Session 70
Room: B131-132
GIS Applications for Engineering
Organizer: Steven Main
Moderator: Ethan Schwartz

GIS Applications for Transportation Engineering
Michael Cousins, OHM Advisors, Livonia, MI
John Reese, Stark County, Canton, OH

Utilizing the full capabilities of collecting, processing, and managing Geographic Information Systems (GIS) data allows for an informed and strategic decision-making process during the planning, design, and asset management of our current and future transportation infrastructure. Utilizing real-time and historic data provided by innovative GIS technology, Ohio will be able to grow and preserve its state-of-the-art transportation system.

Session 71
Room: B143-145
Bentley Technologies (Repeat of Tuesday's Session)
Organizer: Rachel Lewis
Moderator: Rachel Lewis

Bentley Advances CADD Technologies
Don Lee, Bentley Systems Inc., Austin, TX
John Drsek, Ohio DOT, Columbus, OH

Repeat of Tuesday Session: The session will cover industry trends for roadway Design & Construction. It will start with a state of the industry. It will cover the latest in roadway design using OpenRoads Designer and Survey. In addition, it will cover how reality modeling is being used to supplement traditional surveying techniques and technology. The use of ConceptStation for conceptual design and LumenRT for realistic visualization of designs adding people, trees and cars. An overview of Subsurface Utility Engineering (SUE) will show how to model existing utilities, as well as Subsurface Utility Design and Analysis (SUDA) for proposed drainage. Finally, a review of tools that can be used to take models into the field for construction.
Session 72
Room: B230-232
Project Workforce
Organizer: Robert Jessberger
Moderator: Robert Jessberger

Developing the Next Generation of Transportation & Construction Inspectors
Terry Bolden, Ohio DOT, Columbus, OH
Jon Link, Columbus State Community College, Columbus, OH
Aric Bennett, The Mannik & Smith Group, Monroe, MI
This session will present the development of the ODOT/Columbus State Construction Inspection Workforce Program (CIWP) that began with the Fall 2018 Semester at Columbus State Community College. It will explain how ODOT, consulting engineers, and Columbus State have worked together to create the CIWP, a model for creating a transportation workforce program. This will include the program’s status, and the future goal of spreading the program statewide.

Leveraging Construction Resources with a Next-generation Workplan
Josh Mrvelj, Ohio DOT, Lebanon, OH
Dan Mendel, Ohio DOT, Lebanon, OH
Stefan Spinosa, Ohio DOT, Lebanon, OH
We explore how ODOT District 8 Construction is using new tools to share information between multiple work units, and to make data-driven decisions about where our own personnel are best utilized, when to use consultant inspection, and how much money to set aside for inspection contracts before the construction season begins.

Session 73
Room: A120-122
E-Construction Session 2
Organizer: Halle Jones Capers
Moderator: Halle Jones Capers

Station & Offset tracking technology on mobile phones and tablets
Patrick Mead, Ohio DOT, Jacksontown, OH
Justin Stone, Ohio DOT, Jacksontown, OH
ODOT has been implementing the use of a mobile application that can track a user’s station and offset and display the information in a user-friendly way, even giving users the option to watermark the photos they take with their position information. The NRG Alignment Viewer mobile application is a tool that tracks one’s station/offset position with respect to an imported project alignment in real-time. This presentation will show actual screenshots, pictures taken, and videos showing the application being used in real-time during construction inspection.

AASHTOWare Project Construction & Materials
Janet Treadway, Ohio DOT, Columbus, OH
ODOT is implementing AASHTOWare Project Construction & Materials web based system as a replacement of the AASHTOWare Project SiteManager construction and materials management system from the ground up statewide. This session will provide a progress update and overview.
Session 74
Room: B130
Navigating Complex Transportation Projects Through the NEPA Process

Organizer: Adrienne Earley
Moderator: Jesse Binau

Darby Bridge Environmental Case Study
Marci Lininger, Ohio DOT, Delaware, OH
The development and delivery of a bridge replacement in an environmentally sensitive area, with a focus on how to implement environmental commitments to counteract project impacts.

Marquette Hospital Transportation Improvement Project
Ken Filpus, MDOT, Ishpeming, MI
Matt Hamel, DLZ, Madison, WI
How the City of Marquette, Michigan delivered an environmentally challenging project expeditiously and successfully. This presentation will address design complexities and environmental impacts through an Environmental Assessment NEPA process.

Sagamore Parkway (US 52) over the Wabash River
Sean Porter, Parsons, Indianapolis, IN
Dan Prevost, Parsons, Cincinnati, OH
The replacement of a steel deck truss bridge over the Wabash River presented a challenging environmental process, involving historic bridge classification, a historic trail, and MOT for reactional boaters.
**Session 75**  
**Room: A110-112**  
**Engineering Ethics**

Organizer:  
Sara Downs

Moderator:  
Tom Pannett

**Ohio Ethics Requirements and Case Studies**  
*Dean Ringle, County Engineers Association of Ohio, Columbus, OH*

ORC Chapter 4733 governs licensing of Ohio’s Professional Engineers and Surveyors. License renewal requires at least two of the thirty hours of continuing professional development (CPD) credit on "professional ethics or rules relevant to the practices of engineering or surveying." Learn about why ethics are important, Ohio’s requirements, and case studies illustrating ethical dilemmas.

**The Ethical Engineer's Guide to Avoiding The 7 Deadly Sins**  
*Tom Pannett, Ohio DOT, Columbus, OH*

I will discuss engineering ethics, the rules surrounding ethics and the seven deadly sins as encountered by engineers. I'll provide some examples of how engineers in the past have harmed their careers by being unethical, hope to give the audience a chance to interact with the presentation by voting on how an engineer should react to a vice or how to judge an engineer who was found guilty of an ethics violation. Finally, I'll provide some guidance how to combat the temptations of the seven deadly sins.

**Droning On About Ethics: Elements of an Ethical and Effective Employee Drone Policy**  
*Allen Rutz, Vorys, Sater, Seymour and Pease LLP, Columbus, OH*

The ability of drones to provide reliable and cost effective construction site analysis, bridge inspection, accident and disaster scene assessment, and the like has resulted in governments and private companies entrusting these aircraft to their skilled employees. To minimize risks, public and private entities using drones should implement an ethical and effective Drone Usage Policy tailored to the operations being conducted. This presentation will outline the key elements of such a policy, with a focus on the ethical obligations of engineers and surveyors operating within the framework of FAA rules and State and local privacy and cybersecurity laws.
Where do you want this thing? - A Data-Driven, Adaptable, GIS-based Carpool Lot Locating Tool

Organizer: Mark McCord
Moderator: Mark McCord

This presentation describes the structure and function of tool developed to identify promising locations for carpool parking lots along the regional highway system. This tool is built on a transparent and data driven GIS-based location evaluation methodology that allows comparison of potential facility locations and assess whether new or expanded facilities were warranted. The tool can be easily updatable to adapt it to future changes in policy direction.

Parking Demand Management Strategies - Short North Parking Plan

Robert Ferrin, City of Columbus, Columbus, OH

Over the past several years the Short North Arts District, located in Columbus, has seen unprecedented development both along High Street and within the neighborhoods of Italian Village and Victorian Village. This development and densification of the Arts District has led to parking challenges for residents, employees, and visitors. The Short North Parking Plan, implemented in January 2019, creates a consistent parking management strategy across the entire district leveraging the latest technology for both the customer and city staff. This presentation will show how the implementation of License Plate Recognition (LPR) technology, virtual permitting, and mobile payment not only changed the parking landscape initially in Short North but how the data generated from these new platforms will assist in modifying the plan for months and years to come.

Downtown C-Pass: A Benefit for Central Ohio

Thea Walsh, MORPC, Columbus, OH
Laura Koprowski, COTA, Columbus, OH

Development in the downtown Columbus area eliminated surface parking lots and 2,000 parking spaces were displaced. There was an office market stagnation due to the lack of parking and general trend of smaller average office footprints. The Downtown C-pass was developed to give eligible downtown workers unlimited access to the entire bus system of Central Ohio Transit Authority (COTA). Eligible workers and some residents can use the C-pass any day, any time, on any route. There has been a 17.7% increase on COTA in Rush Hour route ridership since C-pass launched. The program success has led to additional discussions of opportunities for the future using this model.
Rails and Roads and Tubes...Oh My!

Organizer: Andrew Shepler
Moderator: Mark Locker

Marion 3 "OH" 9 - Bridging the Tracks

Brian Davidson, Ohio DOT, Delaware, OH

This session will cover the Marion SR309 project which began as a realignment, but through public and stakeholder input, became a grade separation. The issue was a railroad intermodal facility and railroad spur that blocked SR309 an average of 10-12 times a day (lasting 10-45 minutes). The congestion delayed Emergency Response service to businesses, schools and parks. This session will share lessons learned from working with stakeholders and using public feedback to create the best solution.

Quantifying the Adaptive Capacity of Rail Crossings

Patrick Anater, CPCS, Cincinnati, OH

Ohio has over 5,000 active rail miles and nearly 50,000 lane miles of road. With all this infrastructure, it should come as no surprise that roads and rails intersect all over the state. In fact, there are over 16,000 road/rail crossings in the state, and over 5,700 of these crossings are public and at-grade. The at-grade crossings are often points of both safety and operational concern. The Ohio Department of Transportation (ODOT) and the Ohio Rail Development Commission (ORDC) are co-sponsoring a Rail Crossing Pilot Study which will develop quantitative measures of an at-grade crossing’s adaptive capacity. This presentation will outline the progress made towards development of an adaptive capacity measure.

Rapid Speed Transportation Initiative Update

Howard Wood, WSP, Columbus, OH
Dina Lopez, MORPC, Columbus, OH
Peter Voorhees, AECOM, Cleveland, OH

This session will showcase the results of the Rapid Speed Transportation Initiative (RSTI) studies, which include the recently completed Chicago-Columbus-Pittsburgh Midwest Connect Hyperloop Feasibility Study, a first-of-its-kind study that ambitiously considers what an environmental approval process could look like for hyperloop technology.
Session 78

Active Transportation Safety

Organizer: Derek Troyer
Moderator: Caraline Griffith

Improving Pedestrian and Bicycle Safety
Jordan Whisler, Ohio DOT, Columbus, OH
Cait Harley, Ohio DOT, Columbus, OH

Session will focus on opportunities to improve pedestrian and bicycle safety within Ohio. Presenters will provide an overview of fatal pedestrian and bicycle trends within the state and the top severe crash typologies, proven countermeasures and infrastructure strategies for reducing these severe crashes, and several example projects & resources.

Corridor Transformation through Active Transportation: Canton's 12th St. NW
Shelly Kendrick, ARCADIS US, Inc., Akron, OH
Dan Moeglin, City of Canton, Canton, OH
Brooks Stingel, The Beaver Excavating Company, Canton, OH

Conceptualized in the early 2000's, this project is a key component of Canton's Livable Communities initiative along this Scenic Byway corridor into downtown Canton. Stark County and the City of Canton teamed together to transform 12th St. NW into an Active Transportation Corridor within the scenic Monument Park area, including replacement of two deteriorating bridges and the connection of Canton's bike trail "interchange." The replacement of the larger 12th St. NW bridge over the West Branch of Nimishillen Creek included a safe, new underpass for the existing Stark County Parks multi-use trail. A pedestrian bridge was relocated to improve trail alignment. The project included significant infrastructure improvement and investment, providing benefit and opportunity to local residents, businesses, motorists, Mercy Medical Center, schools, public transportation, park users, and the Pro Football Hall of Fame. Finally, the bridge was dedicated as the Michael J. Rehfus, Sr. Memorial Bridge in honor of the former Stark County Engineer who began his career as a bridge engineer.
The Playbook for Improving Quality and Consistency of Element Level Data

Glenn Washer, University of Missouri, Columbia, MO

The objective of Dr. Washer’s research was to develop guidelines to improve the quality of element-level data collection for the NHS Bridges in reference to the AASHTO Manual for Bridge Element Inspection. Dr. Washer will discuss how his guidelines: (1) improve consistency in data collection and assessment of bridge element conditions and (2) establish accuracy levels for element conditions and applicable defect quantities to support bridge management system deterioration forecasting and evaluation.

Using Critical Thinking to Address Critical Findings

Edward Cimadr, Burgess & Niple, Inc., Columbus, OH
Brendan Prendeville, Burgess & Niple, Inc., Columbus, OH

With FHWA’s increased focus on addressing critical findings, correcting bridge deficiencies in a timely fashion has become a top priority for bridge owners. It can be challenging to develop a comprehensive plan to address these deficient structures due to the variety of bridge types, the age of the structures, and coordination with stakeholders such as elected officials and non-engineers. This presentation will include cost-effective procedures used to track and mitigate critical findings during local agency fracture critical bridge inspections to address public safety including closure, repair or replacement of the bridge.

Instrumenting for Load Rating

Duncan Paterson, HDR Engineering, Inc., Cincinnati, OH

The State of Utah inherited several municipal and county bridges into their inventory, several of which rated very poorly and were assigned posting or were slated for replacement. A statewide program was established to identify candidate bridges that rated poorly despite evidence of good performance. These candidate bridges were then evaluated for revised load rating via instrumentation per AASHTO Manual of Bridge evaluation, Chapter 8. An instrumentation plan was developed for the selected bridges and several strain based field load tests were executed. Revised calculations based on the load testing led to alleviated load restrictions, and kept a handful of bridges in service. This presentation will address the bridge selection process, instrumentation layout plans, derivation of results, and approximate project costs.
Session 80
IT/Cyber Security
Organizer: Nikhil Khedekar
Moderator: Nikhil Khedekar

Transportation Technology & SMART Communities
James Gilbert, GBA System Integrators, LLC, Moline, IL
This will be a discussion on how C/AV and Smart Communities will have a high dependence on existing and envisioned transportation communication networks for critical data sharing, for collaboration needs for the distribution of information both to and from vehicles, drivers, and other roadway users, and for other intelligent systems linkages and expansion.

By choice or by force, security threats will transform how you operate
Charles Ash, ODOT, Columbus, OH
Simon Herring, Ubersecure, Columbus, OH
ODOT has approached security using 3 core themes, and applied them in the enterprise. We will discuss how these principles have prevented and limited otherwise potentially costly security issues within ODOT. Personal security can be achieved through application of technology, security practices, and developing a Security Mindset.

The Importance of Data in Smart Columbus
Sherry Kish, HNTB, Zionsville, IN
Ty Sonagere, CoverMyMeds, Columbus, OH
Christina Drummond, The Ohio State University Program on Data and Governance, Columbus, OH

Key topics that this panel will address include: - Use of data by the Operating System: data availability, quality, visualization of data (how data is driving decisions and design) - City approach to data management and privacy policy development - Bringing together experts to review and evaluate best practices in data related policy creation - Policy and technical development working hand in hand

Session 81
The Future of our Transportation Workforce
Organizer: Cynthia Jones
Moderator: Rich Granger

Workforce Strategic Plan
Rich Granger, DriveOhio, Columbus, OH
Overview of portfolio of workforce items by DriveOhio

Transportation Workforce Panel
Heather Sherman, Ohio STEM Learning Network, Columbus, OH
Rick Smith, Ohio Hi-Point Career Center, Columbus, OH
Rebecca Blust, University of Dayton, Columbus, OH

Experts on three aspects of transportation workforce will present and discuss: - Ohio Stem Learning Network - Auto Tech/Connected Vehicle Workforce Training - Capstone Education
Wednesday, October 30, 2019  2:00 - 3:30 p.m.  
CPDs =  1.5

Session 82
Room: A220-222

Smart Decisions with Transportation Investments

Organizer:  Andrew Wolpert
Moderator:  Andrew Wolpert

**Constructing Ohio's First SmartLane**

Zachary Amnah, ODOT, Delaware, OH
Brian Gable, ODOT, Delaware, OH
Anthony Turowski, Ohio DOT, Delaware, OH

This session will cover building Ohio's first 'SmartLane.' The $64 million project utilizes the shoulder as an extra travel lane that's open during rush hour to relieve congestion & safety issues between downtown Columbus & the airport. The presentation will review the importance of creating buy-in with first responders, transit authority and local government partners and enacting this first-time initiative in Ohio including the required legislative authority to implement a variable speed limit.

**The Intersection Control Evaluation (ICE) Tool**

Jonathan Reid, ARCADIS US, Inc., Atlanta, GA

In July 2017, GDOT adopted a state compliance policy of FHWA's Intersection Control Evaluation (ICE) initiative. Arcadis developed an analysis tool to ensure all State TIP projects consider both safety and innovation in the development of alternatives, concepts and improvement recommendations. The ICE tool provides a simplified and consistent way of importing traffic, safety, cost, environmental impact and stakeholder posture data to assess, quantify and compare intersection control alternatives, and supports the ICE policy of providing traceability, transparency, consistency and accountability when identifying and selecting an intersection control solution. Use of the tool has become mandatory statewide for any project seeking state funding, resulting in an equitable approach to evaluating projects and allocate funding. In his presentation, Jonathan will review the development of GDOT's ICE Policy and Tool and will include lessons learned from case studies and the development of model procedures and tool updates from the information gathered in training sessions instructing over 500 participants from GDOT, municipalities and consultant firms.

**Ohio Analysis & Traffic Simulation (OATS) Manual**

Brenton Bogard, Ohio DOT, Columbus, OH
Tom Creasey, Caliper, Newton, MA

This session will provide an overview of the what/when/how of ODOT's new OATS Manual. The OATS Manual will be a technical guiding document for use of Highway Capacity Software (HCS) and the use of micro-simulation in ODOT projects. The application of HCS in ODOT alternative analysis and interchange studies has remained relatively unchanged for many years in Ohio while the capabilities of the software have grown over time. The OATS Manual will document significant new HCS analysis requirements for ODOT projects going forward. In addition, the OATS will provide extensive requirements and guidance on the application of micro-simulation which will become more prevalent in the ODOT Project Development Process. The OATS Manual will be an exclusively electronic document that provides links to supplemental videos to provide more explanation for potentially complex or confusing requirements.