportunity that brings together people who influence change and innovation in our field. Our planning team has strived to provide a conference with quality content and plenty of opportunities for all to share their expertise and advancements in highway engineering technology. This conference will include people who are implementing innovations at all levels of government, as well as private engineering consulting firms and our technology partners.

I would like to especially thank the vendors and sponsors. Without their strong commitment to HEEP, the transportation community and agencies they support, IHEEP 2021 could not be as informative, diverse, and robust. Please take advantage of the many opportunities to visit the vendors and sponsors that have so generously supported IHEEP this year.

I would also like to extend a huge "Thank You" to all past and present IHEEP Conference Planning Committee members for contributing their talents and many hours in hosting this event. This past year has given all of us a unique set of challenges. The impact of COVID-19 cannot be understated, and our thoughts are with those who have fallen ill and lost family or friends. Please be sure to thank the CTDOT volunteer staff as planning for this year's conference was challenging navigating through the pandemic. We are looking forward to hosting this collaborative conference after having to cancel the 2020 conference in Florida. We are fortunate that Florida DOT will be able to host IHEEP in 2022.

I thank you in advance for your support to help carry on the HEEP vision to exchange information, ideas, and experiences.

Elaine Richard
2021 HEEP President
Connecticut Department of Transportation

HOURS

Vendor Hall

Tuesday: 7:00 a.m. to 7:00 p.m.

Wednesday: 7:00 a.m. to 5:00 p.m.

Thursday: 7:00 a.m. to 1:00 p.m.

Registration Desk

Monday: 2:00 p.m. to 6:00 p.m.

Tuesday: 7:00 a.m. to 5:00 p.m.

Wednesday: 7:00 a.m. to 5:00 p.m.

Thursday: 7:00 a.m. to 5:00 p.m.

Visualization Station

Wednesday: 12:00 pm. to 5:00 p.m.

Thursday: 8:00 a.m. to 1:00 p.m.

Hospitality Suite (Room 418)

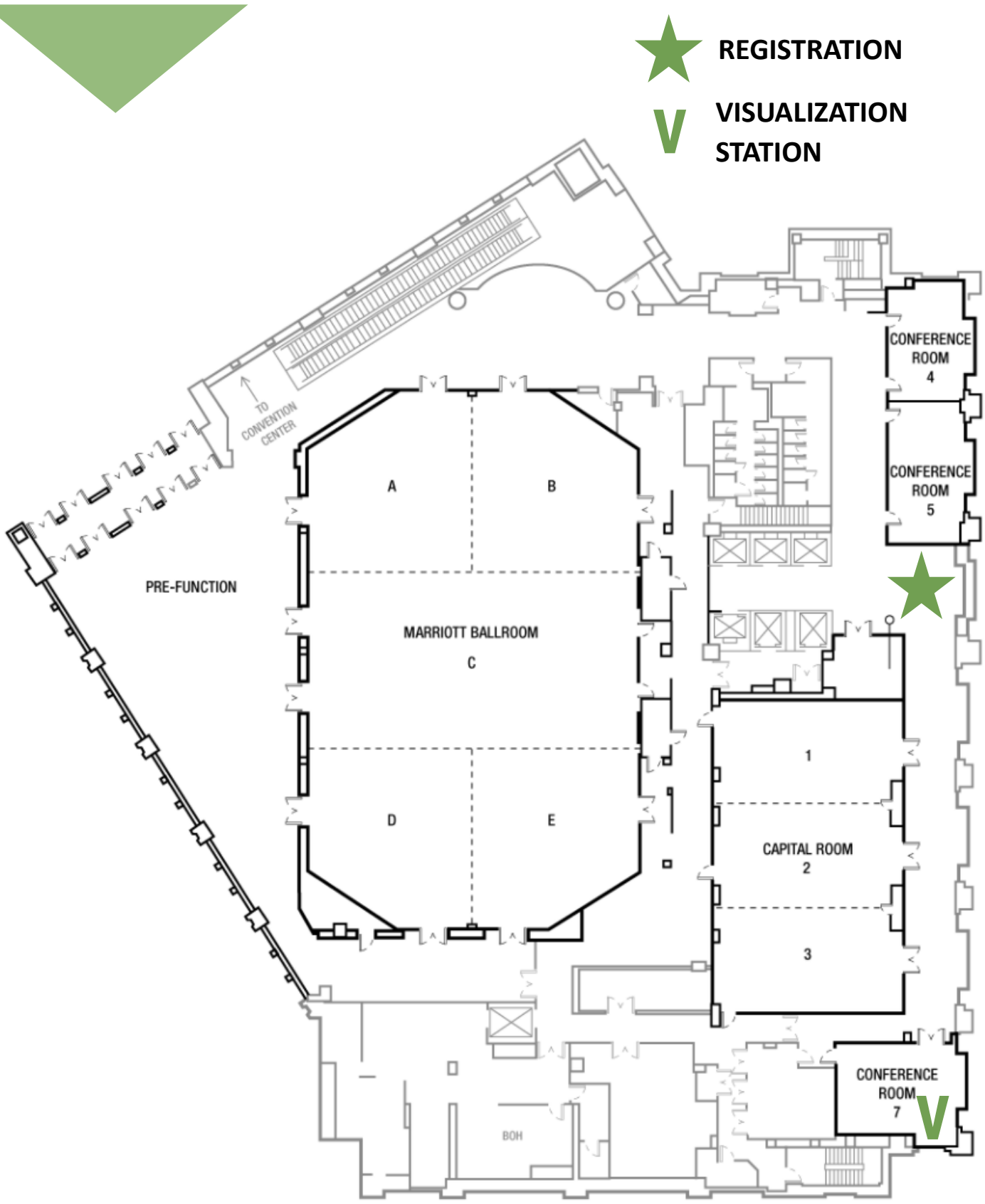
Monday: 9:00 p.m. to Midnight

Tuesday: 9:00 p.m. to Midnight

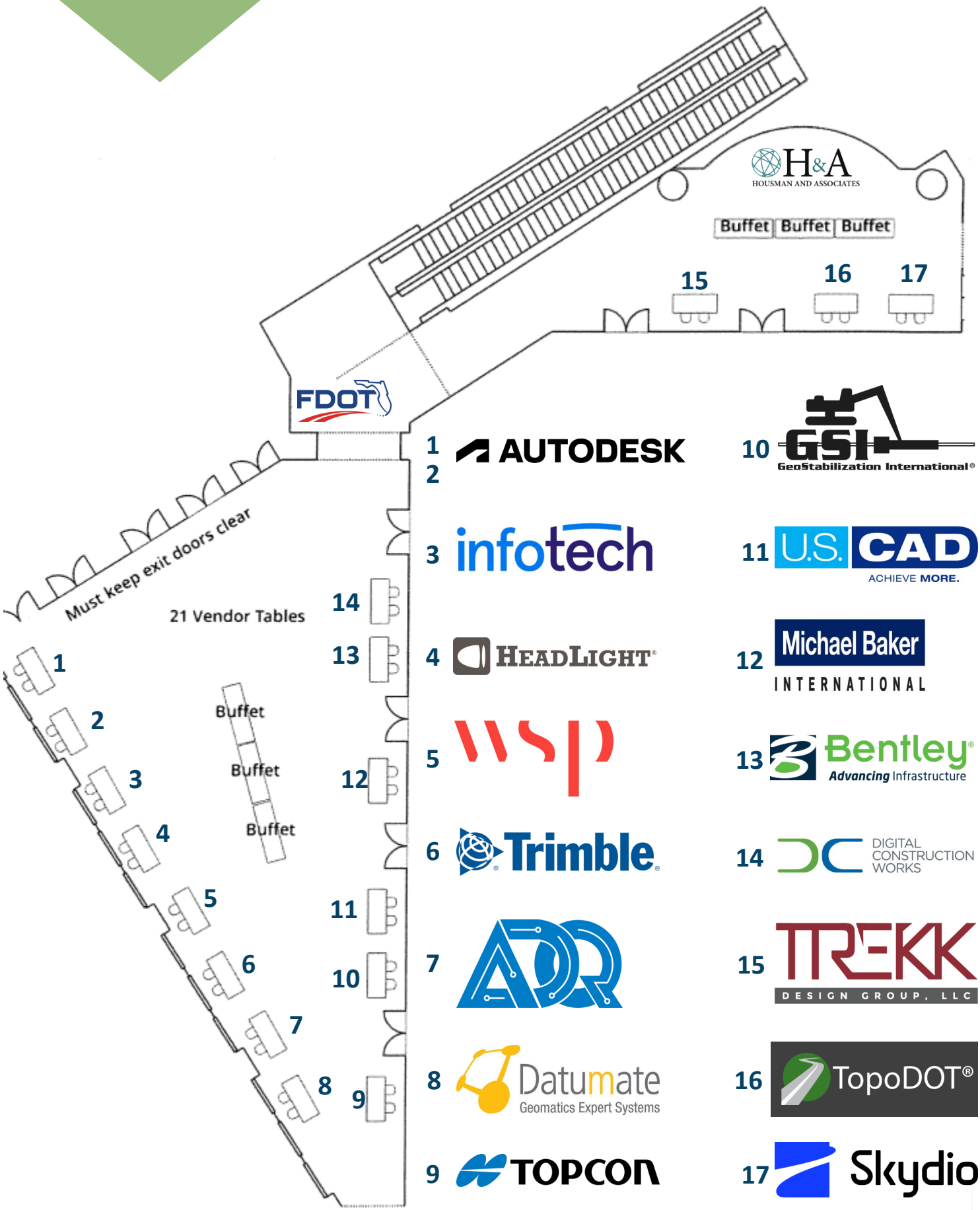
Wednesday: 9:00 p.m. to Midnight

Thursday: 9:00 p.m. to Midnight

CONFERENCE AREA LAYOUT



VENDOR HALL LAYOUT



THANK YOU IHEEP 2021 TEAM

Special thanks goes out to the CTDOT IHEEP Planning Committee, your hard work and dedication is truly appreciated. The following individuals played a key role as part of the planning committee for IHEEP 2021:

Henok Abdissa, Meredith Andrews, Julie Annino, Mathew Calkins, Natasha Fatu, Stephanie Holtman, William Pratt, & Barry Schilling.

Special thanks also to all past presidents and board members for your help and guidance throughout this year!

Technical Sessions & Keynote Speakers	Mathew Calkins	Elaine Richard
	Natasha Fatu	William Pratt
	Julie Annino	
Menu/Hotel	Henok Abdissa	
Tours	Julie Annino	
IT Technical	Stephanie Holtman	Mathew Calkins
Registration Desk	Meredith Andrews	
Signage and Printed Material	Barry Schilling	
Ice Breaker Event	Barry Schilling	
Sponsorship Coordination	Ernie Cochran	

Connecticut History - First in Document Management

The Legend of the Charter Oak

Charter Oak Bridge. Charter Oak State College. Charter Oak Park. Why are so many places and things in Connecticut named "Charter Oak"? The name stems from one of Connecticut's most famous legends.

Its story involves the Connecticut Charter, a document granted to colonists in 1662 that allowed certain rights for elections and local governance which was later revoked in 1686. Connecticut Colony tried to delay the surrender of the charter, resulting in confrontation in Hartford between the English and the Connecticut representatives. According to legend, the charter disappeared suddenly - spirited away and hidden in the crevice of a nearby giant oak tree, forever after known as the Charter Oak.

The Charter Oak tree no longer stands, it fell during a violent storm in 1856. Its memory lives on as a symbol of freedom and perseverance.

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MONDAY — AT A GLANCE

12:30 PM—3:00 PM	**State Capitol and Legislative Office Building Tour** We will meet in the Marriott Lobby at 12:30 and walk to the Legislative Office Building and Capitol (20 min walk). The tour will discuss the history, art, and architecture of the buildings as well as state government. Items viewed on the first floor of the Capitol include statues of State Heroine Prudence Crandall, State Hero Nathan Hale, and the replica of the "Genius of Connecticut" (a statue that once topped the Capitol dome).
2:15 PM—3:30 PM	**Constitution Plaza Tour** Meet in the Marriott Lobby at 2:15 (The Plaza is adjacent to the Marriott) Covering almost four acres of Hartford's eastern downtown area, Constitution Plaza was built as part of the urban renewal initiatives that swept the nation's cities in the 1950s and '60s. Hailed as Hartford's first major redevelopment project, developers essentially razed an entire neighborhood to build the mixed-use complex consisting of office towers, parking garages, a hotel, fountains, and walkways. In its heyday, Constitution Plaza hosted the city's Festival of Lights during the Holidays and the annual food festival, Taste of Hartford, as well as other civic and social events. Today, improvements link the plaza with the city's riverfront, helping further Hartford's ongoing 21st century revitalization efforts.
1:00 PM—5:00 PM	**Vendor Setup**
2:00 PM—6:00 PM	**Registration**
6:30 PM—8:30 PM	**Ice Breaker - Arch Street Tavern** 85 Arch Street Hartford CT

TUESDAY — AT A GLANCE

7 AM - 5 PM REGISTRATION	7 AM - 7 PM VENDOR HALL OPEN	7:00 AM—8:00 AM	**Breakfast** | Marriott Ballroom
		8:00 AM—8:45 AM	**Welcome & Introductions/Recognition | Marriott Ballroom** • Elaine Richard, 2021 HEEP President, Connecticut DOT • Joseph J. Giulietti, Commissioner, Connecticut DOT • Scott A. Hill, P.E., Chief Engineer and Bureau Chief, Bureau of Engineering and Construction, Connecticut DOT
		8:45 AM—9:15 AM	**Keynote: The Organizational Impact of New Technologies on Performance, Policy and Alignment within Transportation Agencies | Marriott Ballroom** Mara Campbell, Jacobs
		9:15 AM—10:00 AM	**What prompted a CTDOT Enterprise GIS infrastructure rebuild and where it is today! | Marriott Ballroom** William S. Pratt, P.E. & Gregory J. Ciparelli, Connecticut DOT
		10:00 AM—10:30 AM	**Networking** | Break
		10:30 AM—12:00 PM	**Building Information Modeling (BIM) for Infrastructure: Panel Discussion – Data Interoperability and Open Standards | Marriott Ballroom** Moderators: Alexa Mitchell, P.E., HDR Engineering, Inc. & George Lukes , Utah DOT Panelist: William S. Pratt, P.E., Connecticut DOT, Becky Hjelm, GISP , Utah DOT, Allen Melley, P.E., PennDOT & Patrick Lane, Montana DOT
		12:00 PM—1:00 PM	**Lunch** | Marriott Ballroom
		1:00 PM—1:30 PM	**FHWA National Update on BIM Efforts| Marriott Ballroom** David Unkefer, P.E., FHWA
		1:30 PM—2:15 PM	**IHEEP Roll Call & Business Meeting Agenda | Marriott Ballroom** Vern Danforth, P.E. - 2021 HEEP Vice President, Florida DOT Area 1 - Bill Harrison, Pennsylvania DOT Area 2 - Ellen Sliger, Florida DOT Area 3 - Daniel J. Belcher, P.E., P.S., Michigan DOT Area 4 - Becky Hjelm, GISP, Utah DOT
		2:15 PM—3:00 PM	**Vendor Recognition | Marriott Ballroom** Randall (Rande) Robinson—HEEP Past President, North Carolina - NCDIT-Trans
		3:00 PM—3:30 PM	**Networking** | Break
		3:30 PM—4:45 PM	**Roundtable Breakouts** **Marriott A,B**: **Data Governance Roundtable** Dan Belcher, P.E., P.S., Michigan DOT **Capital 2 & 3**: **UAS, The Future is Now Roundtable** J.D. D'Arville, Alabama DOT & Jon Starr, Nebraska DOT **Marriott C,D,E**: **Roadway and Bridge Modeling Roundtable** John Wilkerson & Marcia Yockey, P.E., Michigan DOT
		5:00 PM—7:00 PM	**Vendor Reception** | Vendor Hall
		7:00 PM—10:00 PM	**Bentley SIG** —Due to limited space, invite will be required. Please stop by the Bentley Booth for your invite

WEDNESDAY — AT A GLANCE

			Capital 1	Capital 2 & 3
7 AM - 5 PM REGISTRATION	7 AM - 5 PM VENDOR HALL OPEN	7:00 AM—8:00 AM	**Breakfast** | Marriott Ballroom	
		8:00 AM—8:30 AM	**Crossing the Digital Chasm – Highway Project Digital Delivery - Marriott Ballroom** Richard Humphrey, Bentley	
		8:45 AM—9:15 AM	**Drones in Transportation - Updated Industry Regulations to Enhance Project Delivery** Cameron Schaefer & Carlos Femmer, HDR	**3D/4D Modeling for the Walk Bridge Replacement Program in Norwalk, Connecticut** Kevin Gilson & Chris Long, WSP
		9:30 AM—10:00 AM	**Taking off with CTDOT: UAS Applications** Alicia McConnell, Michael Baker & Amy Stula, Connecticut DOT	**FDOT Traffic Design Plan Tools for ORD** Mark Stefanchuk, Phocaz & Vern Danforth, Florida DOT
		10:00 AM—10:30 AM	**Networking** | Break	
		10:30 AM—11:00 AM	**Digital Project Delivery and Digital As-builts: SOLUTIONS FOR THE FUTURE** David Unkefer, FHWA, Morgan Kessler, FHWA & Lance Parve, WSP	**Cross Practice Coordination in a 3D World** Andrew Poszich, RS&H
		11:15 AM—11:45 AM	**Maintaining Alabama's Roads with UAS** Tabitha Foree, DroneDeploy & J.D. D'Arville, Alabama DOT	**Digital Twins for Design Review for CTDOT I-91/I-691/Route 15 Improvement Project** Josh Manns, Parsons, Kevin O'Connor, Parsons & Mathew Calkins, Connecticut DOT
		12:00 PM—1:00 PM	**Lunch** | Marriott Ballroom	
		1:00 PM—1:30 PM	**CTDOT Field Technology** Ronald Tellier & Greg Sardinskas, Connecticut DOT	**FDOT NexGen Plans to support BIM Delivery** Paul Hiers & Mariano Amicarelli, Florida DOT
		1:45 PM—2:15 PM	**Beyond the Hand Lens: UAS Applications for Geohazard Assessment** Roch Player & Lex Ivey, GeoStabilization International	**NexGen Plans Roundtable** Vern Danforth, Paul Hiers & Mariano Amicarelli, Florida DOT
		2:30 PM—3:00 PM	**The Benefits of Unmanned Aerial Systems (UAS) Implementation on Connecticut DOT** Michael Giacco, Robert Baron, Kevin Hussain, AI Engineers	
		3:00 PM—3:30 PM	**Networking** | Break	
		3:30 PM—4:00 PM	**Intelligent Paving featuring 3D Milling that achieves profitable results** Jim Preston & Curtiss Dorr, Topcon	**Successful Use of Reality Models and Digital Twins within Modern Transportation Projects** Mike Barkasi, Bentley & Carlos Femmer, HDR
		4:15 PM—4:45 PM	**Using UAV Imagery, AI, and Visual Observations to Accelerate Bridge Inspections** George White & Steven Velozo, HeadLight	**Preparing for Digital Deliverables with OpenRoads Designer** Jack Riesenberg, Foth Infrastructure and Environment
		6:30 PM—9:00 PM	**Conference Dinner Banquet** | Marriott Ballroom	

Marriott AB	Marriott CDE	Conference Room 7
US National BIM Steering Committee Update Roger Grant, National Institute of Building Sciences & Will Sharp, HDR	**COMPASS - CTDOT's Cloud-based Transportation Project Management Solution** Bruce Bourgoin & John Dudzinski, Connecticut DOT	
Digital Signing and Sealing for Model Based Delivery Terry Walters, Adequate Systems, Matt Zweil, Adequate Systems, George Lukes, Utah DOT & Becky Hjelm, Utah DOT	**Leveraging ArcGIS to visualize, simulate, analyze and improve traffic conditions using InfraWorks** Edmundo Herrera, Autodesk	
BIM for Infrastructure – Michigan DOT's Path to Digital Delivery Cathy Cassar, Michael Baker, Daniel Jensen, Michael Baker & Marcia Yockey, Michigan DOT	**Sign Asset Life Cycle Management Utilizing GIS in Design and Construction** Barry Schilling & Adam Kassirer, Connecticut DOT	
PennDOT Digital Delivery Directive 2025 Strategic Plan Alexa Mitchell, HDR & Allen Melley, PennDOT	**National JTCEES/ACEC Collaboration on LOD Framework** Will Sharp, HDR & John Wilkerson, Michigan DOT	
		Visualization Station - Walk Bridge Replacement Program in Norwalk, Connecticut Kevin Gilson, WSP Chris Long, WSP Eric Feldblum, Connecticut DOT
Benefits of using Digital Project Delivery on the first paperless plan for MnDOT Peter Muehlbach, WSB & Greg Hruby, Minnesota DOT	**AASHTO Innovation Initiative (All) Utilities, GIS and Advanced Survey** Amarjeet Benipal, Caltrans, John Wilkerson, Michigan DOT & Lance Parve, WSP	
BIM Implementation by the Illinois Tollway Nicholas Laga, WSP, Laura Thompson, Illinois Tollway, & Amer Sassila, HOH	**Leveraging Improvements from Implementation of Transportation Asset Management in Connecticut** Karen Riemer, Connecticut DOT	
TPF-5(372) BIM for Bridges and Structures Information Delivery Manual Julie Rivera & Alexa Mitchell, HDR	**Moving Beyond e-Ticketing Pilots** Tom Atkinson, Infotech, Chad Schafer, Infotech, Suzie Holycross, Command Alkon & Cedric Wilkinson, Iowa DOT	
Just How Far Does BIM Reach? Ron Gant, Infotech	**Integrating Effective Transportation Performance, Risk, and Asset Management Practices** Marcus Ashdown, Jacobs	
BIM Data Governance, BIM ROI and National BIM Standards Abhishek Bhargava, WSP, Lance Parve, WSP, Morgan Kessler, FHWA, & Alexa Mitchell, HDR	**CTDOT Railroad At-Grade Crossing Inventory and Condition Rating System Mobile GIS Application** Grant Ervin, Michael Baker & Beau Bradley, Michael Baker, & Eric Bergeron, Connecticut DOT	

THURSDAY — AT A GLANCE

			Capital 1	Capital 2 & 3
7 AM - 5 PM REGISTRATION	7 AM - 1 PM VENDOR HALL OPEN	7:00 AM—8:00 AM	**Breakfast** | Marriott Ballroom	
		8:00 AM—8:30 AM	**Managing the transition from paper to digital delivery** Thomas Hamski, Iowa DOT, & Corey Johnson, Bentley	**Customization for Bridge Digital Project Delivery** Joe Brenner, Michael Baker
		8:45 AM—9:15 AM	**FHWA EDC-6 e-Ticketing and EDC-3/4 e-Construction** Kathryn Weisner, FHWA	**PennDOT Digital Delivery Directive 2025 Workspace Development Lessons Learned** Scott McMasters, PennDOT & John Reese, HDR
		9:30 AM—10:00 AM	**eTicketing: The Digital Road Ahead** Matthew Valle, HaulHub Technologies	**FDOT - Itwin Design Review Pilot Project** Vern Danforth, Florida DOT
		10:00 AM—10:30 AM	**Networking** | Break	
		10:30 AM—11:00 AM	**Alabama DOT UAS Section's cloud based document routing, notification & long term storage technology** J.D. D'Arville, Alabama DOT & Terry Cline, Infotech	**Design Software Configuration and Development Roadmap** Bob Mecham, EnvisionCAD & David W Baker, Arkansas DOT
		11:15 AM—11:45AM	**ADA Compliance - KYTC's Innovative Approach to Identifying Pedestrian Barriers** Jeff Tornatore, Michael Baker	**ORD Drainage and Utilities: Lessons Learned in Implementation** Steven Litzau, EnvisionCAD
		12:00 PM—1:00 PM	**Lunch** | Marriott Ballroom	
		1:00 PM—1:30 PM	**Data management technologies aiding implementation of 3D Models in Construction** Adrien Patane', Trimble	**Embracing the Change – HDR's Transition to ORD in Ohio** Michael Lorenz, HDR Engineering
		1:45 PM—2:15 PM	**Notable Uses of Digital Delivery** Daniel Prokop, Michael Lorenz, & Jeremy Colip, HDR	**Survey, COGO & Data Collection Roundtable** Rande Robinson, North Carolina - NCDIT-Trans & Vern Danforth, Florida DOT
		2:30 PM—3:00 PM	**Improving Project Development through Reality Modeling and Drones** Dan Reinke, Gannett Fleming	
		3:00 PM—3:30 PM	**Networking** | Break	
		3:30 PM—4:00 PM	**UAV Acquisition of BUCK O'NEIL BRIDGE** Michael Frecks, TREKK Design Group & Steve Zeets, Whirrx	**CAD and IT Tech Roundtable** Rande Robinson, North Carolina - NCDIT-Trans & Vern Danforth, Florida DOT
		4:15 PM—4:45 PM	**Digital As-Builts & Construction Data Analytics for Project Management at DOTs** Trent Hogan, Datumate	
		6:30PM—8:30 PM	**Board of Directors Dinner**—invite only	

	Marriott AB	Marriott CDE	Conference Room 7
	Enhancing Digital Delivery through Computational Design Anand Stephen, Gannett Fleming	**Digital Twin Beginnings Integrating Design Models, GIS & Reality Capture Data on New Ontario Subway** Cameron Schaefer & Jamie Stevens, HDR	**Visualization Station - Walk Bridge Replacement Program in Norwalk, Connecticut** Kevin Gilson, WSP Chris Long, WSP Jeffrey Portal, Connecticut DOT
	UDOT's Digital Twin Strategic Plan Nicole Williams, Kimley-Horn & Becky Hjelm, Utah DOT	**Civil 3D and BIM 360** Russ Nicloy, MACER Technologies	
	Baby Steps to Digital Delivery Nicole Williams, Kimley-Horn, George Lukes, Utah DOT & Becky Hjelm, Utah DOT	**Civil 3D and InfraWorks Connection to ESRI ArcGIS Data** Russ Nicloy, MACER Technologies	
	Applying BIM/Digital Twin practices on a Heavy Civil/Transportation Project, an Owner's Perspective Charles Hixon, Digital Construction Works & Phil Bell, Progression Dynamics	**FDOT Transition from CADD to BIM** Vern Danforth & Jared Casseaux, Florida DOT	
	Digital Twin, Open Standards, and Digital Delivery, Oh My! Alan Esguerra, Bentley & Jennifer Steen, HDR	**Information Technology for Transportation Agencies** Marty Provost, Infotech	
	3D Models as Legal Documents and Open Data Standards: Paving the Way Forward to Digital Delivery Will Sharp, HDR & George Lukes, Utah DOT	**Intro to IFC** Connor Christian, Procore & Alexa Mitchell, HDR	
	Replacement of Abingdon Road Bridge over I-95 using a BIM Methodology Michael Alestra, Pennoni & Alexander Mabrich, Bentley	**CTDOT CAD to GIS for the Traffic Signals Asset** Henok Abdissa & Mathew Calkins, Connecticut DOT	
	Structures Digital Delivery, Path to a successful project Daniel Jensen, Michael Baker	**The Value of openBIM and Open Data Standards** Will Sharp, HDR & Ian Howell, buildingSMART International	
	Document Management Roundtable Dan Belcher, Michigan DOT	**Mapping the Digital Twin** Jonathan Miranda & Ben Sullivan, Foth Infrastructure & Environment	
		Back to The Future - Advances in BIM Daniel Pfeifer & Lee Busenbark, HDR	

TUESDAY AGENDA | *NOVEMBER 30, 2021*

8:00 a.m. - 8:45 a.m.

Welcome & Introductions/Recognition

Marriott Ballroom

- *Elaine Richard - Senior Civil Applications & CAD Coordinator & 2021 HEEP President | Connecticut DOT*
- *Joseph J. Giulietti - Commissioner | Connecticut DOT*
- *Scott Hill, P.E. - Chief Engineer and Bureau Chief, Bureau of Engineering and Construction | Connecticut DOT*

8:45 a.m. - 9:15 a.m.

Keynote: The Organizational Impact of New Technologies on Performance, Policy and Alignment within Transportation Agencies

Marriott Ballroom

Mara Campbell - Global Technology Leader Transportation Performance Management and Policy | Jacobs Engineering Group

The transportation of people and goods is one of the most important components of our everyday lives. The arrival of the 4th Industrial Revolution and the rapid development and fusion of multiple disruptive and innovative technologies, such as artificial intelligence, big data and digitization, Internet of Things, 5G and 6G wireless technologies, connected and autonomous vehicle technologies, on-demand ride sharing services, Mobility as a Service/Mobility on Demand, 3D printing and others are changing not only the behavior but also the expectations of the transportation customers, partners, and stakeholders. Are transportation agencies prepared for the use and adoption of these disruptive technologies within their systems? This session will highlight the significant change management approach needed to take place within transportation agencies, and the continuous hindsight, insight and foresight practices that can be integrated into agency culture to mitigate risks and capture opportunities afforded by technological advancements in mobility.

9:15 a.m. - 10:00 a.m.

What prompted a CTDOT Enterprise GIS infrastructure rebuild and where it is today!

Marriott Ballroom

William S. Pratt, P.E. - Principal Engineer, AEC Applications, Bureau of Engineering and Construction | Connecticut DOT
Gregory J. Ciparelli - Transportation Supervising Planner, Enterprise GIS, Bureau of Policy & Planning | Connecticut DOT

How a 2010 executive team request for project mapping and information lead to CTDOT's TED (Transportation Enterprise Data) development effort. The underlying geospatial LRS (Bentley's AWLRS) is the backbone of CTDOT's base map and harbors all authoritative road network attribute and characteristic information. This development was the genesis of today's CTDOT TED initiative.

The first part of this presentation will highlight CTDOT's appetite for authoritative data used for enhancing Capital Project delivery and Asset Management.

The second part will focus on CTDOT's recent significant strategic investment in building out an Enterprise GIS Architecture. This effort included significant investments in technology infrastructure, software licensing, and human capital; as well as rethinking and redesigning long established processes and procedures. This presentation will touch on technical details of how the overall implementation occurred. Topics will include Enterprise GIS Management, Data Governance, Asset Management, Safety Analysis, Project Prioritization, Data Quality Assessment & Control, among others.

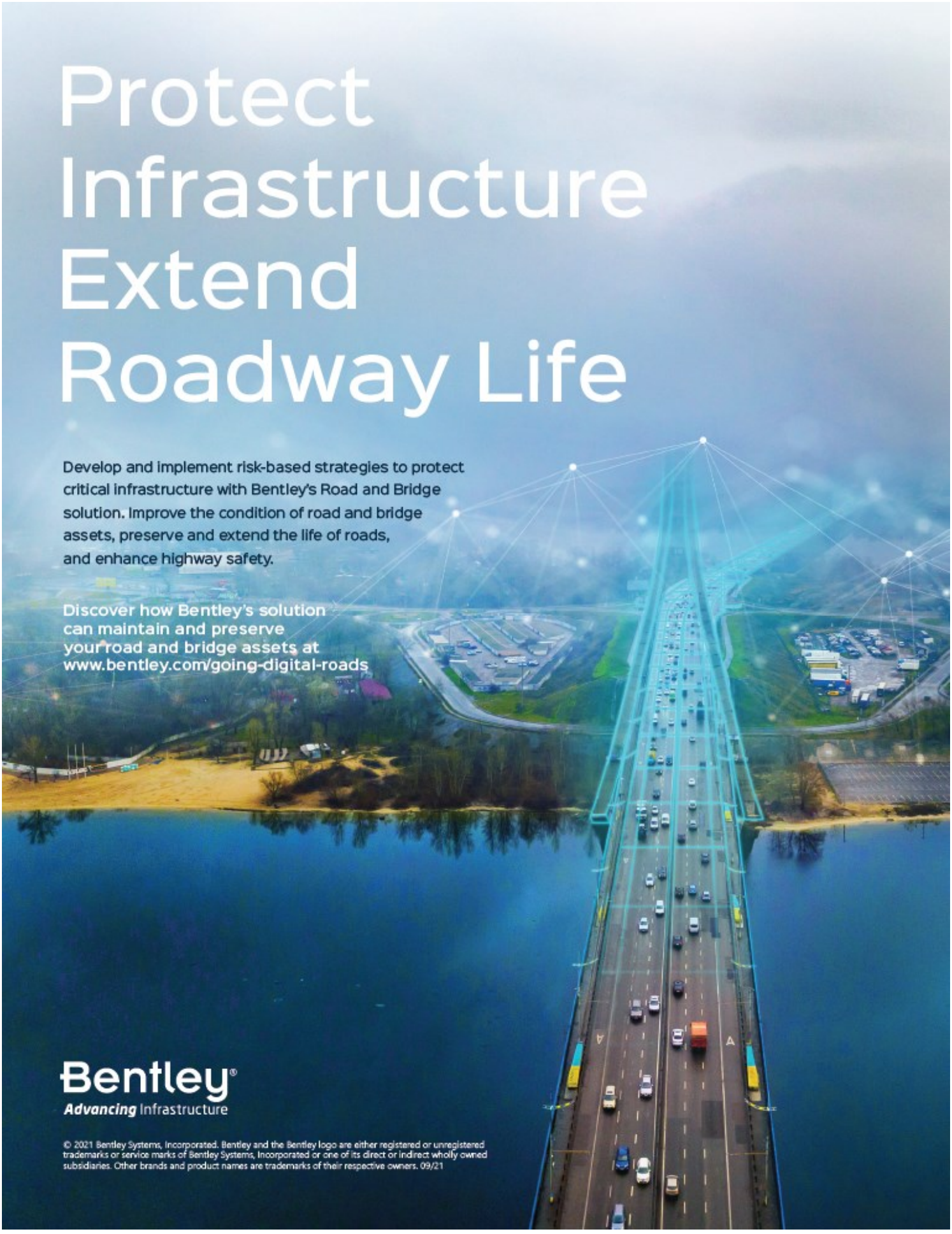
10:30 a.m. - 12:00 p.m.

Building Information Modeling (BIM) for Infrastructure: Panel Discussion – Data Interoperability and Open Standards

Marriott Ballroom

Moderators: Alexa Mitchell, P.E. - Transportation BIM Program Manager | HDR Engineering, Inc.
George Lukes - UDOT Project Development, State Design and Standards Engineer & 2021 HEEP Secretary | Utah DOT
Panelist: William S. Pratt, P.E. - Principal Engineer, AEC Applications, Bureau of Engineering and Construction | Connecticut DOT
Becky Hjelm, GISP - Digital Delivery Project Manager & HEEP Area 4 Director | Utah DOT
Allen Melley, P.E. - Project Development Engineer - Digital Delivery Lead | PennDOT
Patrick Lane - Engineering Operations Project Manager | Montana DOT

Subject Matter Experts share their experiences with adopting requirements for BIM for Infrastructure deliverables. Topics will include Open Standards, Model as the Legal Document (MALD), Model Development Standards and advancements with data integration. Discover how these processes are critical to fully moving to digital delivery thru design, construction, and into asset management.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TUESDAY AGENDA | *NOVEMBER 30, 2021*

1:00 p.m. - 1:30 p.m.

FHWA National Update on BIM Efforts

Marriott Ballroom

David Unkefer, P.E. - Senior Construction and Project Management Engineer | FHWA Resource Center

The FHWA has been working with partners like HEEP for some time to advance the digital project delivery and BIM practices within the highway community. We are investing significantly with funding and staff resources in a number of important strategic and tactical areas to close gaps and accelerate BIM implementation. This opening presentation will share the various areas FHWA is working, and where we could use help from the HEEP community, to take BIM to the next level in the U.S.

1:30 p.m. - 2:15 p.m.

HEEP Roll Call & Business Meeting Agenda

Marriott Ballroom

Vern Danforth, P.E. - State CADD Engineer, Production Support Office & 2021 HEEP Vice President | Florida DOT

- *Area 1 - Bill Harrison | Pennsylvania DOT*
- *Area 2 - Ellen Sliger | Florida DOT*
- *Area 3 - Daniel J. Belcher, P.E., P.S. | Michigan DOT*
- *Area 4 - Becky Hjelm, GISP | Utah DOT*

2:15 p.m. - 3:00 p.m.

Vendor Recognition

Marriott Ballroom

Randall (Rande) Robinson - Technology Support Specialist Advanced, HEEP Past President | North Carolina - NCDIT-Trans

Roundtable Breakout Sessions

3:30 p.m. - 4:45 p.m.

Data Governance Roundtable

Marriott A,B

Moderator:

Daniel J. Belcher, P.E., P.S. - Design Services Manager & HEEP Area 3 Director | Michigan DOT

Join a facilitated roundtable discussion centered on Data Governance efforts at DOTs. Each state in attendance will be able to discuss their efforts, provide lessons learned and seek feedback from peers.

Topics may include:

- Importance of Data Governance
- Gaining Executive Support
- Low hanging fruit for early benefits
- Data Sharing Agreements
- Business Glossaries
- Data Analytics
- Impact Analysis
- Data Warehousing, Lakes, Swamps

UAS, The Future is Now Roundtable

Capital 2 & 3

Moderators:

J.D. D'Arville - UAS Program Administrator | Alabama DOT

Jon Starr - Engineering Technology and UAS Program leader | Nebraska DOT

The UAS roundtable session is a unique opportunity for peers within the UAS industry to network in an informal environment. Participants are invited to address challenges in the use of UAS, share experiences and exchange views on various subjects such as, SOP's, regulations, future technologies, and best practices.

Roadway and Bridge Modeling Roundtable

Marriott C,D,E

Moderators:

John Wilkerson - Engineering Support Manager | Michigan DOT

Marcia Yockey, P.E. - Bridge Support Engineer | Michigan DOT

Join a facilitated roundtable discussion centered around Roadway and Bridge Modeling (LOD, Data Smart Graphics and CAD Standards).

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TRU-46/82 Diverging Diamond Interchange
Ohio Department of Transportation

8:00 a.m.—8:30 a.m.

Crossing the Digital Chasm – Highway Project Digital Delivery

Marriott Ballroom

Richard Humphrey, Vice President Product Management – Construction | Bentley Systems, Inc.

Delivering highway projects is hard in terms of complexity (increased sustainability, transparency, and safety requirements), resource scarcity and data transparency. To meet these challenges and deliver the demand for transportation infrastructure the industry will need to continue to harness new technologies to evolve project delivery processes to drive greater efficiencies and ensure better project outcomes. In this presentation we will look at the application of technologies to improve the flow of data from design through construction. We will address the specific needs of highway projects, opportunities to digitize workflows, and ultimately cross the digital chasm to digital twins and 4D digital insights.

8:45 a.m. - 9:15 a.m.

Drones in Transportation - Updated Industry Regulations to Enhance Project Delivery

Capital 1

Cameron Schaefer, P.E. - Transportation Data Acquisition and Reality Mesh Director | HDR Engineering, Inc.

Carlos Femmer - Director – Data Acquisition | HDR Engineering, Inc.

Use Cases for drones in transportation reduce the cost of survey deliverables, improve safety for staff/clients, enhance accuracy and level of detailed delivered, and ultimately reduce risk for needed reality capture on our projects. With updated industry regulations released April 21st, 2021 allowing FAA Part 107 certified pilots to fly at night, over people and moving vehicles without waivers, the applications for drones to shape how we continue to capture the built world continue to grow exponentially. This presentation will feature use cases of drones in transportation from collecting centimeter survey-grade accurate reality mesh files, extracting topographic information, use cases for inspection and anomaly inspection, and provide discussions on where the industry is headed and how autonomous drone flights have the potential to disrupt this exciting industry.

3D/4D Modeling for the Walk Bridge Replacement Program in Norwalk, Connecticut

Capital 2 & 3

Kevin Gilson - Director, Design Visualization | WSP

Christopher Long, P.E. - Sr. Structural Engineer | WSP

The Walk Bridge is a four-track railroad bridge that crosses the Norwalk River in the historic town of Norwalk, CT. The bridge is a critical link in the busiest rail corridor in the nation, the Northeast Corridor. The Connecticut DOT (CTDOT) is implementing the Walk Bridge Replacement Program in cooperation with the FTA and Metro-North Railroad. To support design and construction planning for the Program, CTDOT has established a 3D/4D BIM process including detailed 3D models for existing structures and context, temporary works during construction, and 3D models for proposed structures developed by the design team. To help validate the construction schedule and visualize complex construction staging activities, a 4D model was developed linking the contractor's schedule to the 3D design models. The 3D/4D model is being used to identify potential conflicts in construction activities as well as interferences within the 3D design models for different disciplines.

US National BIM Steering Committee Update

Marriott A,B

Will Sharp, P.E., PTOE - Director of Highways | HDR Engineering, Inc.

Roger Grant - Executive Director Building Information Management | National Institute of Building Sciences (NIBS)

In April 2021, the National Institute of Building Sciences (NIBS) announced the formation of the National BIM Program Steering Committee. The committee is chaired by Salla Eckhardt, Director of Transformation Services with Microsoft, and includes 13 diverse BIM subject matter experts in horizontal and vertical infrastructure from federal and state agencies and consultants.

The overarching goal of the U.S National BIM Program is to enable digital processes that will streamline industry practices and procedures on a national scale, the Steering Committee that is guiding the effort is working in collaboration with representatives of UK's Centre for Digital Built Britain (CDBB). The presentation will include an overview of the goals of the steering committee, efforts completed to date, and an overview of planned strategic efforts for the next several years including project delivery, owner adoption, and open data standards.

COMPASS - CTDOT's Cloud-based Project Management Solution

Marriott C,D,E

Bruce Bourgoin, P.E. - Transportation Supervising Engineer, Office of Engineering, AEC Applications | Connecticut DOT
John Dudzinski - Transportation Engineer 3, Office of Engineering, AEC Applications | Connecticut DOT

COMPASS is a complete and scalable customized cloud-based Transportation Project Management Solution that is continuously evolving to effectively, and more efficiently, aid project managers in the delivery of the Connecticut Department of Transportation's (Department) Capital Projects. COMPASS is built on Microsoft's Office 365 government platform to ensure sustainability and easy access for the Department's external stakeholders.

COMPASS currently provides a single location for consumable project specific information, such as; project staff and contact information, permit application and approval status, tracking of property maps and property acquisitions, and project financial information. COMPASS's integration with Microsoft Project provides easy management of project schedules.
Finally, COMPASS includes a custom document control application we call, "Submittal and Transmittal" or "S&T for short. This application efficiently processes documents by using Ball-In-Court functionality, innovative transparency and tracking tools, automated storage and document versions, integration with Bluebeam and works on all project types and sizes

9:30 a.m. - 10:00 a.m.

Taking off with Connecticut DOT: UAS Applications

Capital 1

Alicia McConnell, FAA Part 107 - UAS Program Leader | Michael Baker International, Inc
Amy Stula - Senior Project Engineer | Connecticut DOT

This presentation will cover Connecticut DOT's innovative use of UAS for their high mast light inspections as well as for construction inspection. Relevant UAS use cases will also be highlighted from Connecticut DOT and Michael Baker as this exciting technology continues to provide valuable data to engineers, inspectors, and planners across the nation.

FDOT Traffic Design Plan Tools for ORD

Capital 2 & 3

Vern Danforth, P.E. - State CADD Engineer, Production Support Office & HEEP Vice President | Florida DOT
Mark Stefanchuk - Vice President Software Engineering | Phocaz, Inc

We will present custom Traffic Plans Tools developed for both Civil3D and OpenRoads Designer. Several new tools to automate plans, quantities and Asset Management will be demonstrated for: Signs, Pavement Markings, Signalization, ITS and Lighting.

Digital Signing and Sealing for Model Based Delivery

Marriott A,B

George Lukes - UDOT Project Development, State Design and Standards Engineer & HEEP Secretary | Utah DOT
Becky Hjelm, GISP - Digital Delivery Project Manager & HEEP Area 4 Director | Utah DOT
Terry Walters - Senior Transportation Professional and Co-founder | Adequate Systems
Matt Zweil - CEO | Adequate Systems

Model-based project delivery (i.e., BIM) and Models As the Legal Document (MALD) projects, have proven to be better by nearly every metric. These projects offer better designs, tighter bids, fewer conflicts, fewer change orders, and reduced project risk. That said, the "elephant in the room" for some time has been around how best to handle data provenance and how to actually sign and seal 3D models and other project data.

In this presentation George Lukes and Becky Hjelm (UDOT), and Terry Walters and Matt Zweil (Adequate Systems) will clearly explain these challenges. They will cover new workflows and discuss emerging tools that leverage blockchain and other technologies to offer bespoke solutions to our industry's greatest data provenance challenges. This presentation will cover information of critical importance to any professional, agency, or firm that is delivering model-based projects now or in the future.

Leveraging ArcGIS Online peak-hour vehicle congestion and accident data to visualize, simulate, analyze and improve traffic conditions on urban & rural road networks using Autodesk InfraWorks

Marriott C,D,E

Edmundo Herrera, M.S., P.E. - Senior technical specialist | Autodesk, Inc.

This presentation will cover in detail a complete innovative workflow where true GIS vehicle congestion and accident data residing on public/private portals is read to simulate, analyze and visually understand traffic congestion and safety on roads generated by multiple factors including economic expansion, increased urbanization, under investment in infrastructure, inadequate traffic signal offsets, excessive lane closure extents during resurfacing/repair operations, etc.

Autodesk InfraWorks will then be used to replicate existing conditions and generate a series of cost/benefit proposals using microsimulation tools helping city-traffic engineers and planners compute maximum vehicle queue lengths and delays at peak hours to significantly improve traffic conditions by providing the best possible Level of Service during operations minimizing impact and costs on traffic networks using current/projected vehicle-pedestrian demands.

10:30 a.m. - 11:00 a.m.

Digital Project Delivery and Digital As-builts: SOLUTIONS FOR THE FUTURE

Capital 1

Lance Parve, BIM Services Director - Advisory Services, WSP

Morgan Kessler, Research Civil Engineer, FHWA Research Office

David Unkefer, P.E., Senior Construction and Project Management Engineer, FHWA Resource Center

FHWA and our partners have selected Digital As-builts as an Every Day Counts 6 initiative because this is a critical time for the highway community to take more concerted action towards implementing digital project delivery practices and leveraging the data produced. Digital practices utilizing 3D models, eConstruction/eTicketing, materials data management systems and UAS/advanced survey, provide opportunities for profound improvements in how we deliver projects. They also generate data valuable for lifecycle asset management and other agency-wide business needs from project delivery to operations to maintenance. We expect well managed data will be accessible for future decisions, automation and benefits yet to be discovered. This session will share national state of practice information FHWA has gathered towards helping us all learn and advance together during this EDC-6 initiative.

Cross Practice Coordination in a 3D World

Capital 2 & 3

Andrew Poszich, P.E. - Transportation Engineer | RS&H

With 3D modeling taking center stage in workflows of the future, learn how others in industry are taking steps to ensure information is communicated in the most efficient manner possible. We will discuss tactics used for 3D coordination between roadway, drainage, structures, utilities, ITS, and even signals and lighting. This presentation will touch on topics such as leveraging the model for design, information extracting, passive review, formal quality control processes, and visualization. We will also discuss how these same methodologies can be leveraged through the construction lifestyle of the project.

BIM for Infrastructure – Michigan DOT's Path to Digital Delivery

Marriott A,B

Cathy Cassar P.E. - Technical Consultant | Michael Baker International, Inc.

Daniel Jensen, P.E. - Civil Engineer, Structures | Michael Baker International, Inc.

Marcia Yockey, P.E. - Bridge Support Engineer | Michigan DOT

Michigan DOT (MDOT) is piloting the use of model delivery as the contract document for the reconstruction of twin bridges, I-696 EB and WB over the Rouge River, in Southfield, Michigan. All project information will be accessed through the delivered model, which includes a mix of 3D and 2D information, links to standards and specifications, model attribution and saved views of model cuts of traditional plan and cross section data. This presentation will cover the vision, challenges, process, and outcomes of this industry leading pilot as well as ongoing stakeholder engagement initiatives, coordination with permitting and local agencies and the design, inspection and contracting communities.

Sign Asset Life Cycle Management Utilizing GIS in Design and Construction

Marriott C,D,E

Barry Schilling, P.E. - Transportation Supervising Engineer | Connecticut DOT

Adam Kassirer - Transportation Planner | Connecticut DOT

The CTDOT Transportation Asset Management Plan (TAMP) includes Signs as a Department asset. The Sign asset consists of approximately 250,000 signs on state owned and maintained roadways. Although Signs aren't considered a major asset, the quantity of signs that are required to be replaced annually to maintain a State of Good Repair can make managing the asset extremely difficult. Sign replacement in capital projects range from as few as 1 or 2 signs in a bridge replacement project to as much as 6,500 signs in sign replacement projects. The question becomes, how do you capture and manage sign replacement data in your authoritative inventory effectively when you're replacing large quantities of your asset every year? In 2019, CTDOT began a pilot utilizing GIS through design and construction of a sign replacement project to capture inventory data earlier and more consistently through the asset life cycle. This presentation will provide details on the pilot project including how GIS was used during design, how GIS is being used and accepted during construction, and how this process has helped to manage the overall asset inventory.

11:15 a.m. - 11:45 a.m.

Maintaining Alabama's Roads with UAS

Capital 1

Tabitha Foree - Customer Success Manager | DroneDeploy

J.D. D'Arville - UAS Program Administrator | Alabama DOT

Alabama's critical infrastructure stays in top shape with the help of drones. In a joint presentation by DroneDeploy's VP of Product James Pipe and the Alabama Department of Transportation's UAS Program Administrator J.D. D'Arville, the two will discuss how drone usage has made construction, inspection, and upkeep of the ALDOT's existing infrastructure and new projects much safer and more efficient.

The ALDOT's UAS Program is responsible for statewide transportation projects that keep the state moving. With the help of drone mapping software such as DroneDeploy, the program can easily track and measure progress on sites and generate orthomosaic maps and stockpile measurements in a fraction of the time compared to manual inspections. Drone usage has also made it easier to collaborate remotely and across various departments within the organization – DroneDeploy's shareability and annotation capabilities keep all stakeholders up-to-date and make it easier to spot issues before they become expensive problems.

Digital Twins for Design Review for CTDOT I-91/I-691/Route 15 Improvement Project

Capital 2 & 3

Josh Manns, P.E. - xD Automated Design Senior Civil Engineer | Parsons

Kevin O'Connor, P.E. - xD Automated Design Practice Lead | Parsons

Mathew Calkins, P.E. - CAD and GIS Administrator for the Bureau of Engineering and Construction | Connecticut DOT

iTwin Design Review is an exciting new tool that allows designers, reviewers and stakeholders to collaborate directly from their design models. CTDOT and Parsons/Bentley have teamed up to facilitate iTwins on the CTDOT I-91/I-691/Route 15 Improvement Project. The effort consists of 3D modeling, training CTDOT staff, design review and item types. Come hear our lessons learned that can help you save time when your organization is ready to implement.

PennDOT Digital Delivery Directive 2025 Strategic Plan

Marriott A,B

Alexa Mitchell, P.E. - Transportation BIM Program Manager | HDR Engineering, Inc.

Allen Melley, P.E. - Project Development Engineer - Digital Delivery Lead | PennDOT

PennDOT Digital Delivery Directive 2025 is redefining how highway and bridge projects are delivered in the Commonwealth. Through this 5-year initiative, PennDOT's objective is to transform the agency from a traditional 2D plan-centric to a full digital project delivery environment, in which the model is the single source of truth. Presenters will provide an overview of the strategic plan and the specific implementation plan activities to achieve the desired outcome. Also, presenters will provide a progress on current activities.

National JTCEES/ACEC Collaboration on LOD Framework

Marriott C,D,E

Will Sharp, P.E., PTOE - Director of Highways | HDR Engineering, Inc.

John Wilkerson - Engineering Support Manager | Michigan DOT

As more State DOTs move towards delivery of Models as Legal Documents (MALD), agencies, designers, and contractors need a solid set of guidelines regarding consistency of model development requirements, including specifications for level of development (LOD), authorized uses and limitations. However, those standards do not yet exist. The AASHTO Joint Technical Committee on Electronic Engineering Standards (JTCEES) in working in close collaboration with representatives of ACEC on setting up a framework for LOD and model development standards to support MALD. Presenters will provide an overview of the effort, and share the current framework being proposed.

12:00 p.m. - 5:00 pm.

Visualization Station - Walk Bridge Replacement Program in Norwalk, Connecticut

Conference Room 7

Kevin Gilson - Director, Design Visualization | WSP

Christopher Long, P.E. - Sr. Structural Engineer | WSP

Eric Feldblum, Project Engineer | Connecticut DOT

1:00 p.m. - 1:30 p.m.

CTDOT Field Technology

Capital 1

Ronald Tellier P.E. - Office of Administration/Policy/Estimating Lead | Connecticut DOT

Gregory A. Sardinskas - Mobile Inspection Coordinator, AEC Applications | Connecticut DOT

The State of CT has been using Global Positioning Systems and Robotic Total Station technology in combination with Electronic Engineering Data (EED) on construction projects for inspection and layout purposes for over 12 years. The presentation will focus on our GPS Network spanning the state (ACORN) and will discuss capabilities and lessons learned. Included in the seminar will be discussions about necessary equipment, project selection, site conditions, project setup and files (EED) required to be successful. The department is providing informational videos aka work flows in the form of an E-Book to cater to all learning styles in effort to provide the best training and support. Lastly we will discuss our custom reporting and data archiving post project.

FDOT NexGen Plans to support BIM Delivery

Capital 2 & 3

Paul Hiers, P.E. - Manager Production Support Office | Florida DOT

Mariano Amicarelli, P.E. - Project Management Resources Engineer, Production Support Office | Florida DOT

How to re-invent your legacy plans production process while still in production. Not so fast! We will describe our transition form traditional plans to Next Generation (NexGen) plans that support Digital Delivery or BIM files as the contract document.

Benefits of using Digital Project Delivery on the first paperless plan for MnDOT

Marriott A,B

Peter Muehlbach - Senior Director of Transportation and Construction | WSB

Greg Hruby - CADD Systems Supervisor | Minnesota DOT

Utilizing BIM technology and the power of the CMGC delivery method have provided the State incredible flexibility on designs. Learn about how the agencies, WSB, and Ames Construction used the technology to see significant cost savings and to construct a more efficient project. This presentation will focus on the return of investment on using technology and how it has enabled MnDOT to be better positioned for the future.

AASHTO Innovation Initiative (All) Utilities, GIS and Advanced Survey

Marriott C,D,E

Amarjeet S. Benipal - District 3 Director | Caltrans

John Wilkerson - Engineering Support Manager | Michigan DOT

Lance Parve - BIM Services Director - Advisory Services | WSP

This interactive breakout session looks at improving project delivery processes involving utilities. Utility conflicts are common for transportation infrastructure projects. Every year transportation agencies spend millions of dollars on problems that arise due to incomplete utility information, utility conflicts and expending time/resources involving potholing and experiencing field construction issues during project delivery. The improved project delivery processes from lead state DOTs being advanced include: early identification of utilities, advanced utility investigation/location technologies, utilities modeling/clash detection, GIS and advanced survey technologies to reduce costs, improve quality, enhance safety, lower risks and minimize project delays.

1:45 PM—2:15 PM

Beyond the Hand Lens: UAS Applications for Geohazard Assessment

Capital 1

Roch Player, P.E., D.GE, PMP - Chief Engineer | GeoStabilization International*

Lex Ivey- Director of Data Science & Analytics | GeoStabilization International

Unmanned Aerial Systems (UAS) and their many components have rapidly progressed to the point of being a reliable and necessary tool for the modern geoprofessionals. Utilizing a range of payloads and sensors, UAS derived deliverables provide geologists and geotechnical engineers the ability to gather data and extract useful information to solve complex geohazard mitigation problems. As a result, UAS should be a standard tool in modern geoprofessionals' toolkit.

This presentation will focus on practical applications of UAS technology in the geotechnical field, including:

- Modeling large rock outcrops and extracting structural information to be used in a rockfall hazard analysis
- Creating current, detailed aerial maps using mm-resolution ortho-imagery and cm level accuracy topographic data for use in analysis, modeling, figures, and plans
- Performing reconnaissance of geohazards without putting themselves in harm's way

We'll present case histories and discuss the benefits and pitfalls of UAS derived datasets while providing insight into the skills and resources necessary to assess geohazards using today's technology effectively.

BIM Implementation by the Illinois Tollway

Marriott A,B

Nicholas Laga, P.E. - Design Manager | WSP, Illinois Tollway GEC

Laura Thompson, P.E. - Senior Project Engineer | Illinois Tollway

Amer Sassila, R.A., LEED AP BD+C BIM - Project Lead | The HOH Group, Inc., Illinois Tollway GEC

The Illinois Tollway launched a Building Information Modeling Program to use 3D modeling as a data-centric approach to increase efficiencies, reduce costs and improve accuracy throughout the lifecycle of projects, from design to construction, as well as ongoing asset management. The BIM Program has enabled the Tollway to develop scalable Level of Development requirements with highly detailed Model Detail Display tables for each designed element. This addresses the need for a more accurate scope and scale of what should be delivered in a data-centric model that can be shared at every phase of the projects.

The Tollway also has leveraged its BIM Program as a digital solution to set a new standard for locating, documenting and reducing impacts to utilities by creating digital as-built of utilities in its construction requirements.

The Illinois Tollway will detail how it is advancing the use of these digital tools in the transportation industry through the implementation of its BIM Program.

Leveraging Improvements from Implementation of Transportation Asset Management in Connecticut

Marriott C,D,E

Karen Riemer, P.E. - Transportation Principal Engineer | Connecticut DOT

This presentation provides an overview of Connecticut's Transportation Asset Management Program including key objectives and the framework designed to advance data management, leverage technology and track process improvements for efficient management of key infrastructure throughout their lifecycles. The practical aspects of addressing federal requirements and state needs will be discussed. A lookback on the lessons learned from development of the first federally required TAMP in 2018 to the next Federally required TAMP under development for 2022 will be shared, including management of risks to state of good repair. Focus will be on key considerations, methods and resources towards modernization for implementation of transportation asset management.

1:45 PM—3:00 PM

NexGen Plans Roundtable

Capital 2 & 3

Paul Hiers, P.E. - Manager Production Support Office | Florida DOT
Mariano Amicarelli, P.E. - Project Management Resources Engineer, Production Support Office | Florida DOT
Vern Danforth, P.E. - State CADD Engineer, Production Support Office & HEEP Vice President | Florida DOT

Join a facilitated roundtable discussion … Plans are being re-purposed when Building Information Model (BIM) files are delivered! Topics include:

- Legacy Plans vs. Next Generation Plans (General Discussion)
- Large Format Sheets/ No Sheets
- Cross Section Sheets / No Cross Section Sheets
- Labels/ No Labels
- Summary Tables in Plans / or separate Reports
- Drainage Details, Profiles and Cross Sections
- Key Sheets and Typical Sections
- CADD to GIS/CIM/Digital Warehouse

2:30 PM—3:00 PM

The Benefits of Unmanned Aerial Systems (UAS) Implementation on Connecticut DOT

Capital 1

Michael Giacco, FAA Part 107 - Director of Technology | AI Engineers, Inc.
Robert Baron, PLS, FAA Part 107 - Senior Project Manager of Survey and Technology | AI Engineers, Inc.
Kevin Hussain - Associate Vice President | AI Engineers, Inc.

Since 2016, AI Engineers, Inc. (AIE) has been utilizing unmanned aerial systems (UAS/drones) on a variety of projects for numerous Departments of Transportation (DOTs), municipalities, and other agencies throughout the Northeast. Such operations have included signature bridge inspection, site/structure mapping, construction documentation, and emergency response. AIE's UAS Program's success began with the first ever Connecticut Department of Transportation (CTDOT)/Federal Aviation Administration (FAA)-sanctioned drone inspection mission at the Gold Star Memorial Bridge in New London, CT, before the FAA enacted Part 107, to present day where cutting-edge artificial intelligence (AI) is used on projects like piers 9N and 10N of the Pearl Harbor Memorial Bridge in New Haven, CT, to quickly, efficiently, and cost-effectively analyze and automatically report identified deficiencies. This presentation will discuss the Firm's experience working with regional agencies on UAS operations and the safety, cost, time, and other benefits realized by implementing drone and other new technologies in the AEC sector.

TPF-5(372) BIM for Bridges and Structures Information Delivery Manual

Marriott A,B

Alexa Mitchell, P.E. - Transportation BIM Program Manager | HDR Engineering, Inc.
Julie Rivera, P.E. - Bridge Program Lead for Illinois & Indiana | HDR Engineering, Inc.

The BIM for Bridges and Structures initiative is a Transportation Pooled Fund that is a collaborative effort of more than 20 states, FHWA, and the AASHTO Committee on Bridges and Structures. The objective is to develop a standard way of exchanging 3D models and other digital data for conventional workhorse bridges in the United States using an open, non-proprietary format. The project is in its third year of the planned five-year effort. The project team's main focus for the past year has been the development of an Information Delivery Manual (IDM), which is a document that defines the information that needs to be exchanged for a specific purpose. It provides an industry narrative in plain language, defines data requirements, and informs the development of the IFC data schema and related software standards. Presenters will provide an update of the work conducted to date and describe the contents of the IDM.

Moving Beyond e-Ticketing Pilots

Marriott C,D,E

Suzie Holycross - Business Development Manager | Command Alkon
Tom Atkinson - Business Development Manager | Infotech
Chad Schafer - Associate Vice President of Business Development and Sales | Infotech
Cedric Wilkinson | Iowa DOT

e-Ticketing is the ability to provide a digital representation of traditional tickets for heavy building materials suppliers and haulers. Per FHWA EDC-6, implementing e-Ticketing into project delivery enhances safety, quality, and cost savings by improving the accessibility of project data. In this session you will learn about e-ticketing and how Iowa DOT has adopted this growing technology, what was learned in the pilot phase and what the plans are for the future.

3:30 p.m. - 4:00 p.m.

Intelligent Paving featuring 3D Milling that achieves profitable results

Capital 1

Curtiss Dorr - Senior Government & Strategic Business Development Manager | Topcon Positioning

Jim Preston | Topcon Positioning

The asphalt industry today incorporates a variety of technologies, methodologies, and disciplines for the purpose building longer lasting infrastructure.

Intelligent paving practices provide insight to better manage investments (spending of the public's money) as well as the means of efficiently collecting the project data used to manage assets and reduce risk.

Moreover, 3P and Design-Build infrastructure projects fuel an ever-increasing appetite for forensic project data - data used to build situational awareness before, during, and after project completion.

This session will focus on current technologies and proven workflows within 3D milling and paving. You will learn how technology is being utilized to improve results and discover how a contractor teams up with DOT Ministries to put intelligent paving technologies to use!

Successful Use of Reality Models and Digital Twins within Modern Transportation Projects

Capital 2 & 3

Michael Barkasi - Application Engineer | Bentley Systems, Inc.

Carlos Femmer - Director – Data Acquisition | HDR Engineering, Inc.

Reality Modeling and Digital Twins technology has been available to civil projects for over half a decade. The benefit of the Digital Twin, combining data with 3d components is obvious. For a photogrammetric Reality Model (RM), the value apart from visual impact is not as obvious and may be a limiting factor in their use in some organizations.

This presentation will address the fore mentioned issue by presenting two use cases, survey, and inspection, both using reality models within transportation projects. It will address benefits (both in costs and safety) derived from the reality mesh and the technical challenges that needed to be overcome in capturing the data along with integrating the RM into various downstream workflows.

See how existing and new technologies such as Artificial Intelligence (AI), machine learning (ML) and outlying technology such as Augmented Reality (AR) provide the information necessary to make both project use cases viable to improve costs and safety.

Just How Far Does BIM Reach?

Marriott A,B

Ron Gant - Sr. Account Manager | Infotech

Building Information Modeling (BIM) has existed over a decade and discussions and positions about BIM are never ending. But have you ever looked at just how far into your digital project delivery BIM reaches? This presentation will look at the full life cycle of Information Modeling, what part BIM plays in the asset life cycle and how do DOTs progress beyond BIM Level 0 or Level 1. You may be surprised to see how close you really are to progressing BIM and how it moves your agency or people forward. The presentation will also look at different ways collaboration or integration can be achieved and what role standards play within this. And then we will look from the eagle's eye view of what vendors are or should be doing to assist DOTs in progressing their BIM outlook.

Integrating Effective Transportation Performance, Risk, and Asset Management Practices

Marriott C,D,E

Marcus Ashdown - Senior Transportation Planner | Jacobs Engineering Group

In a resource-constrained environment, the need to integrate performance, risk and asset management practices presents itself to agencies responsible for managing growing transportation systems. Across the board, agencies are maturing their Transportation Asset Management Plans based on requirements within the FAST Act while still trying to refine and define performance measures to help guide decision making. Risk management is complex, and states are just beginning to grapple with how to use risk management as part of every function within their agency.

A study of international efforts in integrating performance, risk, and asset management by agencies with various organizational structure, policies, size of system and access to resource was conducted. The resulting guidance defines a process framework any agency, regardless of current maturity level, can continuously apply to identify how the evolving management practices intersect, and how effective integration can be incorporated. During this session, the participants will get a snapshot into the guidance and the key areas that help make integration successful.

4:15 p.m. - 4:45 p.m.

Using UAV Imagery, AI, and Visual Observations to Accelerate Bridge Inspections

Capital 1

George White - Co-Founder and CEO | HeadLight

Steven Velozo - Chief Technology Officer | HeadLight

In Partnership with ALDOT, HeadLight is in the process of developing UAV and AI capabilities onto its core platform. This new capability called Mission Control combines drone photography, satellite imagery, and customer data with machine learning technology to create an interactive mapping interface that integrates with data already being captured on the HeadLight platform.

Mission Control has the capability to rapidly process and display high volumes of flight data as a single composite image, enabling users to begin interacting with the tool to make decisions quickly and efficiently. The session will focus on the ways this technology is intended to support ALDOT's bridge inspection engineers as they look for ways to enhance their current UAV capabilities in partnership with HeadLight.

Preparing for Digital Deliverables with OpenRoads Designer

Capital 2 & 3

Jack Riesenberg, P.E. - Project Civil Design Technology Specialist | Foth Infrastructure & Environment, LLC

With technological advancements becoming more prevalent throughout workflow processes, final deliverables are reaping a variety of benefits while a balance between pushing limits and respecting traditions or standards is found. In this presentation, Jack will discuss the importance of developing data-rich deliverables utilizing OpenRoads Designer, while covering topics such as re-organization of CAD standards, moving underground utilities to 3D, and introducing item types to attribute the model.

BIM Data Governance, BIM ROI and National BIM Standards

Marriott A,B

Abhishek Bhargava - BIM Data Engineer/Scientist | WSP

Lance Parve - BIM Services Director - Advisory Services | WSP

Morgan Kessler - Research Civil Engineer | FHWA Research Office

Alexa Mitchell, P.E. - Transportation BIM Program Manager | HDR Engineering, Inc.

This breakout session looks at three topics involving BIM. Data governance plays a key role in adopting improved digital delivery processes and BIM for DOTs from an agency enterprise perspective. Key factors in successfully managing lifecycle data throughout the agency for all business stakeholders will be presented. Following, a FHWA research study conducted in 2021 looks at the business case for lifecycle BIM project delivery and asset management. The benefits, costs, ROI analysis, and case studies results will be shared to aid adoption by DOTs. Finally, recent updates from bSI/bS USA's National BIM Standards (NBIMS) for BIM Uses and BIM Execution Plans will be discussed interactively to enable more successful BIM implementations. Speakers for this session are: Jag Mallela, WSP, Morgan Kessler, FHWA, Alexa Mitchell, HDR and Lance Parve, WSP.

CTDOT Railroad At-Grade Crossing Inventory and Condition Rating System Mobile GIS Application

Marriott C,D,E

Grant Ervin - GIS/Asset Management Department Manager | Michael Baker International, Inc.

Beau Bradley - Senior GIS Project Manager | Michael Baker International, Inc.

Eric Bergeron - Assistant Rail Administrator | Connecticut DOT

Michael Baker International is working with CTDOT's Bureau of Public Transportation and Office of Engineering to update the Railroad At-Grade Crossing Inventory process and reporting required by the Federal Railroad Administration (FRA). Leveraging CTDOT's new cloud-based Enterprise GIS Environment a mobile field collection application, based on Esri technology, is being developed to replace the current Google forms-based system. The RRAGS application will capture over 200 discrete data points related characteristics and conditions information for over 1,800 At-Grade Crossings. Field Inspectors will have the ability to capture all data on site, including photos, which are then available to a web-based application focusing on the data review process, analysis tools and a "one button" export of federally mandated crossing data in the approved FRA format. This presentation will provide details on the process of updating the Railroad At-Grade Crossing Inventory process and the technology solution developed to successfully complete it.

8:00 a.m. - 1:00 pm.

Visualization Station - Walk Bridge Replacement Program in Norwalk, Connecticut

Conference Room 7
Kevin Gilson - Director, Design Visualization | WSP
Christopher Long, P.E. - Sr. Structural Engineer | WSP
Jeffrey Portal,, *Project Engineer | Connecticut DOT*

8:00 a.m.—8:30 a.m.

Managing the Transition From Paper to Digital Delivery

Capital 1
Thomas Hamski, Design Automation Engineer | Iowa Department of Transportation
Corey Johnson, Sr. Product Manager, Project Delivery | Bentley Systems, Inc.
Most of us want in the design side of transportation plan development want to move beyond paper to be able to focus on our designs more and developing an outdated plan sheet PDF less. Listen to Iowa DOT explain our process to begin this transition with our first digital plan pilot. What we learned about digital plans and how our industry (software developers and construction contractors) is accepting the challenge of change to digital.

Customization for Bridge Digital Project Delivery

Capital 2 & 3
Joe Brenner, P.E. - Senior Bridge Engineer & BIM Lead | Michael Baker International, Inc.
Digital Project Delivery is quickly gaining momentum in many agencies. The software industry is quickly adapting and in some cases providing quarterly releases of installed software programs and even more frequent updates of cloud-based software. However, there still exists a gap in what can be delivered out-of-the-box and what is needed to efficiently and effectively create accurate 3D models and deliver viable digital delivery products. This presentation will explore techniques to customize software programs to facilitate bridge modeling and digital project deliver including development of custom parametric workspace elements, visual programming solutions, and utilization of programming and APIs. Discussion of how to apply these techniques and their benefits will be provided, and direct examples from multiple software platforms will be used for demonstration.

Enhancing Digital Delivery through Computational Design

Marriott A,B
Anand Stephen, P.E., CME - Digital Delivery Leader, Roadway Business Group | Gannett Fleming
Increasingly Computational Design (CD) is integral to Digital Delivery that warrants our attention. Digital Delivery allows stakeholders to collaborate and evaluate plans efficiently. However, assessing multiple scenarios is limited by the computational power of humans. CD exponentially increases the number of options stakeholders can analyze. Thus, allowing engineers to focus on design and developing relationships with various stakeholders.

This presentation examines building extensible computational solutions using CD tools and advanced programming languages like C Sharp and Python. Then, using Graph Theory as our theoretical foundation, we will look at an example CD that makes thousands of decisions within seconds. For example, we create an alignment that automatically avoids obstacles within seconds. Finally, using CD, we link the design alternates to visualization platforms such as InfraWorks.

Digital Twin Beginnings-Integrating Design Models, GIS & Reality Capture Data on New Ontario Subway

Marriott C,D,E
Cameron Schaefer, P.E. - Transportation Data Acquisition and Reality Mesh Director | HDR Engineering, Inc.
Jamie Stevens - Senior BIM/CAD Manager | HDR Engineering, Inc.
The HDR-led technical advisory team, consisting of over 1,200 multidisciplinary staff from numerous companies, was tasked with the development, design and digital delivery of the Ontario Line as the Technical Advisory. Through this program the beginnings of a digital twin solution has been implemented to allow federation of over 300 individual design models dynamically linked to the projects common data environment, GIS database integration, 20 sq KM of survey-grade reality mesh data and over 4 Terabytes of lidar information. This hub is used to communicate design intent between internal team members, project stakeholders and clients, and has proven to enhance communication and project delivery, providing timely and relevant information. This presentation will demonstrate how the walls of BIM and GIS are being broken down to allow streamlined communication and collaboration between stakeholders, discuss where these tools are going, and how they have the potential to revolutionize project delivery.

8:45 a.m. - 9:15 a.m.

FHWA EDC-6 e-Ticketing and EDC-3/4 e-Construction

Capital 1

Kathryn Weisner, P.E., MBA, NRAEMT - Construction & Contract Administration Engineer | FHWA Resource Center

We've all heard it before, document, document, document! Traditionally accomplished through extensive, paper-based systems involving multiple copies of many documents, paper-based construction management processes require significant time and money to create, route, record, and store all that paper.

e-Construction, an electronic project document management system, decreases printing and document storage costs and reduces communication delays and transmittal time.

Converting paper-based materials ticketing systems into electronic (e-Ticketing) workflows enhances the accessibility and useability of highway project data.

Providing all stakeholders with an electronic or digital means of construction management enhances safety, streamlines inspections, and improves contract administration. Access via mobile devices simplifies handling and integration of data into construction management systems for acceptance, payment, and source documentation.

This session will discuss the current State-of-the Practice and State-of-the-Art for e-Construction and e-Ticketing, both FHWA EDC innovations. What are stateDOTs deploying, what are venders offering, and how do we pay for it all?

PennDOT Digital Delivery Directive 2025 Workspace Development Lessons Learned

Capital 2 & 3

John Reese - Senior Transportation BIM Specialist | HDR Engineering, Inc.

Scott McMasters - Highway Designer | PennDOT

PennDOT Digital Delivery Directive 2025 is redefining how highway and bridge projects are delivered in the Commonwealth. Through this 5-year initiative, PennDOT's objective is to transform the agency from a traditional 2D plan-centric to a full digital project delivery environment, in which the model is the single source of truth. Part of the directive includes equipping design teams with the necessary hardware and the Bentley ORD Connect software to complete 3D model-based designs for roadway, drainage and utilities. Presenters will share lessons learned from implementing standardization and configuration of the Bentley ORD software to meet the needs of the Department.

UDOT's Digital Twin Strategic Plan

Marriott A,B

Nicole Williams, P.E. - Project Manager | Kimley-Horn

Becky Hjelm, GISP - Digital Delivery Project Manager & HEEP Area 4 Director | Utah DOT

In the future, the Utah Department of Transportation (UDOT) will be able to share real-time information about the transportation system, from routing information to road conditions, made possible through two-way communication and crowdsourced information between UDOT and the traveling public. The journey to this future is paved with UDOT's ongoing investments in digital asset information including vehicle-to-vehicle signal communications and ITS assets, mapping priority assets, implementing a new maintenance management system, and advancing digital delivery for project development. UDOT's Digital Twin Strategic Plan establishes the overarching vision and sets the focus areas in support of developing a digital replica of the state's transportation system. This plan encompasses business needs, gaps and focus areas, implementation resources, implementation goals (both two-year tactical goals and five-year strategic goals), coordination needs, and risks associated with the implementation goals.

Civil 3D and BIM 360

Marriott C,D,E

Russ Nicloy - Civil Solutions Specialist | MACER Technologies, Inc.

BIM 360 Collaborate Pro offers a platform for sharing project design data between users, including those outside contractors that may need to provide design data. This session will look at the administration of internal and external access, administration of a project when external access is required, what can be expected from the document management tools, and the Collaboration tools where the design is shared. This session will use a representative dataset.

9:30 a.m. - 10:00 a.m.

eTicketing: The Digital Road Ahead

Capital 1

Matthew Valle - VP Industry Relations | HaulHub Technologies

The construction industry is rapidly embracing technology to improve project outcomes, add transparency to the supply chain and streamline operations. As the largest industry in the world with 13% of global GDP, but pervasively poor annual productivity growth, technology can help move the needle on construction productivity. Data that once lived on fragmented databases and was used only when printed out on paper is now moving to the cloud where it can be aggregated at scale and provide valuable information to the industry to help improve performance. Unlocking this data and providing innovative tools to front-line workers enable them to make real-time decisions on how to best run their projects and make informed choices on how to maximize labor, equipment, and materials on the job. This presentation will take participants on the evolution of e-Ticketing, and discuss how e-Ticketing implementations are going across the US and highlight some of the practical challenges that need to be addressed before widespread adoption at scale.

FDOT - Itwin Design Review Pilot Project

Capital 2 & 3

Vern Danforth, P.E. - State CADD Engineer, Production Support Office & HEEP Vice President | Florida DOT

FDOT conducted a study of Itwins Design Review on a BIM delivery project with a district during the phase 2 and 3 reviews. We involved project reviewers from Geotech., QA/QC, Contracts, Construction and Design departments to test and try reviewing project data to gain insight and feedback on this method.

Baby Steps to Digital Delivery

Marriott A,B

Nicole Williams, P.E. - Project Manager | Kimley-Horn

Becky Hjelm, GISP - Digital Delivery Project Manager & HEEP Area 4 Director | Utah DOT

George Lukes - UDOT Project Development, State Design and Standards Engineer & HEEP Secretary | Utah DOT

The Utah Department of Transportation (UDOT) has set out to be the first DOT to develop a completely repeatable digital delivery process. This cutting-edge delivery requires significant ramp up through developing not only a digital delivery workspace, but also corresponding guidelines and standards that provide the basis for a truly repeatable process. This presentation identifies the latest in UDOT's digital delivery development through the Accelerated Innovation Deployment (AID) Grant project, including: Expansion and reorganization of the Bentley workspace; consistent naming convention for 3D breaklines; creation of a CADD validation tool and conversion to GIS; updated modeling templates to improve consistency of models and 3D breaklines; reorganization of OpenRoads Designer graphical user interface; automatic annotation tools; automated quantity reports; and quality control steps. UDOT's digital delivery website was created to house these resources for designers and contractors, sample deliverable packages, and the Model Development Standards Manual.

Civil 3D and InfraWorks Connection to ESRI ArcGIS Data

Marriott C,D,E

Russ Nicloy - Civil Solutions Specialist | MACER Technologies, Inc.

Integration of GIS data around and through the project area can be accessed through Civil 3D and InfraWorks. This provides existing data as usable objects rather than having to recreate each object individually. We will look at the Connector for ESRI ArcGIS Data platform and how the data can be integrated into project files for use in and around the project. This session will use a representative dataset.

10:30 a.m. - 11:00 a.m.

Alabama DOT UAS Section's cloud based document routing, notification & long term storage technology

Capital 1

J.D. D'Arville - UAS Program Administrator | Alabama DOT

Terry Cline - Account Manager | Infotech

Any agency operating a modern UAS program knows the requirement for keeping records of your operations for internal and possibly external reviews. Representatives from the Alabama DOT UAS Section and Infotech will show how they manage those important documents electronically using an affordable Commercial Off The Shelf (COTS) technology. In addition to managing other documentation, the system in use routes work orders to assigned pilots, notifies the pilot of the assignment and gathers their acknowledgement of responsibility. Once the pilot has completed the mission the updated documents are then routed into long term storage and a history of activities is maintained online for authorized parties to access should the need arise.

Design Software Configuration and Development Roadmap

Capital 2 & 3

Bob Mecham - Project Manager and President | EnvisionCAD
David W. Baker, P.E. - Staff Design Engineer\CAD Coordinator | Arkansas DOT

The roadmap is structured by six phases of implementation: Discovery, Planning, Development, Testing, Implementation, and Operations. Each phase is presented with a description of the phase and general indication of the intent of this roadmap followed by a list of considerations indicating required inputs, phase length, anticipated effort, and phase deliverables. It is important to note that this particular roadmap is focused on the development of content directly applicable to the configuration and use of either OpenRoads Designer or Civil 3D for transportation design and only includes portions of a more holistic framework for a full implementation of design software.

Applying BIM/Digital Twin practices on a Heavy Civil/ Transportation Project, an Owner's Perspective

Marriott A,B

Charles Hixon - Business Development Manager, Heavy Civil/ Transportation and Co-Chair TRB AED80(1) BIMFi | North America – Digital Construction Works (DCW)

Phil Bell, PLA - Principal, Progression Dynamics and former NYSDOT Manager of the BIMFi program | Progression Dynamics

This talk is based on the knowledge and experience of implementing and managing a BIM/Digital Twin Solution on behalf of the New York State Department of Transportation for the Kew Gardens Interchange multi-phase project, and other high priority projects located in New York City. This talk will focus on the challenges to implement, manage, measure results, and maintain BIM/Digital Twin solutions on a large-scale, multi-phased highway interchange projects.

Key Topics

- Implementing BIM at a DOT including: Determining, integrating & optimizing the tools, 3D BIM Model as Contract Document, Utilizing the model for project management, construction phasing & constructability, Developing BIM specifications including LOD, Development of Model Management Plans, Construction coordination and collaboration through buildout including managing schedule, cost, risk, quality and other 'key' performance indicators, Leveraging as-built data deliverables for Operations and Asset Management
- Current Project Updates on the Performance Measures.

FDOT Transition from CADD to BIM

Marriott C,D,E

Vern Danforth, P.E. - State CADD Engineer, Production Support Office & HEEP Vice President | Florida DOT

Jared Casseaux - Central Office GIS Manager, Civil Integrated Management - GIS Office | Florida DOT

We will share our journey to move the Department from 2D CADD for Plans to BIM Delivery for Asset Management, past, present and future.

11:15 a.m. - 11:45 a.m.

ADA Compliance - KYTC's Innovative Approach to Identifying Pedestrian Barriers

Capital 1

Jeff Tornatore, PMP - Quality Assurance Manager | Michael Baker International, Inc.

Capitalizing on previous advancements in sensor design and 3D Modeling successes, Mobile LiDAR provides innovative opportunity to support today's critical infrastructure and ADA assessments while creating a pathway for the sustainable designs of tomorrow. This session will highlight terrestrial remote sensing technology and the innovative solutions to streamline ADA curb ramp and sidewalk compliance assessments and the prioritization of capital investments via spatial analysis."

ORD Drainage and Utilities: Lessons Learned in Implementation

Capital 2 & 3

Steven Litzau, P.E. - Senior Consultant | EnvisionCAD

The evolution of design technology for transportation agencies is often largely focused on road design. As our technology continues to advance, each successive step has the capacity to bring along other disciplines and departments. This presentation will provide some of the lessons learned in the effort to incorporate hydraulic design and utility depiction into the Colorado DOT OpenRoads Designer configuration. The development effort sought to balance needs across disciplines (survey, hydraulics, road design), impacted numerous workflows including development of quality level depiction standards and set the stage for the transition to model deliverables. A concerted effort was made to generate a user focused configuration that provided flexibility for users while maintaining consistent standards.

Digital Twin, Open Standards, and Digital Delivery, Oh My!

Marriott A,B

Alan Esguerra, P.E. - Industry Strategy Manager | Bentley Systems, Inc.

Jennifer Steen, P.E., PMP - Highways and Road BIM Director | HDR Engineering, Inc.

The transportation industry is racing towards the use of model based digital delivery workflows with the integration of open data standards to develop and maintain digital twins. Defining these terms and how they are implemented are some of the greatest hurdles that agencies and organizations face today.

In this interactive presentation, we will better define what these terms mean and discuss how we can jump over the hurdles of today so that we can implement open data standards tomorrow. Through the discussion of the shift from current siloed workflows to a data centric exchanges, we will explore what will be required to move the industry forward to reach a digital twin finish line.

Information Technology for Transportation Agencies (The cloud, ransomware, big data, data security, SaaS/ Hosting)

Marriott C,D,E

Marty Provost - Director of the Hosting and Technical Services Department | Infotech

Our industry technology continues to evolve faster than some of us can adapt or possibly even grasp. IT services are being combined and the focus on your job is not always their top priority, maybe even rarely their top priority. But it's not just IT, it's our whole industry. As you look at the incredible amount of information that is being created and passed around, the ability to consume, understand or just analyze the data is daunting. Let's discuss some of the hot topics. Hosting and cloud services are two of the hottest topics. What do these terms really imply and how much is needed or necessary? What can and cannot be hosted? What are the advantages and disadvantages of hosting? What is the difference between Hosting and Software-as-a-Service? What are examples of each system and are there advantages of one over the other? What is the Government Cloud? Is it necessary or practical for a DOT? Are there restrictions in the government cloud? Where are you vulnerable? Can you prevent ransomware?

These technology advancements along with design models and life cycle asset management bring about a proliferation of data. How can you make sense of all the information? Can Data Analytics be provided to 'any data' and how do I understand the results? When is all data, too much data? Can I use the internet of things?

These questions will be discussed in this informative tech talk. Come ready to listen, learn and participate in the discussion.

DIGITAL DELIVERY SERVICES AND SOLUTIONS

FOR TRANSPORTATION

Digital Construction Works (DCW)

Is a leading technology solutions and service company. We help Transportation Agencies accelerate the adoption and use of digital workflows, incorporate BIM for infrastructure assets, implement best-practices, and if needed, include the right combination of technology to improve transportation planning, design, construction and operational outcomes.

We take the myriad of disparate application data created by transportation projects and integrate them, allowing for enhanced communication, and seamless project management – all through a single, secure platform.

Digital Delivery for Transportation. Let's go there together.

Digital Delivery Services

- Digital Delivery Integrations
- BIM for Infrastructure Consulting and Support
- On-site and Virtual Engineers for CAD and BIM Support
- 4D/5D Planning and Scheduling
- 4D Mass Haul Earthworks Solution
- Construction Progress Monitoring and Inspections
- AR/VR Solutions for Construction Inspection and Monitoring
- DCW Integrations Platform and Insights

To learn more about digital delivery for transportation, visit:

digitalconstructionworks.com

DIGITAL CONSTRUCTION WORKS

DCW is a Bentley Systems and Topcon Positioning Systems joint venture company.

1:00 p.m. - 1:30 p.m.

Data Management Technologies Aiding Implementation of 3D Models in Construction

Capital 1

Adrien Patané - Technology Solutions Manager (Americas) | Trimble Inc.

This session covers the fundamentals of a connected construction workflow, and the core underpinning technology that enables distribution, control and access to the model

With a growing emphasis on the implementation and use of intelligent models in construction workflows, there is a need to be able to not only facilitate access to the model for visualization, but to also be able to update and track changes throughout the construction lifecycle.

Today's construction technology is evolving to be able to support all phases and disciplines involved, providing an object, network and process oriented model platform for data management. An open multi-user environment for owners, facilitating collaboration across different vendors, accessing the model has never been easier, with the key benefit of creating a single source-of-truth along with the ability to track who did what, where and when.

Embracing the Change – HDR's Transition to ORD in Ohio

Capital 2 & 3

Michael Lorenz - Senior Transportation Engineer | HDR Engineering, Inc.

This presentation will cover HDR's transition from legacy Geopak SS2 design software to plan and model production in OpenRoads designer. The presentation will look at the advantages of model based plan production and the changes to design workflow based on HDR Ohio's project experiences.

3D Models as Legal Documents and Open Data Standards: Paving the Way Forward to Digital Delivery

Marriott A,B

George Lukes - UDOT Project Development, State Design and Standards Engineer & HEEP Secretary | Utah DOT

Will Sharp, P.E., PTOE - Director of Highways | HDR Engineering, Inc.

The transportation industry is in the midst of a paradigm shift to digital delivery and open data standards in the US. This presentation will provide a national overview of digital delivery initiatives in the US, including AASHTO's movement towards open data standards, current activities with the AASHTO Joint Technical Committee on Electronic Engineering Standards (JTCEES), ongoing national and State DOT agency level initiatives moving towards digital delivery and model as the legal document (MALD), and ACEC national efforts to address designer liability concerns with 3d contractual deliverables. Presentation will include Utah DOT's Experience Moving to Digital Delivery and an overview of the US Transportation Industry Shift to Digital Delivery and Open Standards, including Agency, Consultant, and Contractor considerations.

Intro to IFC

Marriott C,D,E

Alexa Mitchell, P.E. - Transportation BIM Program Manager | HDR Engineering, Inc.

Connor Christian, P.E. - Sr Product Manager | Procore

Industry Foundation Classes (IFC) have become a regular topic of discussion in the transportation industry. This open standard has only become relevant to transportation in recent years and can still be confusing for users that have not worked with it before. In this session Alexa Mitchell (HDR) and Connor Christian (Procore) will present on the basics of IFC. They will cover the file types benefits and intended purpose, how this affects end users, and provide scenarios of IFC enabled workflows on projects. After this session users will leave with a better understanding of what IFC is, when they should use it, and how it will benefit them.

1:45 PM—2:15 PM

Notable Uses of Digital Delivery

Capital 1

Daniel Prokop - Assistant Roadway Section Manager | HDR Engineering, Inc.
Jeremy Colip - Senior Engineering Technology Manager | HDR Engineering Inc.
Michael Lorenz - Senior Transportation Engineer | HDR Engineering, Inc.

Digital delivery for transportation projects is rapidly becoming more common place in the industry. While the first thought of digital deliverables may be 3D models as legal documents, digital deliverables can mean much more than that, and also include 3D models that are for information only, 2D CAD files that are legal documents or for information only, spreadsheets, scroll plots, and even 4D models. HDR has had experience delivering all of these types of digital deliverables. This presentation would highlight some of the experiences and lessons learned/recommendations through delivering multiple formats of digital deliverables on various projects across the country in recent years.

Replacement of Abingdon Road Bridge over I-95 using a BIM Methodology

Marriott A,B

Michael Alestra, P.E. - Senior Engineer/Project Manager | Pennoni
Alexander Mabrich P.E., MSc, MBA, PMP - User Success Manager | Bentley Systems, Inc.

Pennoni is providing comprehensive design services to the Maryland Transportation Authority for the replacement of Abingdon Road Bridge over I-95 in Harford County, MD. The bridge is being replaced to accommodate the Northbound I-95 Express Toll Lane (ETL) Expansion. The replacement structure is a 2 span, 280-ft long bridge consisting of a haunched steel plate girders, supported by reinforced concrete piers and semi-integral abutments. This project highlights using a 3D model of the bridge and roadway as a valuable design tool. 3D BIM models were developed of the existing structure, proposed structure, and the proposed roadway and grading. These models instrumental in preliminary design and final design, and coordination of the ultimate section of I-95 under the bridge, to optimize the roadway profile to evaluate and monitor impacts to surrounding utilities. Bentley's OpenBridge Modeler LEAP Bridge Concrete, LEAP Bridge Steel (now included in OpenBridge Designer), and InRoads were utilized for the development of the BIM models. The project is currently in construction.

CTDOT CAD to GIS for the Traffic Signals Asset

Marriott C,D,E

Henok Abdissa, P.E. - GIS development and Geospatial data Coordinator | Connecticut DOT
Mathew Calkins, P.E. - CAD and GIS Administrator for the Bureau of Engineering and Construction | Connecticut DOT

This presentation will show a CAD to GIS process for use on the Traffic Signal asset at CTDOT. This process takes advantage of OpenRoads (ORD) item types and uses an FME ETL to extract the asset information from ORD and update an ESRI transaction database. Capturing this asset information starting from design is critical to managing the data of an asset throughout its lifecycle. This presentation will discuss this CAD to GIS process, the successes, the areas of improvement, and the lessons learned.

1:45 PM—3:00 PM

Survey, COGO & Data Collection Roundtable

Capital 2 & 3

Vern Danforth, P.E. - State CADD Engineer, Production Support Office & HEEP Vice President | Florida DOT
Randall (Rande) Robinson - Technology Support Specialist Advanced | North Carolina - NCDIT-Trans

Join a discussion with Peers from other DOT's. We've included some interesting topics as follows:

- Area Introductions and survey contacts
- Is the work in-house vs. contracted
- What other tools or technologies are you using ?
- Other traditional disciplines like Right Of Way Maps are not using current tools.
- What are the Survey Deliverables, what format
- How to get the Design Data to Survey for Construction
- Surveyors are not CADD Experts first, tools are more aligned with CADD
- How are other planning to use Item Types on Survey Feature
- No common independent database outside of CADD environment
- Labeling tool, SONEZLL
- ODOT tool for points
- Command line COGO
- Digital Construction Inspections

2:30 PM - 3:00 PM

Improving Project Development through Reality Modeling and Drones

Capital 1

Dan Reinke, P.E. - Roadway BIM Program Manager/Senior Transportation Engineer | Gannett Fleming

Time and accessibility often limit engineers from collecting data to develop precise 3D models of existing infrastructure. Reality Models (RM) are accurate 3D models of existing infrastructure generated from photographs, LiDAR scans, and video. Using Drone Technology, we can capture data very quickly from physically inaccessible areas. In the presentation, we will walk through case studies using drones to obtain data and build Reality Models.

We will showcase leveraging Drones to build Reality Models, ultimately benefiting our clients and the public. Using drones helps us accurately represent existing infrastructure, previously a laborious and dangerous endeavor due to site conditions. Drones and Reality Models are tools in our toolbox, which allows us to interact with existing infrastructure in a much more intuitive and effective way than previously feasible.

We will cover a range of projects that demonstrate the observed benefits of reality modeling and drones

Structures Digital Delivery, Path to a successful project

Marriott A,B

Daniel Jensen, P.E. - Civil Engineer, Structures | Michael Baker International, Inc.

This presentation will go through various structures projects from multiple DOT's that have utilized digital data for the contract documents. Workflows and processes will be discussed that have proven to be advantageous for a complete and successful deliverable. Many of these projects have multiple disciplines involved so we will also discuss how these structures models interact with those various documents. Owners and stakeholders will be able to apply the lessons learned within this session to their own digital delivery initiative effectively reducing that learning curve and hopefully the frustrations that can come with it.

The Value of openBIM and Open Data Standards

Marriott C,D,E

Will Sharp, P.E., PTOE - Director of Highways | HDR Engineering, Inc.

Ian Howell - US Representative | buildingSMART International

This presentation will highlight the driving factors and review the business case for using open data standards in the US to meet digital delivery, data governance, and data exchange requirements for the design, construction and lifecycle asset management of transportation infrastructure. International and US projects will be featured as examples of how openBIM has been used successfully to federate information from different software applications and deliver value for owners. The current status of AASHTO's adoption of IFC as a national open data standard will be discussed, including industry support for this initiative by agencies, software vendors, contractors, and consultants. The importance of international collaboration and partnerships with open standards bodies to enable the digital transformation of US industry will be reviewed. In addition, the presentation will share a number of opportunities to get involved with the use of open data standards in the US thru webinars, committees, and organizations.

3:30 p.m. - 4:00 p.m.

UAV Acquisition of BUCK O'NEIL BRIDGE

Capital 1

Michael Frecks, PLS - LiDAR/Survey Manager | TREKK Design Group, LLC

Steve Zeets - UAV Survey Manager | Whirrx

Kansas City, Missouri's US 169 Buck O'Neil Bridge realignment project had a multitude of convoluted and obscured areas which required innovative survey tools to acquire trusted data for design-build. As key connector between downtown Kansas City and the growing Northland region safety of the traveling public was of utmost concern during this high-profile bridge replacement project. This presentation will show how UAV/Drone LiDAR, aerial photogrammetry, supported mobile terrestrial LiDAR, backpack/handheld SLAM LiDAR and traditional boots-on-the-ground survey along the railway, highway and airport corridor.

Mapping the Digital Twin

Marriott C,D,E

Ben Sullivan - Lead Geospatial Specialist and UAS Pilot | Foth Infrastructure & Environment, LLC

Jonathan Miranda - Lead Geospatial Specialist and UAS Pilot | Foth Infrastructure & Environment, LLC

From one of the few nationally documented, city-wide Mobile LiDAR System (MLS) scans to that of a local arterial drive, our team will share two Iowa-based case study projects. Join us as we discuss project backgrounds, processes, challenges, and overall experiences regarding the scanning of the City of Dubuque's NW Arterial Drive and the City of Perry's Digital Twin Mapping Campaign. We will illustrate details and considerations pertaining to collection speed and rapid deliverables, minimized public impact, and cloud-based data sharing for Pavement Condition Indexing (PCI), existing topographic mapping, and high-fidelity 3D model creation.

3:30 p.m. - 4:45 p.m.

CAD and IT Tech Roundtable

Capital 2 & 3

Vern Danforth, P.E. - State CADD Engineer, Production Support Office & HEEP Vice President | Florida DOT

Randall (Rande) Robinson - Technology Support Specialist Advanced | North Carolina - NCDIT-Trans

Join a discussion with Peers from other DOT's. We've included some interesting topics as follows:

- Area introductions
- Digital Delivery in addition to plans
- Issues with multi-discipline and federated modeling workflows
- Workflow Collaboration (day to day) vs. (phase to phase) (owner managed vs consultant managed)
- Are you considering BIM Managers, BIM Directors?
- Signing and Sealing BIM files?
- Common Data Exchange between Technology Partners

Document Management Roundtable

Marriott A,B

Daniel J. Belcher, P.E., P.S. - Design Services Manager & HEEP Area 3 Director | Michigan DOT

Join a facilitated roundtable discussion centered on Document Management Systems (DMS) at DOTs. Each state in attendance will be able to discuss their efforts, provide lessons learned and seek feedback from peers.

Topics may include:

- Ways to reduce licensing footprint
- Interfacing with Teams/Sharepoint/Other
- Records retention in DMS
- Hosted vs on prem and hybrid systems
- External stakeholder access (licensing) to DMS
- Support Staff Requirements

4:15 p.m. - 4:45 p.m.

Digital As-Builts & Construction Data Analytics for Project Management at DOTs

Capital 1

Trent Hogan - GM & Head of Sales North America | Datumate

How DOTs can digitally transform legacy processes in construction management to improve safety and efficiency and realize cost savings. But which processes lend themselves to digitalization and automation? Using accurate as-built 3D site models paired with advanced construction data analytics, DOTs improve and automate grade checking, volumetric analyses, measurements, progress tracking, inform their 4D and 5D, and compare to design files for quality assurance. This session will highlight actual use cases from Caltrans and how construction data analytics helps them end arguments with contractors and strengthen inter-division relationships. "

Back to The Future - Advances in BIM

Marriott C,D,E

Daniel Pfeifer - Area Transportation Hydraulics Business Class Lead | HDR Engineering Inc.

Lee Busenbark - Senior Transportation Engineer | HDR Engineering Inc.

Back to the Future – BIM Technologies have revolutionized the Highway Engineering industry as a whole. HDR's experts will walk you through some of the latest tools, tips and tricks that they have been utilizing to leverage the most out of today's platforms including Open Roads, GIS, HEC-RAS2D and more. The presenters will walk you through lessoned learned as well as a few example projects to see BIM technologies in a real world setting."

KEYNOTE SPEAKER INFORMATION

Joseph J. Giulietti—Commissioner, Connecticut DOT

Joseph J. Giulietti is the Commissioner of the Connecticut Department of Transportation. He was nominated by Governor Ned Lamont in January 2019 and confirmed by the Connecticut General Assembly a month later.

A 46-year veteran of the public transportation industry and a native of Connecticut, "Joe" Giulietti served as President of Metro-North Railroad from 2014 to 2017, and as Deputy Executive Director and then Executive Director of the South Florida Regional Transportation Authority (SFRTA) from 1998 to 2014. The authority serves Palm Beach, Broward and Miami-Dade counties.

Giulietti began his career in 1971 with Penn Central Railroad as a brakeman and conductor while he was still in college. In 1978, he became a road foreman with Conrail (the successor agency to Penn Central) and joined the newly formed Metro-North in 1983 as superintendent of transportation, and later became engineer of track for the Harlem and Hudson lines.

After 14 years at SFRTA, Giulietti was tapped by the Metropolitan Transportation Authority to serve as President of Metro-North and return it to a culture of safety, after a series of derailments and other mishaps. During his tenure at Metro-North, rail ridership reached an all-time record of 86.1 million, giving a significant boost to the economic health of the region the railroad serves. He retired from Metro-North in 2017 and then worked as an independent industry consultant.

Scott A. Hill, P.E.—Chief Engineer and Bureau Chief, Bureau of Engineering and Construction, Connecticut DOT

Scott Hill is the Chief Engineer for the Connecticut Department of Transportation. Scott oversees the daily administration of all Engineering and Construction activities for the Department, to include the five state construction districts and the five engineering divisions (Highway Design, Bridges, Traffic Design, Rights-of-Way, and Facilities and Transit). Scott has worked for the Connecticut Department of Transportation for over 34 years. He has held various levels of responsibility during this time to include: Principal Engineer in Charge of Facilities Design, Division Chief for State Design, Division Chief for Bridges, Engineering Administrator, and Assistant Chief Engineer. Scott has a Bachelor of Science Degree in Civil Engineering from the University of Maine, and a Master's Degree in Strategic Studies from the U.S. Army War College. Scott holds a Professional Engineer license in the State of Connecticut, and is a retired Connecticut Licensed State Building Inspector.

Scott is a retired Colonel in the U.S. Army Reserve. During his 30 year military career, Scott held various assignments to include battalion and brigade command. Scott has two combat tours in Iraq and one peacekeeping tour in Bosnia. His military awards include: two Bronze Stars, five Meritorious Service Medals, and an Army Commendation Medal for Valor. Scott has been married to Becky Hill for over 34 years. They have three grown children, Kelsea, Andrew, and Benjamin.

Richard Humphrey—Vice President Product Management – Construction, Bentley Systems, Inc.

Richard Humphrey is the Vice President of Product Management and Product Strategy at Bentley focused on delivering construction solutions. He has more than 20 years of high-tech Marketing and Product Management experience most recently as the VP of Marketing at B2W Software where he drove the marketing strategy for heavy civil construction products. He spent 10 years as a Senior Director at Autodesk, Inc. where he led the Civil Design and Construction software business. He started his career in the AEC industry as Project Manager for the Army Corps of Engineers and Clark Construction with a M.S. in Civil Engineering from Carnegie Mellon University. Rich is a LEED AP and has worked with leaders in the Building and Infrastructure industries to drive sustainable design, technology innovation and BIM/VDC.

Mara Campbell—Global Technology Leader Transportation Performance Management and Policy, Jacobs Engineering Group

After retiring from the Missouri Department of Transportation with nearly 25 years of hands on DOT experience, Mara joined Jacobs Engineering Group in 2015 to lead and deliver performance, asset, and risk management frameworks and systems for key clients. As a leader in transportation performance and policy with expertise in implementing innovations, she brings nearly three decades of experience as a change agent in the development, integration, documentation and implementation of complex transportation systems.

Mara represented the USA on the World Road Association Technical Committee on Performance Management within Road Administration where she has presented on performance and risk management and "telling your story" thru effective communication in over 25 countries. Currently, Mara serves on TRB's newly created Section - Executive Issues, after serving as Chair of the TRB Performance Management Committee for over 8 years. She is also active in WTS – as she is passionate about advancing women in transportation!

KEYNOTE SPEAKER INFORMATION

Gregory J. Ciparelli—Transportation Supervising Planner, Enterprise GIS, Bureau of Policy & Planning, Connecticut DOT

Gregory J. Ciparelli is a Transportation Supervising Planner for the Connecticut Department of Transportation in the Roadway Information Systems Office and supervises the newly established Enterprise GIS Unit.
Greg is a 2004 graduate of Boston College with a BA in Political Science and minor in Economics and was hired to the Connecticut DOT immediately following his graduation as a Transportation Planner through the Connecticut Career Trainees program.

He has over 16 years of experience in roadway data collection and roadway database management on Connecticut's 22,000 miles of public roads. The Roadway Information Systems Office at CTDOT collects, compiles, or manages data related to a variety of Department activities, including: the development and maintenance of an ARNOLD compliant geospatial LRS, the Highway Performance Monitoring System (HPMS), and roadway related Model Inventory of Roadway Elements (MIRE) Fundamental Data Elements (FDE) attribution.

In December of 2019 Greg was tapped to lead the Department's newly established Enterprise GIS Unit that was responsible for management and widespread adoption of the Transportation Enterprise Data (TED) development effort, and in particular the primary task of implementing and managing an Esri ArcSDE based architecture that meets a variety of business workflows and allows users to easily and efficiently maintain their data assets. It's an ambitious effort to breakdown data siloes, identify authoritative and managed data throughout the Department, and integrate it into a single geospatial source so that Engineers, Planners, and other internal and external stakeholders can efficiently access and utilize up-to-date and authoritative data in their everyday work.

In early 2020 the Enterprise GIS Unit's area of responsibility expanded to include support for the Department's emerging data analytics and visualization capabilities; tasking the unit with performing geospatial data analysis, visualizing it a way that is easily consumable for high level personnel, and conveying key actionable findings to relevant decision-makers.

William S. Pratt, P.E.—Principal Engineer, AEC Applications, Bureau of Engineering and Construction, Connecticut DOT

William S. Pratt, PE is responsible for CTDOT's (Connecticut DOT's) BIM (Building Information Management) for infrastructure developments and direction. He leads the AEC Applications team of discipline engineers from the Highway, Bridge, Traffic, Survey and GIS units. The team develops integrated applications and work flows to enhance capital project delivery and enterprise data integrations. Currently he and his team are focused on implementing a cradle to grave project management system that will act as a CDE (Common Data Environment), with BIM for infrastructure processes that transform design data for integration with GIS inventory systems that feed Asset Management and Safety Analysis.

He started his career as a Bridge Designer in 1986 with CTDOT where his design team won national bridge design awards in 1998 and 2000. In 2002 he instituted the AEC Applications group to develop collaborative electronic design standards. In 2011, AEC Applications retired mylar contract plans at CTDOT and developed an enterprise digitally signed electronic solution that transformed CTDOT's contract plan format and production. He is a Professional Engineer in the state of Connecticut and participates on national project panels and committees regarding electronic engineering data and BIM for infrastructure.

David Unkefer, P.E.—Senior Construction and Project Management Engineer, FHWA Resource Center

David is a Senior Construction and Project Management Engineer providing national technical assistance to FHWA and its partners. More recent experience includes:

- Currently leading FHWA's Every Day Counts 6 'Digital As-builts' initiative.
- Leading and supporting efforts to effectively deploy BIM for Infrastructure and asset management, 3D engineered models, digital project delivery and inspection, and construction automation.
- Leading and supporting FHWA's deployment efforts for alternative contracting methods (ACMs), such as design-build and construction manager/general contractor.

David has been with FHWA for 27 years holding various engineering and leadership positions in 9 states. He is a Professional engineer with degrees in Civil Engineering from the University of Florida and Purdue University.

A look into IHEEP's Past!

BIM PANEL INFORMATION

Moderators

Alexa Mitchell, P.E.—Transportation BIM Program Manager , HDR Engineering, Inc.

Alexa is a registered professional engineer in Arizona and Missouri. She started her career at the Missouri Department of Transportation where she pioneered the implementation of 3D models for construction, electronic plans and 3D survey technologies. During the last six years, Alexa has been engaged in several national studies and strategic activities to help advance BIM and Model-based Digital Delivery, including her work with TRB, State DOTs and the AASHTO Joint Technical Committee on Electronic Standards. As a BIM consultant, Alexa has helped develop modeling standards and best practices, and contract language to align with model-based deliverables.

George Lukes—UDOT Project Development, State Design and Standards Engineer & HEEP Secretary, Utah DOT

As UDOT's Standards and Design Engineer, George manages the process for all changes and publications of specifications and drawings, as well as manages UDOT's digital delivery program. UDOT is currently finalizing a repeatable process, in lieu of the traditional paper plan set process, where all digital delivery projects are awarded with the model as the legal document, without cutting sheets and the use of the model in the field with mobile devices and rovers. George graduated from the University of Utah with a degree in Chemical Engineering. Over his 30+ years, he has worked in the inorganic mineral processing industry, hazardous waste industry, and the transportation industry.

Panelist

Becky Hjelm, GISP—Digital Delivery Project Manager & HEEP Area 4 Director, Utah DOT

Becky Hjelm has over twenty years of experience in GIS management, data analysis, project management, and IT development in government. She is currently the Digital Delivery Project Manager at UDOT.

Patrick Lane—Engineering Operations Project Manager, Montana DOT

During his 16-year career with the Montana Department of Transportation, Patrick has been at the forefront of many technology implementations and workflow improvements. After spending 11 years working for national corporations like TCI Media Services and AT&T as a Technical Operations Manager, Patrick began his career at MDT in the Helena Headquarters office in information technology. His involvement and experience in technology infrastructure, working with third-party vendors, as well as project management led him to join the engineering team. Patrick has assumed many responsibilities as part of the engineering team, including leading the effort to develop and implement a digital delivery initiative impacting all of MDT's engineering bureaus. Patrick enjoys learning about current innovations and project successes that are re-shaping the way transportation programs are delivered.

Allen Melley, P.E.—Project Development Engineer - Digital Delivery Lead, PennDOT

Allen Melley graduated from the University of Pittsburgh with a Bachelor of Science Degree in Civil Engineering. He is a registered Professional Engineer in Pennsylvania. He has been with the Department of Transportation for over 21 years. He has progressed through the Design Ranks where he managed numerous projects ranging from $100,000 to $300 million. Mr. Melley relocated to PennDOT's Central office in 2016 and holds the position of Project Development Engineer. Since 2019 he has been on Special assignment Leading PennDOT's Digital Delivery Directive 2025 initiative.

William S. Pratt, P.E.—Principal Engineer, AEC Applications, Bureau of Engineering and Construction, Connecticut DOT

William S. Pratt, PE is responsible for CTDOT's (Connecticut DOT's) BIM (Building Information Management) for infrastructure developments and direction. He leads the AEC Applications team of discipline engineers from the Highway, Bridge, Traffic, Survey and GIS units. The team develops integrated applications and work flows to enhance capital project delivery and enterprise data integrations. Currently he and his team are focused on implementing a cradle to grave project management system that will act as a CDE (Common Data Environment), with BIM for infrastructure processes that transform design data for integration with GIS inventory systems that feed Asset Management and Safety Analysis.

He started his career as a Bridge Designer in 1986 with CTDOT where his design team won national bridge design awards in 1998 and 2000. In 2002 he instituted the AEC Applications group to develop collaborative electronic design standards. In 2011, AEC Applications retired mylar contract plans at CTDOT and developed an enterprise digitally signed electronic solution that transformed CTDOT's contract plan format and production. He is a Professional Engineer in the state of Connecticut and participates on national project panels and committees regarding electronic engineering data and BIM for infrastructure.

2021 OFFICERS

International Officers

President—Elaine Richard

Civil Applications & CAD Coordinator, AEC Applications, Connecticut Department of Transportation

Phone: (860)594-3278 | elaine.richard@ct.gov

Elaine has been with the Connecticut Department of Transportation for 27 years. She worked in Highway Design for 10 years and now works in AEC Applications. She is responsible for managing the Digital Design Environment (OpenRoads, OpenBridge, and OpenBuildings CAD Workspace). Her duties as Senior Civil Applications & CAD Coordinator include developing and maintaining CAD Standards, configurations, and user guides. She was instrumental in developing CTDOT'S CAD training program as well as the guidelines for 3D Model Centric Design. Currently, she is developing procedures to automate CAD to GIS for BIM.

Elaine is a 1994 graduate from Central Connecticut State University School of Engineering. She has been involved with HEEP since 2015 and is currently serving as President.

Vice President—Vern Danforth, PE

State CADD Engineer/Coordinator, Production Support Office, Florida Department of Transportation

Phone: (850) 414-4897 | vern.danforth@dot.state.fl.us

Mr. Danforth leads Statewide CADD and BIM technologies efforts at FDOT for the Office of Design Production Support; advancing innovations in CADD and BIM in general. He has worked for State and Local Agencies, AEC firms, and Software Vendors at various times in his 40 year career. He is a Board Member of the International Highway Engineering Exchange Program (IHEEP) and serves on the AASHTO JTCEES.

Secretary—George C. Lukes

State Design and Standards Engineer, Utah Department of Transportation

Phone: (801)965-4986 | glukes@utah.gov

As UDOT's Standards and Design Engineer, George manages the process for all changes and publications of specifications and drawings, as well as manages UDOT's digital delivery program. UDOT is currently finalizing a repeatable process, in lieu of the traditional paper plan set process, where all digital delivery projects are awarded with the model as the legal document, without cutting sheets and the use of the model in the field with mobile devices and rovers. George graduated from the University of Utah with a degree in Chemical Engineering. Over his 30+ years, he has worked in the inorganic mineral processing industry, hazardous waste industry, and the transportation industry.

Immediate Past President—Rande Robinson

Technology Support Specialist, North Carolina Department of Information Technology — Transportation

Phone: (828) 466-5526 | rjrobinson@ncdot.gov

Rande is a part-time blogger, tweeter, author, and ""journalist"" who, during the day, works for the North Carolina Department of Information Technology -Transportation (NCDIT-Trans) as a Technology Support Specialist Advanced. He is currently responsible for the training, support, and implementation of the NCDOT""s CADD and engineering applications for the western half of North Carolina. Rande has over 36 years of experience in Information Technology, Construction, Bridge and Roadway Engineering with two state departments of transportation. In addition to his AEC/Civil Engineering software background, Rande has been involved with internet technologies since the late '90s and was the original webmaster of the West Virginia Department of Transportation. His main area of interest is applying technology to improve engineering workflows and processes in the design of highways and bridges.

Rande has been a Bentley/Intergraph user his entire career, starting on an Intergraph VAX and progressing through today's suite of Bentley Systems PC design tools. Additionally, Rande has taught MicroStation, AutoCAD, and engineering drafting at several community colleges.

Rande has made many presentations over the past 25+ years in the United States, Canada, and Eastern Europe on the subject of applying Information technology in civil and highway engineering. From1997-2001 he wrote a regular column for PC Trans Magazine (now a website) called Rande's Rantings & Ravings. He also co-authored Understanding MicroStation V8 XM in 2D: A Basic Guide for XM and V8i Users.

He is a member of the Highway Engineering Exchange Program (HEEP) and served as the Organizations' President in 2019, and is a long-time American Society of Civil Engineers (ASCE) member. Rande has a B.S. in Civil Engineering from West Virginia Institute of Technology.

2nd Immediate Past President, ESP Director—Jon Starr, PMP

Engineering Support Manager- Business Technology, Nebraska Department of Transportation

Phone: (402) 479-3711 |jon.starr@nebraska.gov

Jon is the Engineering Technology and UAS Program leader at Nebraska DOT. Jon has over 30 years' experience at NDOT, which includes Roadway Design, technology development and support, Project Management and leading multiple large project implementations. He is currently leading the establishment of an Unmanned Aircraft System (UAS) program at NDOT

Area Officers

Area 1 Director—Bill Harrison

CADD Manager, Pennsylvania Department of Transportation

Phone: (570) 368-4335 | wiharrison@pa.gov

Bill has worked in Pennsylvania Department of Transportation's CADD Support unit for 21 years, the first 10 years as a consultant and the last 11 years as an employee. In 2010 Bill began serving as primary instructor for the MicroStation Basic class while also focusing on plotting configuration and support. In mid-2012 Bill moved into the position of Applications Supervisor overseeing the support of MicroStation, Plotting, Survey import and hardware support, AutoTAB (PennDOT's quantities and tabulation management program), workspace and standards implementation to all Cadd users, and training for all the applications the unit directly supports. In mid-2019 Bill advanced into the role of CADD Manager which included continuing his existing duties plus overseeing the purchasing of CADD related PC's, Plotters, and Software. Bill and his team work closely with the other PennDOT support teams for the major projects which currently include the departments transition to OpenRoads Designer, ProjectWise implementation, and the 2025 Digital Delivery Directive.

Area 2 Director—Ellen Sliger

Office of Design, Florida Department of Transportation

Phone:(850) 414-4795 | ellen.sliger@dot.state.fl.us

Ellen works for the Florida Department of Transportation, Office of Design. She has 30 years with the State of Florida. She manages all activities related to training events, meetings, and conferences for the Office of Design. Additionally supporting other FDOT offices organizing national conferences in Florida for FHWA, IHEEP, SASHTO, and AASHTO. Ellen is a CGMP – Certified Government Meeting Professional. She is a graduate of Lake Superior State University.

Area 3 Director—Dan Belcher, P.E., P.S.

Design Services Manager, Michigan Department of Transportation

Phone: (517) 335-2182 | belcherd@michigan.gov

Dan manages the Design Services Section which includes Surveying, Engineering and Document Management support Units. With nearly 30 years at the Michigan Department of Transportation he is currently devoted to how BIMfi, Data Governance and Asset Management compliment each other to eliminate stove pipes and support digital government practices.

Area 4 Director—Becky Hjelm, GISP

Digital Delivery/Digital Twin Advancement, Utah Department of Transportation

Phone: (801)386-4162 | bhjelm@utah.gov

Becky Hjelm has over twenty years of experience in GIS management, data analysis, project management, and IT development in government. She is currently the Digital Delivery Project Manager at UDOT.

Area 5 Director—Andrzej Maciejewski

UN Trans-European N-S Motorwa, TEM Project Central Office

53 Wronia Str., Warsaw, Poland

Phone: 011 (+04822) 375 86 33

Andrzej is currently a Project Manager of United Nations Economic Commission for Europe TEM Project (Trans European Motorway North-South) and a Chairman of the Group of Experts for Benchmarking Construction Costs of Transport Infrastructure under UNECE Working Party 5. Moreover, he is a Director of Area V of US Highways Engineering Exchange Program and a road expert of Inland Surface Transport Group of NATO.

He has an expertise in terms of business models and strategic management. These competencies he used in the field of road sub-sector in terms of asset management, road safety management, intelligent transport systems electronic tolling systems and PPP.

He is Master of Business Administration, MA of International Relations; he has also post-graduate studies in terms of Public Relations. He participated in the program of the US Department of State - International Visitors Leadership Program. He was graduated by the Leadership Academy of Poland, the special program carried out together with Harvard University professors.

PAST PRESIDENTS

YEAR	PRESIDENT	LOCATION
1960	R.J. Hansen	Endicott, MA
1961	J.B. Vail	Kansas City, KS
1962	H. Gottheim	Denver, CO
1963	F.A. Nagel	Columbus, OH
1964	R. Buckwalter	Des Moines, IA
1965	J. Hoffman	Madison, WI
1966	Myron (Mike) Bacon Jr.	New Orleans, LA
1967	A.J. Landary	Olympia, WA
1968	A.E. Goodwin	Toronto, ON
1969	Ron DeClark	Washington, DC
1970	C.D. Smith	Lincoln NE
1971	Jack Stanton	Phoenix, AZ
1972	Herb Pressley	Ft, Lauderdale, FL
1973	Larry Walker	Austin, TX
1974	J.C. Bridwell	Lexington, KY
1975	Walter Verrill	Portland, ME
1976	R.J. Nugent	Los Angeles, CA
1977	Steve Madden	Springfield, IL
1978	W.C. Wall Jr.	Jackson, MS
1979	Dale Johnson	Topeka, KS
1980	Al Cole	Albany, NY
1981	Don Peterson	Keystone, CO
1982	Sam Mallory	Nashville, TN
1983	Frank Tracy	Williamsburg, VA
1984	Alex Azemore	Minneapolis, MN
1985	Jerry Coleman	Baltimore, MD
1986	E.C. (Woody) Nieman	Scottsdale, AZ
1987	Norm Baker	Des Moines, IA
1988	J.M. Nieves	Atlanta, GA
1989	J.R. Szivos	Lancaster, PA
1990	Al Yocom	Rapid City, SD
1991	Pete Tajcnar	Edmonton, AB
1992	Gerry Gingras	Burlington, VT
1993	William (Bill) Crawford	San Antonio, TX
1994	Dennis Babin	New Orleans, LA
1995	Doug Tindall	Portland, OR
1996	Kelly Badenoch	Kansas City, MO
1997	Ray Halperin	Portland, ME
1998	Charles (Chuck) Conley	Colorado Spings, CO
1999	Harvey Elethrop	Mobile, AL
2000	Renaldo Lovisa Jr.	Charlotte, NC
2001	Kenneth Connell	Saint John, NB
2002	Douglas Fees	St. Louis, MO
2003	Micheal Watters	Cheyenne, WY
2004	Jon Ogden	Lincoln, NE
2005	Diane L. Gunsch	Bismarck, ND
2006	Tom Harris	Williamsburg, VA
2007	Michael Authur	Albany, NY
2008	Johnny Martinez	Albuquerque, NM
2009	Judy B. Skeen	San Antonio, TX
2010	Daniel Belcher	Dearborn, MI
2011	Dan Buhler	Winnipeg, MB
2012	J.D. D'Arville	Montgomery, AL
2013	Wally Ballou	Overland Park, KS
2014	Mark Suarez	New Orleans, LA
2015	Denise Reis	Pittsburgh, PA
2016	Mike Dyrdahl	Helena, MT
2017	Kevin Martin	Covington, KY
2018	Jon Starr	Lincoln, NE
2019	Rande Robinson	Asheville, NC
2020	Vern Danforth	

KENNETH G. CLOSE AWARD

An award in memory of Mr. Ken Close, a long time member and supporter of HEEP, may be given to honor one or more members at the annual meeting each year. Suggestions for the award may be made to the President for consideration. The President will make the final determination of any nominations and canvas the HEEP Officers for approval. The award is not necessarily presented annually. Although no specific criteria have been established for determining eligibility, recipients should reflect the goals of HEEP.

Kenneth (Ken) G. Close was a special projects engineer for the Federal Highway Administration and served as the Secretary of the AASHTO Subcommittee on Data Processing, now known as the AASHTO Subcommittee on Information Systems. Ken was also the FHWA designated delegate to the HEEP organization. In the 1970s the HEEP organization did not enjoy the collaborative working relationship with AASHTO that we enjoy today. Ken worked with Norm Baker of the Iowa DOT and Myron (Mike) Bacon of the Wisconsin DOT to improve and expand the working relationship between the AASHTO IS Subcommittee and the HEEP organization. This was a daunting task given the fact that the two venues had few common attendees; however, the team prevailed, laying the groundwork for the supportive relationship between the two organizations. Tragically, in 1984 Ken and his wife were involved in a fatal automobile accident while returning from the AASHTO subcommittee meeting.

In 1985, HEEP President Jerry Coleman of the Maryland DOT made the recommendation that HEEP establish a mechanism to recognize HEEPers who have provided long term support for the organization. Jerry further suggested that the organization turn the tragic loss of Ken Close into an opportunity to honor Ken's memory and significant contributions to HEEP via the establishment of the Kenneth G. Close Award. He, with the approval of the Board of Directors, established the award in 1985.

KENNETH G. CLOSE AWARD WINNERS

1985* Ron DeCloak
1985* Hubert Henry
1986 Bob Hansen
1987 Walter Verrill
1988* Frank Tracy
1988* Mike Bacon
1992 Glenn Sikes
1993 Richard Hand
1994 Gerry Gingras
1995 Jack Stanton
1996 Al Yocom
1997 Al Cole
1998 Chick Yates
1999 John Penzien
2001 Raymond E. Halperin
2003 Petr Pospisil
2004* Ellwood "Woody" C. Neiman
2004* Don C. Peterson
2005 Jon Ogden
2006 Rande Robinson
2007 Diane Gunsch
2008 Paul Fort
2009 Douglas Fees
2010 Michael G. Arthur
2011 Judy Skeen
2012 Dan Belcher
2013 Dan Buhler
2014 J.D. D'Arville
2015* J.D. D'Arville
2015* Dan Belcher
2016 Mark Suarez
2017 Denise Reis
2018* Rachelle VanDeventer
2018* Michael Dyrdahl
2019 Rennie Lovisa

**2 Persons Awarded These Years*

Please join us in Fort Myers, Florida

September 25 - 29, 2022

www.heep.org

Hosted by: FDOT