



PURDUE ROAD SCHOOL

101ST TRANSPORTATION CONFERENCE & EXPO
MARCH 10-12, 2015





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Welcome to the 101st Purdue Road School

Last year we celebrated our 100th Purdue Road School with record breaking attendance and a wide range of transportation oriented sessions. In an effort to reflect the breadth of offering at this conference you will notice we have re-titled the 101st offering as the Purdue Road School Conference and Transportation Expo. This is also reflected in the branding that reflects the diverse transportation modes represented in the program.

We are also accelerating changes on the use of technology. Last year's expansion into web offering was a success with 126 participant hours of CEU's awarded in two sessions. We are once again offering four hours of distance learning for sessions on Indiana Statutes and Ethics for Professional Engineering scheduled for Monday and Wednesday.

Many of you may have also noticed that impact of the technical program lasts well beyond the three day event. Since 2011 we have archived 435 presentations in the Purdue Library online

repository. To date those presentations have been downloaded over 46,000 times. In fact, in 2014, there were over 6,000 downloads from the 2011 program demonstrating that technical program material has continued relevance three years later. This impact would not be possible without the strong participation of peers like yourself that shape this year's program of over 125 sessions delivered or moderated by over 250 persons.

Darcy M. Bullock, Ph.D., P.E.

Professor of Civil Engineering and
Director of the Joint Transportation Research Program,
Purdue University

John E. Haddock, Ph.D., P.E.

Professor of Civil Engineering and
Director of the Indiana Local Technical Assistance Program,
Purdue University

At-a-glance Schedule

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Tuesday, 7:00 AM–4:50 PM

MAR 10

7:00-8:45 AM
Coffee with Exhibitors
Purdue Memorial Union
North & South Ballrooms

9:00-10:50 AM
Opening Session
Loeb Theater
Stewart Center

11:00-11:50 AM
Technical Sessions

11:00-1:50 PM
Exhibitor Luncheon & Poster Session
Purdue Memorial Union
North & South Ballrooms

1:00-4:50 PM
Technical Sessions

Wednesday, 8:00 AM–4:50 PM

MAR 11

8:00 AM - 11:50 AM
Technical Sessions

12:00 - 1:50 PM
Road School Luncheon
Purdue Memorial Union
North & South Ballrooms

2:00 - 4:50 PM
Technical Sessions

Thursday, 7:30 AM–Noon

MAR 12

7:30 AM - 1:00 PM
Associations
Purdue Memorial Union
South Ballroom

Breakfast at 7:30 AM
*Meetings directly after
breakfast speaker*

Monday, 2:00-3:50 PM

MAR 9

Ethics Classes/Webinars
Purdue Memorial Union Faculty Lounge

Technical session locations are provided with their descriptions and are listed on the matrix located on pages 24 – 27.

Tuesday, 7:00-8:45 AM

Coffee with Exhibitors

Please join our exhibitors in the Purdue Memorial Union Ballrooms for coffee prior to the opening session!

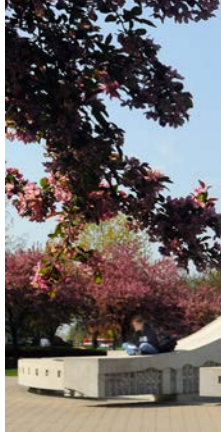
Wednesday, 12:00-1:50 PM

Purdue Road School Luncheon

Tickets are sold in advance. A limited number of \$25 tickets may be released at 10:00 AM the day of the luncheon. Please inquire at the Road School registration desk in the Purdue Memorial Union.

Lt. Governor Sue Ellspermann, Keynote Speaker

Details



Tuesday, 11:00 AM -1:50 PM

Exhibitor Luncheon

The annual exhibitor luncheon provides an opportunity for attendees to visit with the exhibitors and enjoy a sandwich buffet lunch. Name badges are required for admission. Participating exhibitors are listed on page 10.

Student Poster Session

Adjacent to the South Ballroom (in the southwest corner of the Purdue Memorial Union), students will be exhibiting posters showing recently completed research activities. See poster details on page 8.



Thursday, 7:30 AM -12:00 PM

Associations Breakfast & Meeting

A joint association breakfast meeting will start at 7:30 AM on Thursday, March 12, in the Purdue Memorial Union South Ballroom.

Howard Kellman, speaker

Following the breakfast, associations will convene for their own meetings in the assigned rooms in the Stewart Center:

- American Public Works Association (APWA) - 306
- Association of Indiana Counties (AIC) - 204
- Aviation Association Indiana – 218AB
- Indiana Association of County Commissioners (IACC)– 214AB
- Indiana Association of County Engineers and Highway Supervisors (IACHES) - 206
- Indiana Association of Cities and Towns (IACT) - 202
- Indiana Chapter of American Traffic Safety Services – 218CD
- Indiana Street Commissioners (ISC) - 302
- Surveyors Association – 214CD

Tuesday and Wednesday

Technical Sessions

See the technical session foldout for the schedule and locations. Descriptions are located in the program beginning on page 11.

As Lt. Governor, Sue manages six state agencies including the Indiana State Department of Agriculture, the Indiana Housing and Community Development Authority, the Office of Defense Development, the Office of Community and Rural Affairs, the Office of Tourism Development and the Office of Small Business and Entrepreneurship. She also serves as President of the Indiana Senate and chairs the Indiana Counter Terrorism and Security Council.

During her first year in office, Lt. Governor Ellspermann completed a 92-county "Listen and Learn" tour where she met with business, agriculture and government leaders. In addition to her oversight of her six state agencies, Governor Pence has appointed her co-chair of his Blue Ribbon Panel on Transportation Infrastructure. She also serves as co-chair of the Indiana Career Council that is overseeing the State's workforce development and training initiatives.



Indiana LTAP

Visit Indiana LTAP in Stewart Center, Room 307, to receive a free print copy of LTAP's 2015 **Directory of Indiana State, County, City, and Town Officials**. Electronic copy of the directory is also available to download from the LTAP website (www.purdue.edu/intlap). The mobile directory app has been updated and is available at the iTunes Store for iPhones and at Google Play for Android phones.

Purdue Campus

Smoke-Free Policy | Smoking is not permitted on campus except in a limited number of designated areas. Smoking can occur outside of the southwest corner of Purdue Memorial Union and the southeast corner of Stewart Center. For more information on Purdue's smoke-free policy, including a map of the designated smoking areas, see www.purdue.edu/smoke-free.

WIFI | Complimentary Internet is provided by Purdue Extended Campus Conference Division. The network name is "AT&T WIFI" and no password is needed.

Greater Lafayette Citybus | Greater Lafayette CityBus has partnered with the Purdue Road School to provide complimentary transportation on the 1B line as well as the trolley service. To receive this benefit, tell the driver you are attending the Purdue Road School.

JTRP Technical Reports

Many speakers and moderators have participated in either the Joint Transportation Research Program, or its predecessor, the Joint Highway Research Program (JHRP). In partnership with the Purdue Libraries, JTRP has made over 1,500 technical reports dating to 1955 available online at <http://docs.lib.purdue.edu/jtrp>. In December of 2014, together they celebrated a milestone of **ONE MILLION** downloads!

Purdue Road School Presentations Archived

In 2011 we began digitally archiving Road School presentations with authors' permission in the Purdue Libraries open access repository, e-Pubs. You may access presentations from the following URL: <http://docs.lib.purdue.edu/roadschool/>.

2015 Road School presenters can stop by the Purdue Library exhibit area on the second floor of Stewart Center to submit their presentations either before or after their session. The archived presentations provide a valuable resource after Purdue Road School is concluded.

The impact of the archived presentations consistently proves successful. With 436 presentations available in the repository, there are over 46K downloads to date. The following list contains the top 10 downloads for all time:

Top 10 Presentation Downloads	Authors	Year	#
Concrete Pavement: Selections of Concrete Materials	Jerry Larson	2011	2,699
Culvert Slip Lining	Scott Brown, Darin Duncan, Stephen Ritzler, Sam Martin	2011	2,150
Best Practices in Contract Administration	Bren I. George-Nwabugwu	2013	2,137
Proper Design Details for PCC Pavement Performance	Mike Byers	2011	1,890
Dynamic Cone Penetrometer (DCP)	Nayyar Zia Siddiki	2012	1,504
Drainage Ditches: All Shapes and Sizes	Kent Wamsley	2012	1,176
Traffic Signal Advance Pre-Emption Design within 200 Feet of Active Railroad Crossings	Gregory Richards	2012	1,134
Accelerating Bridge Construction (ABC) with Prefabricated Bridge Elements & Systems (PBES)	Keith Hoernschemeyer	2011	948
Light Weight Deflectometer (LWD)	Nayyar Zia Siddiki	2012	907
The Importance of Performing Route Surveys in the State of Indiana	Rodney Kelly, Chester Parson, Grant Niemeyer	2013	818



Track Advisors

Thank You! During the past six months, hundreds of volunteer hours have been invested in developing the technical program. In addition to expressing our appreciation to the speakers and moderators listed in the program, we would like to thank the following individuals for participating in the track advisor meetings and reviews that shaped this year's program.

Barb Alder	Jeff Hill	Chris Pope
Zachariah Beasley	Mike Holowaty	Anne Rearick
Laura Britton	David Holtz	Michael Rowe
Darcy Bullock	Debbie Horton	Dave Scherer
Mike Byers	Sarah Hubbard	Hardik Shah
Pat Conner	Bill Knopf	Carol Shelby
Ed Cox	Bob McCullouch	Laura Slusher
Heather Devocelle	Mark Miller	Douglas Valmore
Rich Domonkos	Trevor Mills	Tim Wells
Liz Evans	Teresa Morris	Stephanie Yager
Louis Feagans	Mark Newland	Bob Zier
Kenny Franklin	Craig Parks	
John Haddock	Kym Pelfree	

Professional Development Hours

Professional development hours (PDH)/continuing education units (CEU) are available for many sessions. Attendance at the entire session is required for credit. In order to register for official Purdue PDH/CEU credit, you must visit www.conf.purdue.edu/RoadSchoolCEU (link live on March 9) and complete the form by selecting the session number and title that you attended at Purdue Road School. By submitting this online document, you certify that you attended all sessions listed.

Statement choices:

1. You may retain the enclosed document for your personal records.
2. The website for registering your PDHs/CEUs with Purdue Extended Campus will be available beginning March 9 until April 17, 2015. Beginning April 30, 2015 you may request an official transcript for a fee of \$6.

Visit www.conf.purdue.edu to obtain the CEU Transcript request form and mail the completed form and payment to the address listed on the form.

Professional Development Hours
CREDIT STATEMENT



Day	Time	Number	Title	Hours
Monday March 10	2:00 - 2:50 PM	69A.	Indiana Statutes and Rules for Professional Engineers (PDH 1)	
	3:00 - 3:50 PM	70A.	Ethics and the Indiana Law for Professional Engineers (PDH 1)	
Tuesday March 11	11:00 - 11:50 AM			
	1:00 - 1:50 PM			
	2:00 - 2:50 PM			
	3:00 - 3:50 PM			
	4:00 - 4:50 PM			
Wednesday March 12	8:00 - 8:50 AM			
	9:00 - 9:50 AM			
	10:00 - 10:50 AM			
	11:00 - 11:50 AM			
	2:00 - 2:50 PM			
	3:00 - 3:50 PM			
	4:00 - 4:50 PM			
Total Hours Earned				

Retain this document for your records.



Opening Session

Tuesday, March 10, 2015, 9:00-10:50 AM
Loeb Theater, Stewart Center

WELCOME

Steve Abel

Associate Vice President for Engagement
Purdue University

Darcy Bullock

Joint Transportation Research Program Director
Purdue University

KEYNOTE SPEAKERS

Blair Milo

Mayor of La Porte

Zack Scott

UPS Ohio Valley District President

Karl Browning

Indiana Department of Transportation Commissioner

Awards Recognition

Presented by Rick Marquis

Federal Highway Administration Division Administrator

The **2015 Indiana Partnership for Transportation Quality Awards** will be recognized in a slide presentation. Award recipients are asked to report to the stage for photos directly after the Opening Session has adjourned.

Congratulations to all award recipients!

Recipients of the 2014 Indiana Partnership for Transportation
Quality Awards



2014 Major New/Reconstruction: Urban
I-65/I-70 South Split Interchange in Downtown Indianapolis
INDOT-Greenfield District, Milestone and Parsons



2014 Major New/Reconstruction: Rural
US 31 Kokomo Corridor, North Terminus
INDOT-Greenfield District, Primco
and American Structurepoint



2014 Special Projects: Over \$2 Million
Greenfield Rest Area Expansion at East Bound I-70
INDOT-Greenfield District and E&B Paving, Inc.



2014 Pavement: Rural
County Road 275 West, White Topping Project
Cass County Commissioners, E&B Paving, Inc.,
R.W. Armstrong and CHA Consulting

Barge Transportation for Steel Coils

A market analysis conducted by University of Southern Indiana students, for the Ports of Indiana, to determine if barge transportation was a feasible option to transport steel coils from Northern Indiana steel mills to the port of Jeffersonville. Steel coils are mainly transported by truck and rail, therefore, students researched the possible safety, maintenance, and ecological benefits of transporting coils by barge.

*Chelsea Hochstetler and Marco Lara Gracia,
University of Southern Indiana*

Computational Approach for Assessing Durability of Indiana Bridges

A computational approach that relies on detailed finite element models of representative bridges from INDOT's inventory will be presented. The models use a cumulative damage rule to represent damage due to repetitive traffic loads and deterioration due to natural causes. Calibrated using data from actual inspection reports, the models are able to quantify the evolution of damage in the various components of a bridge over its lifetime.

Arun Prakash and Boyuan Liu, Purdue University

Estimating Vehicle's Trajectory with Bezier Curves

Estimating the trajectories or paths followed by drivers can provide a better understanding of the influence of road geometry on driver behavior as well as helping to develop improved models that include vehicle free-flow motion in the micro-simulation of road traffic. This paper proposes a new method of estimating vehicle trajectory by applying Bezier curves to a sequence of vehicle positions measured over time.

*Mario Romero, Andrew Tarko and Cristhian G. Lizarazo,
Purdue University*

Capacity-related Driver Behavior on Roundabouts Built on High-Speed Roads

The capacity of roundabouts is strongly affected by the behavior of drivers as represented by critical headway (critical gap) and follow-up headway (follow-up time). Although the Highway Capacity Manual (HCM) 2010 provides the default values for capacity analysis, the capacity model parameters for local conditions are recommended, which preferably account for speed, heavy vehicles, nighttime, and other conditions that affect driver behavior. Thirty roundabouts are being planned on state roads in Indiana and a similar trend is taking place in other states. This research describes a study that examined the capacity-related behaviors of drivers on roundabouts built on state routes.

*Mario Romero, Shaikh A. Martin and Andrew Tarko,
Purdue University*

Design and Operation of Container Terminals

This presentation covers the most fundamental design and operational aspects of container handling facilities (i.e., container ports and terminals). Key topics to address include equipment selection, facility layout, customer service, quality control, equipment and facility maintenance, safety, equipment packaging for transportation, automation, security, equipment manufacturers, and container handling facilities of the future.

Marco Lara Gracia, University of Southern Indiana

11:00 AM -1:50 PM

The poster exhibit is located in the Purdue Memorial Union next to Purdue Road School Registration.

Poster Exhibit

Development of a Real-Time Web-Based Dashboard for Interstate Performance Monitoring

Monitoring interstate speeds in real time gives an intuitive and simple measure for interstate system performance at a high level. This dashboard website displays graphs describing the congestion history of the road in terms of miles operating below 45 mph and current conditions for monitoring. The playback feature allows for review of conditions during an event such as a road closure or ice storm.

Maggie McNamara and Darcy Bullock, Purdue University

Exploring the Effects of Social Ties on Joint Trip Frequency: Ego-centric Social Network Approach

Recently, activity-based travel demand modeling gained significant interest due to its level of accuracy and applicability in travel behavior research especially with the inclusion of interactions among social network members in addition to individuals' characteristics. The findings of this study would help practitioners to implement targeted policies for various user groups such as car sharing.

*Arif Mohaimin Sadri, Seungyoon Lee and Satish Ukkusuri,
Purdue University*

The Impact Of International Crises On Maritime Transportation Based Global Value Chains

International trade has evolved into a complex network of global value chains (GVCs) that take advantage of the low cost and high scope of international maritime transportation (MT). Given the interconnectivity of GVCs, regional economic crises propagate rapidly. The paper represented in this poster uses complex network analysis to understand the impact of international crises on the evolution of MT GVCs.

Satish Ukkusuri, Rodrigo Mesa-Arango, Badri Narayanan Gopalakrisnan, Purdue University

Multi-period Equilibrium Modeling Framework for Tradable Credit Schemes

This study develops a multi-period equilibrium modeling framework to capture the evolution of credit price when credit demand and supply vary with time under credit-based congestion pricing. In it, a central authority uses a tradable credit scheme as a market instrument over a planning horizon of interest by varying the supply of credits in different periods to meet some long-term system-level goals.

Mohammad Miralinaghi, Purdue University

Leveraging Commercial Cloud Navigation and Maps for Special Event Route Management

This poster discusses the implementation of cloud-based maps (maps.google.com) that provide recommended turn by turn directions to and from 26 parking lots associated with the Purdue Football home game activities. These maps were developed in close coordination with public safety and athletics staff. The resultant maps were communicated to season pass holders and other visitors using QR codes printed on parking passes as well as a variety of electronic media. In addition to covering the map generation process, this presentation will share some of the lessons learned and ongoing activities related to special event management.

Michelle Mekker, Howell Li and Darcy Bullock, Purdue University

Quantifying Benefits of Signal Timing Maintenance and Optimization Using both Travel Time and Travel Time Reliability Measures

Three signal timing scenarios were analyzed in this study: 1) no timing maintenance, 2) post-timing maintenance, and 3) post-progression optimization. The evaluation was performed on a 12-intersection corridor in suburban Indianapolis using high-resolution signal event data and crowd-sourced travel time data.

Howell Li, Steven Lavrenz, Christopher M. Day, Darcy Bullock, Purdue University

Amanda Stevens, INDOT

Low Income, Modal Captivity, and Healthy Food Access

Poor transit access and supermarket access may be contributing to Indiana's high obesity rates and low rankings in physical activity and nutrition. This study will find the extent of food deserts in Indianapolis, accounting for both grocery cost and travel cost. Additionally, a multivariate statistical analysis will be developed to establish the relationship among modal captivity, income, and access to food and to determine the primary factors affecting that relationship.

Andrea Bailey, Purdue University

The Use Of Large Scale Geo-Location Data To Measure Transportation Planning and Operations Performance Metrics

The recent development of sensing technologies and large-scale pervasive computing infrastructures brings up unprecedented amount of data. The availability of big data introduces innovative opportunities to reconsider traditional transportation research problems. It also provides the opportunity to tackle unsolved problems. The paper represented in this poster presents research that uses large-scale taxicab data to estimate link travel time, predict the taxi passenger demand and also evaluate the operation efficiency of the taxi service system.

Satish Ukkusuri, Xianyuan Zhan and Xinwu Qian, Purdue University

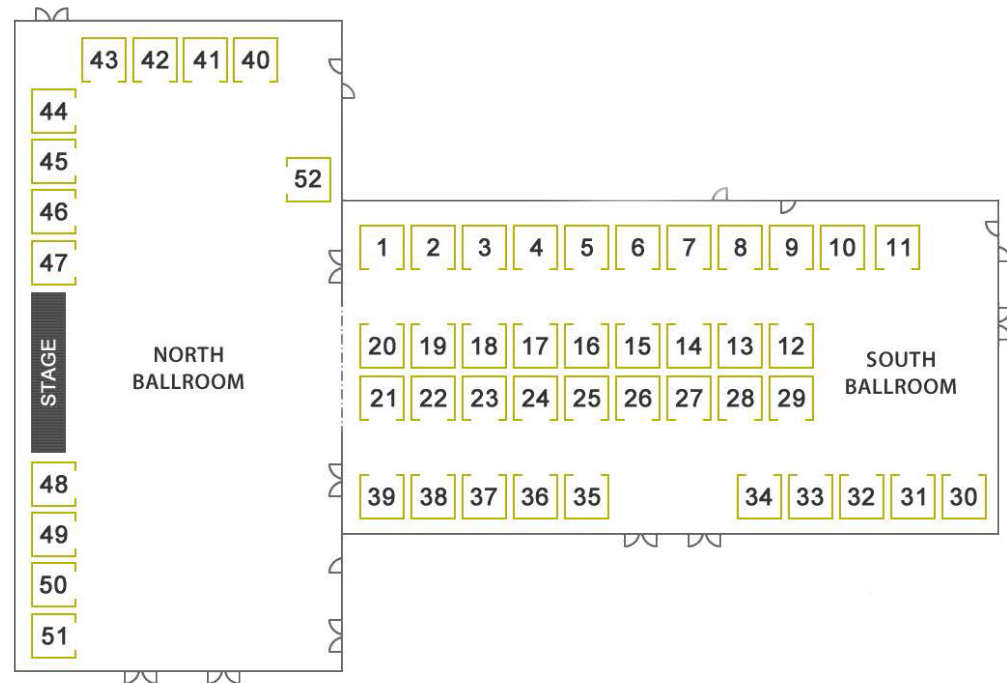
BUILD YOUR CAREER AT
INDOT

INDOT hires a vast range of positions including: highway and construction engineers, project managers, highway technicians, signal technicians, surveyors, mechanics, engineering assistants, and administrative personnel, as well as professionals in the communications, finance, human resources, information technology, and legal fields. Whether you are an established professional in the transportation field, or at the start of your career, stop by the INDOT booth at the Purdue Road School March 10th and 11th and learn more about the exciting opportunities available across the state!

The INDOT booth is located on the first floor of STEWART near Room 107.

Exhibitors

- 45 3M Company
- 1 Advanced Drainage Systems, Inc.
- 36 American Structurepoint, Inc.
- 17 ASC Group, Inc.
- 46 Asphalt Materials, Inc.
- 6 Asphalt Pavement Association of Indiana
- 20 Avery Dennison
- 40 Beam Longest and Neff, LLC
- 39 BridgeGuard, Inc.
- 35 Burgess & Niple, Inc.
- 27 Christopher B. Burke Engineering, LLC
- 18 Co-Alliance LLP
- 7 Collins Engineers, Inc.
- 52 CONTECH Engineered Solutions, LLC
- 26 D2 Land & Water Resource
- 25 Ennis-Flint
- 32 Equipment Marketing Company
- 28 Fleis & VandenBrink
- 24 GAI Consultants, Inc.
- 30 Gallagher Asphalt - Indiana
- 14 Geostabilization International
- 11 Globe Asphalt Paving Co., Inc.
- 49 GRW Engineers, Inc.
- 33 Hanson Professional Services
- 9 Harding Group/F.E. Harding
- 41 Hayward Baker, Inc.
- 29 Highway Safety Specialists
- 50 Hydro-Technologies, Inc.
- 3 Indiana Kentucky Ohio Concrete Pipe Association
- 47 Irving Materials, Inc.
- 19 Jack Doheny Companies
- 8 Kessler Soils Engineering Products, Inc.
- 16 Lawson-Fisher Associates P.C.
- 44 Maddock Construction Equipment
- 13 MGI Traffic Control Products
- 5 Milliken Infrastructure Solutions
- 21 Osburn Associates, Inc.



- 51 Palmer Truck Group
- 15 Paving Maintenance Supply Inc.
- 22 Pennz Suppress
- 31 Primera Engineers
- 4 Prinsco
- 12 Reading Rock, Inc.
- 48 Resource International, Inc.
- 2 Sanders Precast Concrete Systems
- 43 Sherwin Industries, Inc.
- 10 Stello Products, Inc.
- 38 TAPCO
- 42 The Hoosier Company, Inc.
- 23 United Consulting
- 37 VS Engineering
- 34 Winter Equipment Co., Inc.



Technical **PROGRAM**

The quick reference guide located on pages 24-27 is an at-a-glance view of the tracks, session names, and session times along with session ID numbers. The session IDs shown on the quick reference guide correspond to the session numbers on the following pages. Tracks are in alphabetical order.

SESSION MODERATORS: In general, the program has moderators that are assigned to cover a room for an entire morning or afternoon. Moderators are responsible for keeping the session on schedule and managing questions and answers.

SESSION SPEAKERS: Many of the sessions reflect substantial team efforts. However, it is difficult to have more than two or three speakers per 50-minute module. To provide recognition of the team effort involved in preparing a session without having an excessive number of speakers in a 50-minute period, some individuals listed on the program may not present, but will serve in commentary and support roles during the Q&A portion of a session.

AVIATION

WEDNESDAY, 8:00–8:50 AM

47

Heated Airport Pavements

This presentation discusses heated airport pavements, which provide the potential to use Phase Change Materials (PCM) to store heat in concrete pavement, thereby reducing the need for anti-icing.

*Halil Ceylan, Iowa State University
Jason Weiss, Purdue University*

Moderated by Pete Sparacino, FAA

STEW 204

PDH 1

WEDNESDAY, 9:00–9:50 AM

48

Runway Protection Zones Impacts on Roadways

The FAA has recently changed its policy on how the areas beyond a runway must be purchased and cleared from obstructions. This change has had a major impact on existing and planned future roadways, from county roads to interstate highways in Indiana. This presentation will cover the new requirements and case examples of projects that impacted local and state agencies and the public, as well as what to do if your airport does have a roadway in its Runway Protection Zone.

*Chris Snyder and Maria Muia, Woolpert, Inc.
Travis McQueen, Huntingburg Airport*

Moderated by Pete Sparacino, FAA

STEW 204

PDH 1

WEDNESDAY, 10:00–10:50 AM

49

Sustainability: Utilization of FAA VALE Grants for Geothermal Projects

South Bend Airport has successfully completed one geothermal project and has a second project underway. This session will provide additional information about the possible opportunities and challenges associated with this innovative and sustainable alternative.

*Tim O'Donnell and Cliff Jenkins, South Bend International Airport
Lisa Kinsman and Aaron Tervort, Mead & Hunt, Inc.*

Moderated by Pete Sparacino, FAA

STEW 204

PDH 1

WEDNESDAY, 11:00–11:50 AM

50

Safety and Security

Aviation Safety: Just Culture | Just Culture is a safety framework that balances responsibility for people's mistakes and a systematic process for accountability. The presenter is experienced with safety in both air operations and maintenance.

Mark Molin, FedEx Express, Memphis

The Effectiveness of K9 Teams to Enhance Security | K9 teams provide the most effective and cost effective means for the identification of explosive hazards in public places. K9 teams are used to respond to threats in a variety of public agency settings, and this session will provide information about how these teams train and operate. Purdue's K9 team of Officer Argerbright and Macho is one of the top teams in the country and will share information about this unique resource for safety and security.

Austin Argerbright, Purdue University

Moderated by Pete Sparacino, FAA

STEW 204

PDH 1

WEDNESDAY, 2:00–2:50 PM

51

Disaster Averted—Monroe County Airport Successfully Remediate Sinkhole

Nationally, sinkholes have resulted in devastating loss of life and property. Monroe County Airport avoided potential disaster due to a sinkhole at the edge of the runway by leveraging \$11 million of federal funds to remediate conditions in an accelerated 62-day construction project that included removal of 385,000 cubic yards of soil. The airport completed the project within budget and on schedule using local contractors and working within the constraints of a full environmental review.

Bruce Payton, Monroe County Airport

Moderated by Nattiel Chambers, SRA

STEW 204

PDH 1



Photo Credit: Suzanne Coolbaugh-Walker, Purdue Aviation Technology

WEDNESDAY, 3:00–3:50 PM

52

Airport Case Studies

Methods for Counting Aircraft at Non-Towered Airports

| This Transportation Research Board–funded project analyzed three different methods for counting aircraft operations at airports without air traffic controllers: estimating operations per based aircraft, computing a flight plan to total operations ratio, and expanding a sample count. For taking sample counts, three different technologies were evaluated: acoustical, security cameras, and video image detection with ADS-B transponder receiver.

Maria Muia, Woolpert, Inc.

Mary Johnson, Purdue University

Moderated by Nattiel Chambers, SRA

Runway Pavement Analysis with Non-Destructive Testing

| Lafayette (Purdue University) Airport’s runway 10–28 (6,400 feet) was reconstructed in 1997/1998. The asphalt surface was pulverized and overlaid with FAA P-401 asphalt on the runway and INDOT #11 asphalt on the shoulders. The existing pavements were experiencing multiple types of distresses throughout that did not accurately reflect the pavement condition index. This presentation will cover the field analysis, including the use of non-destructive testing on the material layers, data results, and recommendations to repair based on the existing and future fleet mix of aircrafts.

Chris Snyder, Woolpert, Inc.

Yigong (Richard) Ji and Michael Buening, INDOT

STEW 204

PDH 1

53 A-C

Purdue Aviation Technology & LAF Airport Tours

Wednesday

A. 11:00-11:50 AM

B. 2:00-2:50 PM

C. 3:00-3:50 PM

Purdue University Student Ambassadors will provide a tour of the Purdue Airport and the Purdue Aviation Technology Department, including the Purdue aircraft and simulator building. Weather permitting, the airport’s snow removal equipment (broom, plows, and blower) will be on display.

Space is limited and sign-up is required. Inquire at registration desk in Purdue Memorial Union.

BRIDGES

TUESDAY, 2:00–2:50 PM

1

LSIORB East End Bridge Design and Construction Update

Design and construction work began on the new Ohio River Bridge connecting Utica, Indiana, to Prospect, Kentucky, in 2013. The bridge is cable stayed and 2,500 feet long, with a 1,200-foot center span. Now two years into the project, INDOT and Walsh-Vinci Construction will provide an update on progress, primarily focusing on foundation and tower construction. Completion date is October 2016.

Kevin Hetrick, INDOT
Doug Vanslambrook, Walsh-Vinci Construction

Moderated by Jeremy Hunter, INDOT

STEW 218CD

PDH 1

TUESDAY, 3:00–3:50 PM

2

A Practical Approach to Programming-Level Cost Estimation

This presentation chronicles the development of cost models, considering the impact of project size, for bridge rehabilitation and replacement projects for use by INDOT's Bridge Asset Management Team. Data mining and other issues are discussed, along with model form and the practical connection of the models with intuition. Extension of this effort to other assets (pavement) and to smaller project types (indefinite delivery/indefinite quantity contracts) is also covered.

Robert Montgomery and Jeremy Hunter, INDOT

Moderated by Jeremy Hunter, INDOT

STEW 218CD

PDH 1

TUESDAY, 4:00–4:50 PM

3

Introduction to the S-BRITE Center at Purdue University

Purdue University has partnered with INDOT and JTRP to develop a unique center that fills a growing need related to existing and aging steel bridges. The new center has been named the Steel Bridge Research, Inspection, Training, and Engineering Center (S-BRITE). Dr. Connor will provide an introduction to the center and on update on current progress, as well as highlight some of the current research associated with S-BRITE.

Robert Connor, Purdue University

Moderated by Jeremy Hunter, INDOT

STEW 218CD

PDH 1

TUESDAY, 2:00–2:50 PM

4

I-43 Leo Frigo Bridge Closure & Emergency Repairs

The Leo Frigo Bridge experienced an unexpected pier settlement that resulted in an emergency closure of I-43 in Green Bay, Wisconsin. This 8,000-foot long viaduct includes a steel arch span over the Fox River and is one of the highest bridges in the state of Wisconsin. Over the next 100 days, engineers and contractors mobilized to analyze the situation, develop repair solutions, and complete construction. The project moved at lightning speed to return service to 40,000 daily vehicles.

Kent Zinn, Michael Baker International

Moderated by Tim Wells, INDOT

STEW 214AB

PDH 1

TUESDAY, 3:00–3:50 PM

5

Comparative Study of Data Acquisition Systems for Bridges

This presentation compares three different commercially available data acquisition (DAQ) systems for use in nondestructive load testing of bridges. The DAQ systems were evaluated based on features and capabilities, power consumption, usability, limitations, and cost. When deployed on two rural, simple-span steel bridges, each DAQ system provided repeatable and accurate data, which resulted in a load rating increase of 170% for the first bridge and 70% for the other.

Jason Lloyd, Purdue University

Moderated by Tim Wells, INDOT

STEW 214AB

PDH 1

TUESDAY, 4:00–4:50 PM

6

Inspection Guidelines and Criteria for Load Rating Box Beam Bridges

Adjacent box beams present difficulty in inspections and assessing interior deterioration. This presentation discusses methods to perform deterioration inspections on adjacent box beams and how to utilize field data to load rate box beams. This will be of special interest to inspectors, engineers and load raters. The objective will be to have a better understanding of deterioration and how it affects load capacity of box beam bridges.

Raju Iyer, INDOT

Moderated by Tim Wells, INDOT

STEW 214AB

PDH 1



WEDNESDAY, 8:00–8:50 AM

54**The Largest Bridge Slide
in North America**

On April 10, 2014, the 2,428-foot-long truss superstructure of the Milton–Madison Bridge made history when it was moved 55 feet from temporary bridge piers onto its permanent, rehabilitated piers, making it the longest bridge slide in North America. The bidding documents required that the bid include the cost of providing a ferry service for the year that the bridge was expected to be out of service. This was the primary catalyst generating the idea to slide the bridge.

Thomas Bolte, Burgess & Niple, Inc.

Moderated by John Ayers, Hendricks County

STEW 218CD

PDH 1

WEDNESDAY, 9:00–9:50 AM

55**County Bridge Inspection Updates
and LPA Certification**

This presentation will discuss recent changes to the County Bridge Inspection Program from the perspective of both the FHWA and INDOT. We will also discuss the responsibilities of the local public agency's (LPA's) employee in responsible charge (ERC) with respect to managing this program. As this course is a yearly requirement, all county ERCs are encouraged to attend. Pre-registering is strongly encouraged by e-mailing your contact information to LPAQuestions@indot.in.gov.

*Keith Hoernschemeyer, FHWA
Jessica Miller, INDOT*

Moderated by Merrill Dougherty, INDOT

STEW 218CD

PDH 1

WEDNESDAY, 10:00–11:50 AM

56**Load Resistance Factor Rating (LRFR)
of Highway Bridges**

Section 650.313 of the National Bridge Inspection Standards stipulates that each bridge is to be load rated in accordance with the AASHTO Manual for Bridge Evaluation (MBE). In accordance with the FHWA's policies, new bridges and totally replaced bridges engineered after October 1, 2007, should be load rated with the Load and Resistance Factor Rating (LRFR) method. To further support the state's efforts in meeting the NBIS's requirements in load rating and FHWA's initiative of implementing the LRFR method, this workshop will provide an introduction to LRFR and illustrate the differences and benefits of using LRFR in place of the Load Factor Rating method.

Tom Saad, FHWA

Moderated by John Ayers, Hendricks County

STEW 218CD

PDH 2



WEDNESDAY, 2:00–3:50 PM

57**Bridge Basics and Panel Discussion
on Bridge Preservation**

INDOT and Indiana counties are responsible for over 18,000 bridges. This course will provide information that will increase the knowledge of owners so that they understand basic design features, the implications of inspection findings, best practices with respect to design and retrofit, considerations when hiring contractors for bridge inspection, and how best to interpret and integrate bridge inspection reports into bridge maintenance activities.

*Patrick Conner and Mark Bowman, Purdue University
Keith Hoernschemeyer, FHWA
Drew Storey, Jeremy Hunter and Merrill Dougherty, INDOT
Mike Wenning, GAI Consultants
Joe Copeland, Henry County
Opal Kuhl, Tippecanoe County Highway Department*

Moderated by Anne Rearick, INDOT

STEW 218CD

PDH 2

WEDNESDAY, 4:00–4:50 PM

58**Case Study—
Managing Extreme
Down-Drag on Piling**

This case study describes how foundation piling negative skin friction was managed for the reconstruction of the I-69 and I-94 interchange near Port Huron, Michigan, and the Canadian border. The site has deep and compressible clays capable of developing large downdrag forces on foundation piling for bridges due to settlement of approach embankments. A combination of wick-drain ground improvement, pre-loading with settlement and pore pressure monitoring, lightweight fills, and mandatory wait periods were used at this site.

Christopher Byrum, Soil and Materials Engineers, Inc.

Moderated by Anne Rearick, INDOT

STEW 218CD

PDH 1

ROARING CREEK

Bridge is located on State Road 41, south of Turkey Run State Park

DESIGN AND CONSTRUCTION

TUESDAY, 11:00–11:50 AM

7

To Lidar or Not to Lidar

This session provides an overview and discussion of the different methods of preparing a topographic survey, from conventional to mobile Lidar. The presentation will include discussion of the pros and cons for each method in different situations. Three case studies will be presented in which Lidar was used to prepare the topographic survey: an airport, an interstate, and an urban area.

Grant Niemeyer and Rodney Kelly, Parsons Cunningham and Shartle Engineers, Inc.

Moderated by Scott Hesler, Crawfordsville Street & Sanitation Department

STEW 322

PDH 1

TUESDAY, 1:00–1:50 PM

8

Buy America Regulations

Over the past two years I have been involved in one Buy America waiver and two substantial after-the-fact discoveries of foreign steel. I see that there are missed opportunities to meet the intent of Buy America and to apply the policy without confusion and delay to contracts. During this session I will outline the Buy America requirements and how to adhere to them, as well as discuss the benefits.

Leslie Lahndt, FHWA

Moderated by Scott Hesler, Crawfordsville Street & Sanitation Department

STEW 322

PDH 1

TUESDAY, 2:00–2:50 PM

9

Pedestrian Maintenance of Traffic

This presentation will cover the initial indications from the 2014 FHWA review of 62 projects statewide related to pedestrian maintenance of traffic during construction. The presentation will also include discussion of changes to design procedures and construction implementation that are being considered or already implemented. Current design processes and payment for maintenance of traffic for pedestrians require modification in order to comply with the Americans with Disabilities Act. The presentation will include recommendations for both design and construction practitioners.

*Eryn Fletcher, FHWA
John Wright, INDOT*

Moderated by Scott Hesler, Crawfordsville Street & Sanitation Department

STEW 322

PDH 1

TUESDAY, 3:00–3:50 PM

10

Erosion Control Review Results and State of Practice

In 2014, INDOT and FHWA conducted a review into the state of the practice for erosion and sediment control (ESC) in Indiana. During the review, 43 construction projects were visited. Contractors and owners were interviewed, the design plans reviewed, and the state of compliance assessed for each project. Additionally, current INDOT ESC policies were reviewed. This presentation presents the findings, recommendations, and resolutions of the joint review.

*Eryn Fletcher, FHWA
Mark Miller, INDOT*

Moderated by Gary Weliver, Crawfordsville Storm Water Utility Department

STEW 322

PDH 1

TUESDAY, 4:00–4:50 PM

11

Standard Specifications and Special Provisions

This presentation will help project managers and designers prepare the necessary information required for their contracts with regard to the standard specifications and any necessary special provisions. If the desired information is not readily found in the standard specifications or in the list of recurring special provisions, it may be necessary to incorporate a unique special provision (USP). It is important to know the proper way to write and present a USP.

Scott Trammell, Dan Stickney and Melissa Peasley, INDOT

Moderated by Gary Weliver, Crawfordsville Storm Water Utility Department

STEW 322

PDH 1



TUESDAY, 1:00–1:50 PM

12

Lessons Learned from US 31

US 31 South Bend Freeway Design and Construction Continuity | The US 31 South Bend freeway is a new 20-mile limited access highway from Plymouth to South Bend. An accelerated design and construction schedule precipitated many unique design and construction aspects. Members of the design team, construction team, and INDOT will discuss topics including the flexibility of practical design, right-of-way management, highly variable soils, environmental and utility factors, and the importance of post-construction continuity.

*Susan Al-Abbas and Kevin Rearick, CHA
Brad Taylor, INDOT*

Moderated by Eric Wathen, Banning Engineering

STEW 206

PDH 1

US 31 Kokomo: A Successful Collaboration | From the initial design to the end of construction, the INDOT staff and consulting team committed themselves to a higher level of communication. This presentation will cover the collaborative effort carried out during the US 31 Kokomo Corridor Project and highlight the successes achieved. Points of discussion include the communication plan established, dealing with Mother Nature and utilities, the benefits of planning ahead, and the final results.

*Eric Farny and Kevin Jasinski, American Structurepoint, Inc.
Scott Sipes, INDOT*

TUESDAY, 2:00–2:50 PM

13

Timelapse Photography for Documentation and Inspection of Construction

Construction documentation and inspection is a critical portion of every major building project. This presentation outlines a cost-effective and efficient method to document construction activity using timelapse photography. The examples used in this presentation include building demolition, MSE wall construction, bridge repaving, and roadway reconstruction.

Stephen Remias and Steve Lavrenz, Purdue University

Moderated by Eric Wathen, Banning Engineering

STEW 206

PDH 1

TUESDAY, 3:00–4:50 PM

14

Hydrology, Hydraulics and Drainage Considerations in Design and Construction

GIS Tools for Hydrology and Hydraulics | GIS information sources used by the Office of Hydraulics to improve the accuracy and efficiency of hydrologic computations will be presented. A variety of information sources will be discussed with an emphasis on DEM data obtained from Indiana's recent statewide mapping initiative. Sources and limitations of the data will be discussed, and techniques for utilizing this data will be introduced.

David Finley, INDOT

Determining Adequate Drainage Capacity for Agricultural Open Ditches

| The science for determining the adequate drainage capacity for agricultural open ditches has been developed from many research efforts, some dating back almost 75 years. We will discuss the background and development of the tools for determining adequate drainage capacity and compare gauge records with the commonly used methods and determine if the methods we use are still applicable or if they need to be updated.

Jeff Healy, Banning Engineering

Moderated by Eric Wathen, Banning Engineering

STEW 206

PDH 2

Frequency of Storm Events | The frequency of storm events used for stream permitting in Indiana is the 100-year frequency storm. That single storm event analysis may or may not tell the whole story as it relates to frequency of streambank and road overtopping and damage that can result from those more frequent events. The presentation will utilize an actual project hydraulic model that demonstrates how compliance with the stream permitting limitations does not necessarily ensure that a proposed project will be free from induced damages with more frequent events.

Jeff Healy, Banning Engineering

What's the Deal with all These Hydrology Methods? | From the 5-acre site design to the 10-square-mile Letter of Map Revision, each has a lasting impact on your community. Do you really know all the different assumptions that can go into a hydrologic and hydraulic study? What are the strengths and weaknesses of the analysis or regulatory ordinance? As an engineer, a reviewer, or a public servant, we all take on a measure of liability. Isn't it best to be fully aware of the assumptions behind the results?

Joseph Miller, Banning Engineering



DESIGN AND CONSTRUCTION CONTINUED

WEDNESDAY, 8:00–8:50 AM

59

Construction Inspection of MSE Walls

This presentation includes a step-by-step procedure for inspecting the construction of mechanically stabilized earth (MSE) walls and the tools and assistance available to INDOT inspectors for a successful completion of MSE wall construction.

Athar Khan, INDOT

Moderated by Nick Batta, Lochmueller Group

STEW 322

PDH 1

WEDNESDAY, 9:00–9:50 AM

60

INDOT/Purdue Pile Driving Method for Estimation of Axial Capacity

This presentation discusses the new pile driving analysis method. Models for both base and shaft dynamic resistances that account for soil nonlinearity, both radiation and hysteric damping, and rate effects on soil strength will be presented. The analysis is validated through well-documented field tests on instrumented piles. The predictions from the proposed formulas will be compared with the results from static load tests and dynamic load test. Driven pile capacity results from two projects, one on SR 55 in Lake County and the other on US 31 in Marshall County, will be discussed.

Mir Zaheer, INDOT

Rodrigo Salgado, Monica Prezzi and Fei Han, Purdue University

Moderated by Nick Batta, Lochmueller Group

STEW 322

PDH 1

WEDNESDAY, 10:00–10:50 AM

61

Design and Construction of Auger Cast Piles

New technologies have been developed recently that add to the QC option available for auger cast piles. Four transportation applications will be discussed: bridge foundation including abutments, retaining structures (secant or tangent pile walls), column-supported embankments over soft ground, and sound walls. Emphasis will be placed on the installation process, QC during installation, quality assurance after installation, and the common misperceptions. The presentation will include one case history for a 12-floor building in downtown Fort Wayne, Indiana, showing the design for 47 auger cast piles as one group.

Malek Smadi, Geotill Engineering, Inc.

Moderated by Nick Batta, Lochmueller Group

STEW 322

PDH 1

WEDNESDAY, 11:00–11:50 AM

62

Open Roads: Practical Design for Transportation Project Delivery

This session will highlight INDOT's progress with Open Roads/Practical Design during its first year of implementation and share policy and project innovations realized to maximize the efficient and effective use of public transportation dollars.

Scott Adams, INDOT

Moderated by Nick Batta, Lochmueller Group

STEW 322

PDH 1



WEDNESDAY, 2:00–3:50 PM

63

Geotechnical Aspects of Transportation Projects

Geotechnical Requirements for Local Public Agency (LPA) Projects | This presentation will focus on INDOT requirements for performing geotechnical investigations on local public agency projects. We will address some common issues and limitations dealing with LPA projects during the design and construction phases.

Athar Khan and Yuhui Hu, INDOT

Solving Engineering Problems with a Geotechnical Mind | This presentation will explain how geotechnical engineering technology contributes to solving engineering problems. Included in the presentation is a sample highway project. Geotechnical engineering helps detect the source of a problem, resolve the problem, and prevent the problem from happening again.

Yuhui Hu, INDOT

Putting the “Geo” Back into “Geotechnical Engineering” | Understanding the regional geology of a project site is critical in the development and implementation of an accurate and appropriate subsurface investigation program. Additionally, knowledge of basic geologic principles and how they apply to a site allow for the correct interpretation of the results of that program. In this discussion we will talk about the value of learning the geology of project sites before tackling the engineering problems that we are tasked with solving.

Jon Paauwe and Joey Franzino, INDOT

US 52 & RR Landslide Repair | This session presents a case study of innovative INDOT contracting and the repair of a landslide area of US 52 south of Brookville, Indiana, in spring 2014. The contracting method was a unit price bid for a design-build landslide repair contract. The landslide was repaired with soil nails and a GCS retaining wall. The project was completed at a fraction of the time and cost of a traditional design-bid-build project.

*Greg Bachman, GeoStabilization International
Jane Twaddle and Joey Franzino, INDOT*

Moderated by Kenneth Einselen, Miami County Highway Department

STEW 322

PDH 2

WEDNESDAY, 8:00–8:50 AM

64

Incinerator Ash in Bioretention/Native Grasses on Right-of-Ways

Bioretention Study Using Wastewater Treatment Incinerator Bottom Ash | Bioretention is a best management practice (BMP) that can be used to treat stormwater runoff from roads and highways. A bioretention column study was conducted at Southern Illinois University Edwardsville for the Metropolitan St. Louis Sewer District to determine the suitability of incinerator bottom ash from wastewater treatment as a replacement for sand in bioretention media. Over the course of a year, 18 columns were treated with synthetic rainwater. The filtrate was tested for nutrients, metals, TSS, turbidity, and pH.

Jessica Eichhorst, Parsons Brinckerhoff

Moderated by Greg Pankow, INDOT

Seeding Natives: Roadside Case Study SR 24 | In the fall of 2002, SR 24 (R-26008) was seeded with eight different native mixes: north slope A&B, south A&B, ditch, flat area A&B, annuals. In 2003 the seeding was determined a failure, but by 2014 this area was a diverse thriving ecosystem. What can be learned? What worked? What didn't work? What are realistic expectations for roadside plantings? I have monitored this seeding with photos since 2003 and offer a case study.

Mark O'Brien, Cardno JFNew Native Plant Nursery

STEW 206

PDH 1

WEDNESDAY, 9:00–11:50 AM

65

Roundabout Prequalification and Design Training

INDOT is moving toward prequalification for roundabout design. The prequalification process will require designers to demonstrate design experience on roundabouts or show that they have taken an approved roundabout design training course. This approved roundabout design training course is offered to fulfill the prequalifications for complex and noncomplex road design.

*John Wright, INDOT
Craig Parks and Jeromy Grenard, American Structurepoint, Inc.*

Moderated by Greg Pankow, INDOT

STEW 206

PDH 3



WEDNESDAY, 2:00–2:50 PM

66

Strategies to Improve Worker Safety

Preventing Runovers and Backovers | This training program, developed and delivered by the American Road and Transportation Builders Association under grants from the CDC, NIOSH, and OSHA's Susan Harwood Training Grant Program, provides information to minimize runover and backover incidents in roadway work zones. The course covers information needed to develop and implement internal traffic control plans (ITCPs) on roadway construction sites as the primary means to reduce runovers and backovers.

Roadway Safety Awareness Program | This training, developed by the Road Construction Industry Consortium under FHWA and OSHA grants, provides an overview and demonstration of free software that can be used to instruct road workers in best practices and prevention measures related to common roadway safety hazards.

Neal Carboneau, Transportation Training Institute, LLC

Moderated by Bob McCullough, Purdue University

STEW 206

PDH 1

WEDNESDAY, 3:00–3:50 PM

67

Design and Construction Updates on the Ohio River Bridges

ORBEEC—Indiana Approach Design Challenges and Construction Updates | This presentation will cover some of the design challenges experienced and value engineering exercises performed on the Indiana approach to the Ohio River Bridges East End Crossing. Construction updates for the Indiana approach will also be presented.

*Wing Lau and Kevin Jasinski, American Structurepoint, Inc.
Mike Copley, Walsh Construction*

Moderated by Bob McCullough, Purdue University

Overview and Update of the ORB Downtown Crossing Cable-Stay Bridge Project | This presentation will focus on the I-65 cable-stay bridge construction on the Ohio River Bridges Louisville Downtown Crossing project. The presentation will include the overall bridge progress to date, as well as some project issues, including design, construction, and material procurement challenges addressed by the project team.

*Chet Parsons, Parsons Cunningham and Shartle Engineers, Inc.
Gene Balter, HDR Engineering, Inc.*

STEW 206

PDH 1

WEDNESDAY, 4:00–4:50 PM

68

Designing Streets for Multiple Users and Different Vehicle Types

Complete Streets—Why They Matter | Communities across the country are rethinking how they design their streets. By utilizing a Complete Streets approach—one that allows for the safe usage of people of all ages and abilities, whether they are pedestrians, cyclists, transit riders, or motorists—cities are discovering a myriad of benefits. This introduction to Complete Streets explores their economic, safety, and health benefits.

Brad Huff, HNTB Corporation

Serving Multiple Cultures Through Design | Daviess County Road 900E has a mixed use of users, including passenger vehicles, commercial trucks, and horse-drawn buggies. A feasibility study identified the need to accommodate this mix of users by incorporating “buggy lanes,” and the road was reconstructed to include 8-foot shoulders/buggy lanes. Upon completion of the first 1.5 miles of reconstructed roadway, information sessions were held with all users to acquaint them with the proper usage of the buggy lanes.

*Dominick Romano, Lochmueller Group
Phil Cornelius, Daviess County*

Moderated by Bob McCullough, Purdue University

STEW 206

PDH 1



WEDNESDAY, 8:00–8:50 AM

69B

Indiana Statutes and Rules for Professional Engineering Licensure

The course explains the statutes created by the Indiana Legislature concerning the professions and the role of the State Board of Registration for Professional Engineers in administering the statutes and rules for engineers. This version of the course will focus on changes to the rules associated with the new computer-based testing for the fundamentals of engineering examination and with the continuing education requirements to make them more consistent with those in other states. It also will provide an overview of recent changes to the NCEES Model Law and Model Rules. This course fulfills the rule requiring one hour on Indiana Statutes and Rules. This course also fulfills one hour in ethics applicable to the practice of engineering that may be needed for engineering license renewal.

Vincent Drnevich, Purdue University

Moderated by Opal Kuhl, Tippecanoe County Highway Department

LOEB

PDH 1

WEDNESDAY, 9:00–9:50 AM

70B

Ethics in the Professional Practice of Engineering

The course explains why ethics is important, gives an overview of professional codes of ethics, describes professional conduct requirements in the Indiana Statutes and Rules, provides guidelines and examples for making value-laden decisions, and shows the value of professional and technical societies in maintaining ethical health fitness. This course fulfills the rule requiring one hour on ethics applicable to the practice of professional engineering.

Vincent Drnevich, Purdue University

Moderated by Opal Kuhl, Tippecanoe County Highway Department

LOEB

PDH 1

Ethics sessions (onsite and webinar) 60A and 70A are offered on Monday, March 9, 2015 through online pre-registration.



FINANCE AND ADMINISTRATION

TUESDAY, 3:00–3:50 PM

15

Federal-aid 101 and Federal Project Authorization Fundamentals

It is critical that local public agencies (LPAs) planning to utilize Federal-aid funds understand the basics of the Federal-aid Program as well as federal and state requirements prior to moving forward with project development. This session will review the fundamentals of the Federal-aid Program as well as the process for ensuring that local projects using Federal-aid funds are properly processed and authorized by INDOT and the FHWA.

*Mark Newland, FHWA
Karen Hicks, INDOT*

Moderated by Pam Davis, FHWA

STEW 313

PDH 1

TUESDAY, 4:00–4:50 PM

16

INDOT's Efforts in Continuous Improvement

INDOT's Innovation & Enhancement Program works with management and staff to find better ways to accomplish the agency's mission. Through program reviews, process improvements, and problem solving, INDOT is developing a culture and framework of continuous improvement with an emphasis on leveraging the knowledge and ideas of people who actually do the work.

Derek Weinberg and Kristin Brier, INDOT

Moderated by Pam Davis, FHWA

STEW 313

PDH 1

WEDNESDAY, 9:00–9:50 AM

72

Overview of INDOT's Program Management Group (PMG)

INDOT operates with a Program Management Group (PMG). The PMG is INDOT's asset management decision-making and oversight body made up of experts ranging from senior managers to technical professionals from the district and central offices. The PMG oversees all parts of the asset management process, including project change management and operates with a set of present recommended investment strategies that will enable INDOT to achieve its performance targets. As part of this overview, this session will cover the coordination with metropolitan and rural planning organizations.

Roy Nunnally and Clark Packer, INDOT

Moderated by Mark Joseph, INDOT

STEW 313

PDH 1



WEDNESDAY, 10:00–10:50 AM

73

Meeting MAP-21 TPM Requirements with INDOT's LRTP

This presentation discusses how INDOT's long-range transportation plan (LRTP) and its strategic business plan (SBP) will strive to meet MAP-21 TPM requirements and clearly documents long-term performance objectives, desires, or expectations (typically presented as goal statements). The Indiana 2013–2035 Future Transportation Needs Report functions as the INDOT LRTP. INDOT has adopted a non-project specific, needs-based, statewide transportation approach that identifies future transportation needs and describes overarching strategies and opportunities to accomplish future results. This approach will provide a flexible and opportunistic framework for addressing transportation issues and needs for the next 20–25 years. Other areas in which INDOT is ahead of the curve are freight industry stakeholder involvement in the process, Innovative finance components (P3 and tolling consideration), and financial planning and consideration in risk-based asset management.

Roy Nunnally, INDOT

Moderated by Mark Joseph, INDOT

STEW 313

PDH 1

WEDNESDAY, 11:00–11:50 AM

74

The Best Decision By Design: Professional Services Selection

Hear the experts discuss why your initial investment in project design will save you money! Working with design professionals will give you the advantage of their expertise and innovative approaches to your project to provide more successful project outcomes: durable and sustainable facilities, lower construction costs, shorter construction schedules, and lower life cycle costs. Gain perspectives from owners on why they choose to hire design professionals based on a negotiated procurement process instead of bidding.

*John Brand, ACEC Indiana
Huck Lewis, City of Lebanon
Tom Stevens, Hancock County Commissioner*

Moderated by Mark Joseph, INDOT

STEW 313

PDH 1

WEDNESDAY, 2:00–2:50 PM

75

**Every Day Counts—
Deploying Proven
Innovations Nationally**

Every Day Counts (EDC) is a national initiative that is designed to focus on a finite set of innovations. EDC utilizes a team in each state representing the Federal Highway Administration and state, local, and industry partners to plan how to deploy innovations to shorten project delivery and accelerate technology. This presentation will describe which initiatives have been selected to implement in Indiana and how you can get involved.

Robert Dirks, FHWA, Speaker and Moderator

STEW 313

PDH 1

WEDNESDAY, 3:00–3:50 PM

76

**FHWA Risk-Based Stewardship
and Oversight**

The FHWA and INDOT will provide an overview of FHWA Risk-Based Stewardship and Oversight, the PODI/POCI program, and the CAP program and report out program findings from the reviews conducted in 2013 and 2014. There will be ample time for audience members to ask any questions or express points of concern they may have and to discuss the future of the program.

*Leslie Lahndt and Karen Bobo, FHWA
Sarah Rubin, INDOT*

Moderated by Robert Dirks, FHWA

STEW 313

PDH 1

Technical Sessions schedule

10 TUESDAY

	BRIDGES		DESIGN & CONSTRUCTION		FINANCE & ADMINISTRATION	MAINTENANCE & OPERATIONS
	STEW218CD	STEW 214AB	STEW 322	STEW 206	STEW 313	STEW 214CD
11:00–11:50 AM			7. To Lidar or Not to Lidar			
12:00–12:50 PM						
1:00–1:50 PM			8. Buy America Regulations	12. Lessons Learned from US 31	17. Components of Proper Evaluation of Installed Precast Concrete Pipe	
2:00–2:50 PM	1. LSIORB East End Bridge Design and Construction Update	4. I-43 Leo Frigo Bridge Closure and Emergency Repairs	9. Pedestrian Maintenance of Traffic	13. Timelapse Photography For Documentation And Inspection Of Construction		18. INDOT's Overhead Sign Structure Inspection Program
3:00–3:50 PM	2. A Practical Approach to Programming—Level Cost Estimation	5. Comparative Study of Data Acquisition Systems for Bridges	10. Erosion Control Review Results and State of Practice	14. Hydrology, Hydraulics and Drainage Considerations in Design and Construction	15. Federal—aid 101 and Federal Project Authorization Fundamentals	19. Innovations in Pavement Repair
4:00–4:50 PM	3. Introduction to the S-BRITE Center at Purdue University	6. Inspection Guidelines and Criteria for Load Rating Box Beam Bridges	11. Standard Specifications and Special Provisions		16. INDOT's Efforts in Continuous Improvement	20. Structural Testing of Geopolymer Pipe/ Culvert Mortar Lining

11:00–11:50 AM	MULTI-MODAL TRANSPORTATION		PAVEMENTS		PROJECT MANAGEMENT AND PLANNING		ROAD SCHOLAR	SAFETY	TRAFFIC OPERATIONS
	UNION FACE	STEW 314	STEW 302	STEW 306	STEW 202	UNION FACW	KRANNERT	STEW 310	STEW 218AB
	21. Indianapolis Takes on BRT		27. US 41 Crack & Seat Case Study: A Practical Design	31. Full-Depth Reclamation (FDR) with Cement		38. Indiana Stream and Wetland Mitigation Program			44. Diverging Diamond Interchange Signal Performance Measures and Optimization

11:00 AM - 1:50 PM 2015 Exhibitor Luncheon in Purdue Memorial Union Ballrooms

1:00–1:50 PM	22. Building a National Freight Plan: States Lead the Way		28. MEPDG & HIP, CIP and FDR Recycling	32. Updating City Standards with MEPDG	35. Reader-Friendly Environmental Impact Statement	39. LPA ERC Recertification Training			
2:00–2:50 PM	23. Regional Logistics Strategic Planning	25. How Freight Probe Data is Revolutionizing the Industry		33. Implementation of Research Findings and New Standards to Improve Concrete Performance	36. INDOT See It, Own It, Do It Project Management		41. Indiana LTAP Road Scholar Core Course #1 Powers and Duties of Local Highway and Street Officials		45. Connected Vehicle Infrastructure Deployment Considerations for Transportation Agencies
3:00–3:50 PM	24. Low-Cost, High-Impact Bicycle and Pedestrian Investments	26. Anatomy of the U.S. Railway Industry—Past, Present and Future	29. Importance of Resilient Modulus (MR) and Its Interpretation			40. Utility Coordination on LPA Projects		42. Enhancing Red Light Compliance	
4:00–4:50 PM			30. Potholes—Stop PRETENDING and REALLY Fix Them!	34. Accelerated Test to Identify Freeze-Thaw Durable Concrete Aggregates	37. Owning Your Responsibility and Knowing Your Resources			43. Evaluating Truck Rollover at Roundabouts on High-Speed Roads	46. Shockwave Boundary Identification Using Cloud-Based Probe Data

11 WEDNESDAY

	AVIATION	BRIDGES	DESIGN & CONSTRUCTION		ETHICS	FINANCE & ADMINISTRATION	MAINTENANCE & OPERATIONS	MULTI-MODAL TRANSPORTATION
	STEW 204	STEW 218CD	STEW 322	STEW 206	LOEB	STEW 313	STEW 214CD	UNION FACE
8:00–8:50 AM	47. Heated Airport Pavements	54. The Largest Bridge Slide in North America	59. Construction Inspection of MSE Walls	64. Incinerator Ash in Bioretention/Native Grasses on Right-of-Ways	69B. Indiana Statutes and Rules for Professional Engineering Licensure		77. Operation and Maintenance of Storm Water Management Practices	81. Creating Livable Communities in Northwest Indiana
9:00–9:50 AM	48. Runway Protection Zones Impacts on Roadways	55. County Bridge Inspection Updates and LPA Certification	60. INDOT/Purdue Pile Driving Method for Estimation of Axial Capacity	65. Roundabout Prequalification and Design Training	70B. Ethics in the Professional Practice of Engineering	72. Overview of INDOT'S Program Management Group (PMG)	78. Winter Weather Services and Forecasting Options for Local Agencies	82. Arterial Bus Rapid Transit for Specific Corridor Needs
10:00–10:50 AM	49. Sustainability: Utilization of FAA VALE Grants for Geothermal Projects	56. Load Resistance Factor Rating (LRFR) of Highway Bridges	61. Design and Construction of Auger Cast Piles			73. Meeting MAP–21 TPM Requirements with INDOT's LRTP	79. Anti-Icing on a Frozen Budget	83. Railroad Quiet Zones
11:00–11:50 AM	50. Safety and Security — 53A. Purdue Aviation Technology/LAF Airport Tour		62. Open Roads: Practical Design for Transportation Project Delivery			74. The Best Decision By Design: Professional Services Selection	80. Bridge Preservation Treatments and Best Practices	84. How to Successfully Implement a Complete Streets Policy

12:00 PM - 1:50 PM 2015 Purdue Road School Luncheon in Purdue Memorial Union Ballrooms

2:00–2:50 PM	51. Disaster Averted—Monroe County Airport Successfully Remediate Sinkhole — 53B. Purdue Aviation Technology/LAF Airport Tour	57. Bridge Basics and Panel Discussion on Bridge Preservation	63. Geotechnical Aspects of Transportation Projects	66. Strategies to Improve Worker Safety		75. Every Day Counts—Deploying Proven Innovations Nationally		85. Reimagine Streets Outside the Boundaries of Functional Classifications
3:00–3:50 PM	52. Airport Case Studies — 53C. Purdue Aviation Technology/LAF Airport Tour			67. Design and Construction Updates on the Ohio River Bridges		76. FHWA Risk–Based Stewardship and Oversight		86. IndyGo Downtown Transit Center—Transforming Indianapolis
4:00–4:50 PM		58. Case Study—Managing Extreme Down–Drag on Piling		68. Designing Streets for Multiple Users and Different Vehicle Types				

	PAVEMENTS		PROJECT MANAGEMENT & PLANNING	PUBLIC RELATIONS & COMMUNICATIONS	PUBLIC SAFETY	ROAD SCHOLAR	SAFETY	TRAFFIC OPERATIONS		URBAN PLANNING
	STEW 302	STEW 306	UNION FACW	STEW 314	STEW 214AB	KRANNERT	STEW 310	STEW 202	STEW 218AB	FOWLER
8:00–8:50 AM	87. Porous Pavement Mitigates Municipal Stormwater Issues	93. Pavement Underdrain to Achieve Longer Life Pavement Structure	98. Transportation and Economic Development: Characterization of Economic Development Impact of Corridor Improvements	105. Media Relations	110. IN-TIME National Traffic Incident Management First Responder Course	113. Indiana LTAP Road Scholar Core Course #2 Liability and Risk	114. Highway Safety Improvements for Your Roads	120. Improving Traffic Performance Through Research and Technology	121. Developments in Highway Lighting Research and Standards	
9:00–9:50 AM	88. Simplified Pavement Design for LPAs	94. Introduction and Review of the New IDM Chapter 304 Comprehensive Pavement Analyses					99. MPO Red Flag Investigation—Look Before You Leap			115. Local Traffic Safety Programs—New Developments
10:00–10:50 AM	89. Getting What You Pay For: Keys to Specifying & Inspecting New Asphalt Pavements for Long Life						100. INDOT eNHS, HPMS, GIS and Integration	106. Game Theory in Civil Engineering and Public Relations	116. Draft 2015 Indiana Strategic Highway Safety Plan	123. Multimodal Simulation as a Tool for Complex System Evaluations
11:00–11:50 AM	90. State-of-the-Art of In-Place Asphalt Recycling	95. INDOT Network Pavement Data Collection Status					101. Incorporating ADA Requirements and Understanding Nondiscrimination Obligations	107. Know Before You Go: Social Media/Communications Outreach	117. Traffic Safety Project Development	124. Evaluation of Flashing Yellow Operations in Indiana
2:00–2:50 PM	91. Pavement Rehabilitation Options in Indiana	96. Full-Depth Reclamation: A County Road Case Study	102. Incorporating Trees and Vegetation into Streets and Roads to Improve Storm Water Quality, Safety and Aesthetics	108. Roundabouts 101—A Bookends Approach to Public Understanding of Roundabouts	111. NIMS Compliance: A Curse or an Advantage?		118. Crash Analysis		125. 2013–14 Indiana Mobility Report and Applications	127. West Lafayette’s State Street Corridor
3:00–3:50 PM		97. Pavement Recycling: Reusing Your Most Valuable Asset	103. Error and Omissions, Change Orders and Lessons Learned	109. Social Media for Local Government Agencies	112. USGS Flood Inundation Mapping Program of Indiana		119. Successful Traffic Calming and Speed Control for Local Agencies		126. Diamond Interchange Designs: Selection, Implementation and Performance	
4:00–4:50 PM		92. Preservation: The New Way We Always Did It		104. Contaminated Sites and Their Effect on Your Project Schedule and Budget						

MAINTENANCE AND OPERATIONS

TUESDAY, 1:00–1:50 PM

17

Components of Proper Evaluation of Installed Precast Concrete Pipe

Post-installation inspection of newly installed storm pipe and increased emphasis by system owners on asset management of our aging storm system components have led to an increase in storm drain pipe inspection across the country. It is critically important for the owner or its assignee to quickly and correctly decide if conditions discovered during pipe inspections require any action to be taken. This presentation will provide information and tools to ensure the proper evaluation and required response, if any, to various issues that may be found while inspecting precast concrete pipe.

*Al Hogan, Indiana Kentucky Ohio Concrete Pipe Association—IN Division/
American Concrete Pipe Association*

Moderated by Joe Wiley, Henry County

STEW 214CD

PDH 1

TUESDAY, 2:00–2:50 PM

18

INDOT's Overhead Sign Structure Inspection Program

This presentation will describe INDOT's approach to the inspection of the more than 3,500 sign structures in its inventory, including the contract under which the inspections are currently being executed as well as the changes incorporated in the new contract, which will begin in the summer of 2015.

*David Boruff, INDOT
Jeremy Koonce, Collins Engineers*

Moderated by Joe Wiley, Henry County

STEW 214CD

PDH 1

TUESDAY, 3:00–3:50 PM

19

Innovations in Pavement Repair

This session will (1) introduce new developments in repairing potholes, large cracks, and other distresses in both asphalt concrete and PCC pavements; (2) help agencies uncover more economical, efficient, and longer lasting repair methods for all types of pavements; and (3) compare conventional repair methods and costs with newer cutting edge technologies in pavement preservation and maintenance.

Jim Lippert, Crafco, Inc.

Moderated by Joe Wiley, Henry County

STEW 214CD

PDH 1

TUESDAY, 4:00–4:50 PM

20

Structural Testing of Geopolymer Pipe/Culvert Mortar Lining

Trenchless repair of both storm and sanitary sewer piping across the world has become one of the most effective techniques for updating the status of buried infrastructure while reducing the burden and disruption on the public. A new cost-effective and viable technology for the trenchless repair of large-diameter (>36 inch) pipes involves a sprayed geopolymer mortar to create a new structural pipe within an existing host structure. Recent testing on corrugated metal and reinforced concrete pipes has been undertaken to help engineers better specify and design a cementitious geopolymer structural lining. Results of completed testing at Queens University under the direction of Ian Moore, as well as testing performed under the direction of Erez Allouche at the Trenchless Technology Center at Louisiana Tech University, will be presented and discussed.

*David Keaffaber and Joseph Royer, Milliken Infrastructure Solutions
Dan Koo, IUPUI*

Moderated by Joe Wiley, Henry County

STEW 214CD

PDH 1



WEDNESDAY, 8:00–8:50 AM

77

Operation and Maintenance of Stormwater Management Practices

INDOT is a significant contributor of stormwater in the state of Indiana. As a result, INDOT is required to manage the design, construction, operation, and maintenance of our stormwater system. This presentation will introduce some of the standard post-construction structural best management practices (BMPs) and clarify how operations and maintenance can ensure compliance with stormwater requirements.

Nathan Saxe, INDOT

Moderated by Bryan Donze, INDOT

STEW 214CD

PDH 1

WEDNESDAY, 9:00–9:50 AM

78

Winter Weather Services and Forecasting Options for Local Agencies

This session will identify public weather sources for local agencies and present the results of a JTRP research project and a weather prediction service developed at Purdue, as well as other forecasting services.

Mike Baldwin, Purdue University

Moderated by Bryan Donze, INDOT

STEW 214CD

PDH 1

WEDNESDAY, 10:00–10:50 AM

79

Anti-Icing on a Frozen Budget

This session describes a brine system developed and used by the City of Jasper, Indiana, and demonstrates how locals can utilize their own forces to build and operate a brine system at a low cost, as well as how brine can be used effectively in winter operations.

Raymie Eckerle, City of Jasper

Moderated by Bryan Donze, INDOT

STEW 214CD

PDH 1



WEDNESDAY, 11:00–11:50 AM

80

Bridge Preservation Treatments and Best Practices

Maintenance and preservation activities can prolong the life of bridges by consistently using simple, economical treatments at strategic points in a bridge's life cycle. The objective of this research was to examine and evaluate bridge maintenance activities conducted by various DOTs. A list of bridge preventive maintenance activities was assembled for possible implementation by INDOT based upon quantitative cost-benefit results, as well as qualitative assessment.

Mark Bowman and Luis Moran, Purdue University

Moderated by Bryan Donze, INDOT

STEW 214CD

PDH 1

MULTI-MODAL TRANSPORTATION

TUESDAY, 11:00–11:50 AM

21

Indianapolis Takes on BRT

This presentation will focus on the proposed Red Line Rapid Transit Corridor, which will connect Westfield, Indiana, to Greenwood, Indiana, by way of Carmel and downtown Indianapolis. This line is expected to be the first Bus Rapid Transit line to be implemented in Indiana. By the time of this presentation, environmental documentation and preliminary engineering will be underway. We will discuss how the proposed alignment was selected, with specific focus on the analysis of socioeconomic factors, travel forecasting, and traffic modeling.

Matthew Duffy, Parsons Brinckerhoff

Moderated by David Holt, Conexus Indiana

UNION FACE

PDH 1

TUESDAY, 1:00–1:50 PM

22

Building a National Freight Plan: States Lead the Way

A National Freight Plan was identified in MAP-21 to ensure economic competitiveness of the United States. The National Plan has been touted as a compilation of state initiatives and priorities aggregated to the national level. This presentation provides an analysis of the MAASTO states' freight planning as a step toward defining regionally and nationally common priorities, corridors, and best practices. Effective local and regional plans can then be aggregated to support the national approach.

*Ernie Perry, Mid-America Freight Coalition,
University of Wisconsin–Madison*

Moderated by David Holt, Conexus Indiana

UNION FACE

PDH 1

TUESDAY, 2:00–2:50 PM

23

Regional Logistics Strategic Planning

This session will discuss the six regional strategic plans (Northwest, North Central, Northeast, Central, Southwest, and Southeast Indiana) being developed throughout the state of Indiana that identify regional logistics needs for infrastructure, public policy, and workforce development. Conexus Indiana has partnered with INDOT, Indiana Economic Development Corporation, and Ports of Indiana to develop these plans around the state.

David Holt, Conexus Indiana, Speaker and Moderator

UNION FACE

PDH 1

TUESDAY, 3:00–4:50 PM

24

Low-Cost, High-Impact Bicycle and Pedestrian Investments

A built environment that supports active living through walking and biking is critical to a healthy, equitable, and prosperous community. As demand for active transportation infrastructure grows, early implementation of small-scale projects can drive support for larger future investments. In this session, learn about low-cost, high-impact investments that will dramatically improve the safety, accessibility, and appeal of your community's walking and biking infrastructure for residents of all ages and abilities.

*Peter Fritz, Indiana State Department of Health
Mitch Barloga, Northwestern Indiana Regional Planning Commission*

Moderated by David Holt, Conexus Indiana

UNION FACE

PDH 2

TUESDAY, 2:00–2:50 PM

25

How Freight Probe Data is Revolutionizing the Industry

This presentation will discuss how INRIX is enabling the use of probe vehicle data to revolutionize the freight industry. INRIX is one of the fastest growing big data technology companies in the world. The company leverages big data analytics to reduce the individual, economic, and environmental toll of traffic congestion. Through cutting-edge data intelligence and predictive traffic technologies, INRIX helps leading automakers, fleets, governments, and news organizations make it easier for drivers to navigate their world.

Rick Schuman and Ryan Glancy, INRIX

Moderated by Janice Osadczuk, FHWA

STEW 314

PDH 1

TUESDAY, 3:00–4:50 PM

26

Anatomy of the U.S. Railway Industry— Past, Present and Future

This presentation will provide a brief history of the U.S. railway industry, the factors that have influenced the industry, the composition of the industry today, and brief explanations of railway operations and engineering considerations. The factors presently affecting the railway industry, and the future railway operations, mergers, and business potentials will also be discussed.

*Jerry Rose, University of Kentucky
John Secor, Railway Consultant*

Moderated by Janice Osadczuk, FHWA

STEW 314

PDH 2

WEDNESDAY, 8:00–8:50 AM

81

Creating Livable Communities in Northwest Indiana

This presentation focuses on programs and tools the Northwestern Indiana Regional Planning Commission (NIRPC) has developed to promote sustainable development patterns and create livable communities. NIRPC will describe the development of the Creating Livable Communities (CLC) program, discuss the concept and identification of Livable Centers using an intensive GIS mapping and analysis system, and introduce the new CLC funding program to finance transportation-related projects that advance livability within the Livable Centers.

Gabrielle Biciunas and Sarah Geinosky, Northwestern Indiana Regional Planning Commission

Moderated by Jack Kimmerling, INDOT

UNION FACE

PDH 1

WEDNESDAY, 9:00–9:50 AM

82

Arterial Bus Rapid Transit for Specific Corridor Needs

Arterial BRT has the potential to improve transit service in mid-sized cities without dedicating exclusive lanes. By conducting basic on-board research, delay sources can be identified and corridor-specific BRT treatments to speed service can be evaluated. Coupled with passenger-friendly features like improved shelters and passenger information display systems, arterial BRT can improve service at a modest cost with minimal impact. Evaluation techniques and forecasted results will be presented for real-world corridors in Indianapolis.

*John Myers, HNTB Corporation
Jeremy Moore, Indianapolis Metropolitan Planning Organization*

Moderated by Jack Kimmerling, INDOT

UNION FACE

PDH 1

WEDNESDAY, 10:00–10:50 AM

83

Railroad Quiet Zones

In 2005, the Federal Railroad Administration (FRA) provided communities with the opportunity to reduce locomotive horn noise without compromising public safety. The proposed Marion Branch Quiet Zone, located in Goshen, Indiana, will not only improve public safety, it will also enhance the quality of life and raise home values for adjacent residents. This intricate process involves creative problem-solving and knowledge of the multiple parties involved. It will take a coordinated effort by the FRA, Norfolk Southern, and City of Goshen for the quiet zone to be approved. Lessons that other communities can learn from this effort are (1) for a quiet zone to be considered feasible, political will supporting the project must exist, and (2) involve the FRA and the affected railroads as early in the process as possible.

*Mary Cripe, City of Goshen Engineering Department
Glen Campbell, Patrick Engineering*

Moderated by Jack Kimmerling, INDOT

UNION FACE

PDH 1

WEDNESDAY, 11:00–11:50 AM

84

How to Successfully Implement a Complete Streets Policy

Complete Streets policies direct transportation agencies to plan, design, operate, and maintain roadways with all users in mind, regardless of age, ability, or mode of transportation. This session focuses on how transportation agencies and communities can effectively institutionalize a Complete Streets policy by integrating Complete Streets into daily practice. Topics covered will include implementation planning, changing how decisions are made, updating procedures, and measuring performance. Speakers will also discuss ways to address common challenges.

*Kim Irwin, Health by Design
Roy Nunnally, INDOT
Andy Lutz, City of Indianapolis, Department of Public Works*

Moderated by Jack Kimmerling, INDOT

UNION FACE

PDH 1

WEDNESDAY, 2:00–2:50 PM

85

Reimagine Streets Outside the Boundaries of Functional Classifications

Traditionally, streets have been characterized by functional classification standards, which generally define the level of mobility and access to adjacent land uses that the street provides. These classification standards are no longer effective at defining a modern network of multi-modal, Complete Streets. Using the recently completed St. Louis Downtown Multi-Modal Transportation Study as an example, this presentation will focus on reimagining streets using a new set of street typologies. These typologies emphasize the overarching purpose and goal of each street relative to a broad array of community objectives (such as modal priorities, economic development, placemaking, etc.) that transcend traditional mobility and access targets. The presentation will discuss how a system of street typologies can be established to serve as guidance for policy-makers, stakeholders, planners, and designers alike.

Tim Miller and Chris Beard, Lochmueller Group

Moderated by Jay DuMontelle, FHWA

UNION FACE

PDH 1

WEDNESDAY, 3:00–3:50 PM

86

IndyGo Downtown Transit Center—Transforming Indianapolis

The new IndyGo Downtown Transit Center will transform transit in downtown Indianapolis and offers lessons in transit planning, traffic planning, intermodal connectivity, public engagement, and pedestrian access. This presentation will give an overview of the facility and then focus on attributes of the facility and of the design process that might offer useful lessons to other transit projects, including those of a smaller scale.

Steve Robinson, Ben Smith and Joe Fischer, URS Corporation

Moderated by Jay DuMontelle, FHWA

UNION FACE

PDH 1

PAVEMENTS

TUESDAY, 11:00–11:50 AM

27

US 41 Crack and Seat Case Study: A Practical Design

Crack and seat is one of the most cost-effective pavement rehabilitation techniques for existing old concrete with major distresses such as D cracking and joint failures. Using the MEPDG, INDOT saved \$20 million from its proposed \$33 million budget for this project.

Kumar Dave, Athar Khan, William Flora and David Holtz, INDOT

Moderated by Thomas Duncan, FHWA

STEW 302

PDH 1

TUESDAY, 1:00–2:50 PM

28

MEPDG and HIP, CIP, and FDR Recycling

INDOT has accomplished in the last year or is executing soon hot in-place, cold in-place, and full-depth recycling pavement treatments on its highways. As part of these projects, MEPDG pavement analysis-design inputs and other factors are required to be established so that the department has an understanding of the performance of these treatments. These treatments can then be compared against other treatments for cost-effectiveness, performance, etc. Obtaining these numbers was problematic. This presentation will narrate the philosophical construct and the actual activities necessary to obtain the data, the practical experience gained on the identified projects, the anticipated performance expected from them, and lessons learned.

David Holtz, Athar Khan, Kumar Dave, Lisa Egler-Kellems, William Flora and Michael Prather, INDOT

Moderated by Thomas Duncan, FHWA

STEW 302

PDH 2

TUESDAY, 3:00–3:50 PM

29

Importance of Resilient Modulus (MR) and Its Interpretation

The Resilient Modulus (MR) of soils is crucial in pavement design. We will discuss testing and interpretation of soil MR and present a simple procedure to estimate it.

Kumar Dave and Nayyar Siddiki, INDOT

Moderated by Thomas Duncan, FHWA

STEW 302

PDH 1

TUESDAY, 4:00–4:50 PM

30

Potholes— Stop PRETENDING and REALLY Fix Them!

Many agencies are trying to repair their potholes and other road and street surface problems with methods and materials that, by their own admission, do not last. By using the spray injection method of road repair, you can make permanent repairs for about half the cost per ton of the temporary repair. A road is like a roof: it has to be sealed and it has to drain. We have about 200 spray injection patchers in Indiana, but many agencies still have not been exposed to their magic. We even did a demonstration on a traffic loop for Purdue!

Cliff Dickehut, Total Patcher

Moderated by Thomas Duncan, FHWA

STEW 302

PDH 1

TUESDAY, 11:00–11:50 AM

31

Full-Depth Reclamation (FDR) with Cement

Full-depth reclamation (FDR) with cement slurry is a dust-free process of recycling existing worn-out asphalt or gravel roads. The failed roadway is recycled and mixed with the subgrade soils. These materials are treated with cement slurry and recompacted in place for use as new stabilized base. Failed asphalt or gravel roads or parking lots can be recycled in place without any costly removal. After the curing period, the road is ready for a new surface, which is supported by cement-stabilized FDR. FDR with cement slurry corrects and treats failures in roads from the source, which is typically at the soils layer beneath the pavement. In this presentation, you will learn about FDR with cement, its uses on INDOT and local projects, and its many benefits.

Scott Hall, Sagamore Ready Mix

Moderated by Mike Byers, Indiana Chapter ACPA

STEW 306

PDH 1

TUESDAY, 1:00–1:50 PM

32

Updating City Standards with MEPDG

In an effort to realize cost savings, the City of Westfield, Indiana, contracted American Structurepoint to review and evaluate its standard pavement sections. State-of-the-art MEPDG software was used to evaluate the existing standard sections. American Structurepoint pavement design engineers collaborated with the City of Westfield to determine new pavement sections based on MEPDG software evaluation, cost analysis, and constructability. The new sections are now being implemented in the City Standards.

*Michael Maurovich, American Structurepoint, Inc.
Gary Pence and Phil Sundling, City of Westfield*

Moderated by Mike Byers, Indiana Chapter ACPA

STEW 306

PDH 1

TUESDAY, 2:00–3:50 PM

33

Implementation of Research Findings and New Standards to Improve Concrete Performance

This collection of presentations summarizes suggested implementation of concrete materials research findings, construction practices and procedures, concrete material production, and specification and design standards changes to improve the quality and performance of concrete used in pavement, bridges, other exterior applications.

*Mike Byers, Indiana Chapter ACPA
Tommy Nantung and Anthony Zander, INDOT
Jason Weiss and Jan Olek, Purdue University*

Moderated by Mike Byers, Indiana Chapter ACPA

STEW 306

PDH 2

TUESDAY, 4:00–4:50 PM

34

Accelerated Test to Identify Freeze-Thaw Durable Concrete Aggregates

INDOT currently identifies freeze-thaw durable aggregate using ITM210, a 90-day concrete beam freeze-thaw test. To accelerate this procedure, the 8-day Hydraulic Fracture Test (HFT) was investigated and modified. Samples from 18 quarries and six RCA sources were subjected to HFT and ITM210. Statistical analysis demonstrated that HFT can predict the ITM210 results with reasonable accuracy. The modified HFT procedures and equipment are recommended as a quick screening tool for predicting ITM210 test results.

Belayneh Desta and Nancy Whiting, Purdue University

Moderated by Mike Byers, Indiana Chapter ACPA

STEW 306

PDH 1

WEDNESDAY, 8:00–8:50 AM

87

Porous Pavement Mitigates Municipal Stormwater Issues

In the last two decades, a new class of pavement known as permeable pavement has been placed in the toolbox of engineers. When used as part of an integrated stormwater management plan, permeable pavements allow stormwater to pass through the pavement, where it can infiltrate into the subsoil. This presentation will discuss the challenges and effectiveness of permeable pavements placed on several municipal streets in the City of Ann Arbor.

*Nicholas Hutchinson, P.E., City of Ann Arbor, Michigan
Wayne Jones, Asphalt Institute*

Moderated by Bill Knopf, Asphalt Pavement Association of Indiana

STEW 302

PDH 1

WEDNESDAY, 9:00–9:50 AM

88

Simplified Pavement Design for LPAs

This session explores PaveXpress, a new software tool which creates technically sound pavement structural designs for flexible and rigid pavements based on widely accepted industry standards from the American Association of State Highway Transportation Officials (AASHTO). PaveXpress is designed for use by local agencies, engineers, and consultants who need a reliable way to quickly determine the necessary pavement thickness for a given section of roadway or project.

Dudley Bonte, Asphalt Pavement Association of Indiana

Moderated by Bill Knopf, Asphalt Pavement Association of Indiana

STEW 302

PDH 1

WEDNESDAY, 10:00–10:50 AM

89

Getting What You Pay For: Keys to Specifying and Inspecting New Asphalt Pavements for Long Life

The Indiana asphalt industry understands that public agencies are pressured to accomplish more today with fewer resources. The roads you pave need to last longer and perform better. This discussion will identify specific action steps and proven best practices that your agency can take to ensure maximum durability and long life for your new asphalt pavement. Training, testing, and inspection are critical elements to ensure that your community gets what it is paying for.

*Brian Crume, E & B Paving
Dudley Bonte, Asphalt Pavement Association of Indiana*

Moderated by Bill Knopf, Asphalt Pavement Association of Indiana

STEW 302

PDH 1

WEDNESDAY, 11:00–11:50 AM

90

State-of-the-Art of In-Place Asphalt Recycling

There has been a dramatic growth in asphalt in-place recycling over the last 30 years. Besides providing significant savings on resurfacing projects, asphalt recycling meets all of our societal goals of providing safe, efficient roadways while reducing both the environmental impact and energy (oil) consumption compared to conventional pavement reconstruction. When properly applied, it has long-term economic benefits.

Pat FASTER and Brock Brown, Gallagher Asphalt

Moderated by Brock Brown, Gallagher Asphalt

STEW 302

PDH 1

WEDNESDAY, 2:00–3:50 PM

91

Pavement Rehabilitation Options in Indiana

Many pavement rehabilitation options are now available to maintain the function and structure of a pavement section, and pavement engineers can choose an option that is suitable for the existing pavement condition. Many agencies today use traditional pavement rehabilitation techniques such as patching, overlay, and mill and fill. Recent developments in materials and construction have made available new rehabilitation options that are not only cost effective but also increase the use of recycled materials. This presentation will feature hot-in-place recycling, cold-in-place recycling, and full-depth reclamation techniques used successfully with recently rehabilitated pavement sections in Indiana.

Tommy Nantung, David Holtz, Kumar Dave, Lisa Egler-Kellems, William Flora and Michael Prather (also moderator), INDOT

STEW 302

PDH 2

WEDNESDAY, 4:00–4:50 PM

92

Preservation: The New Way We Always Did It

This session will address the battle community leaders face changing the existing mindset. City of Franklin Mayor Joe McGuinness and City Engineer Travis Underhill, P.E., will discuss the change and the process of gaining support from decision-making bodies. This presentation will include the trials and tribulations of the education and approval process, all the way to the supportive comments after two years of program implementation.

*Rex Hedges, RejuvTec, Inc.
Joe McGuinness and Travis Underhill, City of Franklin*

Moderated by Michael Prather, INDOT

STEW 302

PDH 1

WEDNESDAY, 8:00–8:50 AM

93

Pavement Underdrain to Achieve Longer Life Pavement Structure

Drainage as the key to pavement performance has been suggested since the early design of modern pavement structures. In fact, the three parameters for pavement performance are drainage, drainage and drainage. Drainage is so important to the performance of pavement that many state DOTs mandate a pavement underdrain system for routes with medium to high truck traffic. In the current evolution of pavement underdrain design, the speed of water removal from the soil foundation is the key issue. In a recent field investigation, some pavement sections with an underdrain system are not immune to pavement structural deterioration. It was determined that proper construction of the underdrain system is the key to ensuring that water will not accumulate in the soil foundation. This presentation will explore the requirements, design, construction, and performance of the underdrain system.

Tommy Nantung and David Holtz, INDOT

Moderated by Bill Tompkins, INDOT

STEW 306

PDH 1

WEDNESDAY, 9:00–10:50 AM

94

Introduction and Review of the New IDM Chapter 304 Comprehensive Pavement Analyses

INDOT's new pavement design analysis chapter for the Indiana Design Manual was adopted in 2013. It incorporates the INDOT's shift to MEPDG-based pavement design analysis and presents a very different set of expectations from previous documents. This session will present the philosophy, construct, ramifications, and professional service expectations specified and implied in the new chapter.

David Holtz, Kumar Dave, Athar Khan and Lisa Egler-Kellems, INDOT

Moderated by Bill Tompkins, INDOT

STEW 306

PDH 2

WEDNESDAY, 11:00–11:50 AM

95

INDOT Network Pavement Data Collection Status

INDOT has significantly altered its corporate intent relative to the usage of pavement condition data, and that alteration is resulting in changes in how we collect, process, and use this data. This session will briefly present those changes, including the different distresses collected, data process changes, the effects of various data aggregation lengths, and the pavement-roadway program decision-support information derived from the data. These changes are ongoing.

David Holtz, Athar Khan, Kumar Dave, Lisa Egler-Kellems, William Flora and Michael Prather, INDOT

Moderated by Bill Tompkins, INDOT

STEW 306

PDH 1

WEDNESDAY, 2:00–2:50 PM

96

Full-Depth Reclamation: A County Road Case Study

This presentation details the success of applying a cement slurry to strengthen and enhance the existing subgrade of pavements, and in this application, that would be the bases of county roads. We will go through the science of the process, as well as detailing the steps taken in the construction process and why it works so well. Information and pictures will be sourced from a August 2014 application in Cass County, Indiana.

*Jerry Larson, Indiana Ready Mixed Concrete Association
Jim Render, Essroc Cement Corp.*

Moderated by Jerry Larson,
Indiana Ready Mixed Concrete Association

STEW 306

PDH 1

WEDNESDAY, 3:00–3:50 PM

97

Pavement Recycling: Reusing Your Most Valuable Asset

The city of Columbus was able to complete about \$6.5 million of road construction in 2014. Of the \$6.5 million spent, \$1.8 million was invested in full-depth reclamation (FDR) and \$2.5 million was invested in street resurfacing that included cold-in-place recycling (CIR). The focus of this session is to educate fellow municipalities on the cost and performance advantages of in-place pavement recycling. Discussion will include cost savings versus traditional methods, design, and construction of FDR and CIR projects.

*Elizabeth Fizel, City of Columbus
Jason Wielinski, Heritage Research Group*

Moderated by Jerry Larson, Indiana Ready Mixed
Concrete Association

STEW 306

PDH 1



PROJECT MANAGEMENT AND PLANNING

TUESDAY, 1:00–1:50 PM

35

Reader-Friendly Environmental Impact Statement

How do we make technical information understandable and appealing to a non-technical audience? The Cleveland Opportunity Corridor project in Ohio involves building an urban boulevard with traffic signals to connect Cleveland's interstate system to University Circle—one of the city's major economic centers and employment hubs. The HNTB Corporation wrote a reader-friendly EIS that is practical, easy to understand, and visually appealing. This presentation outlines the motivation for developing such a document and how to create one.

Adin McCann and Matthew Wahl, HNTB Corporation

Moderated by Melody Coleman, INDOT

STEW 202

PDH 1

TUESDAY, 2:00–3:50 PM

36

INDOT See It, Own It, Do It Project Management

INDOT is changing its culture to ensure that our employees and teammates (consultants) take ownership of the results of their projects, including design, maintenance, construction, right of way, utilities, environmental, and project Management. The goal of this INDOT culture change is for groups to work together and be responsible to each other to deliver the best project possible, on time and on budget.

Louis Feagans and Robert Tally, INDOT

Moderated by Melody Coleman, INDOT

STEW 202

PDH 2

TUESDAY, 4:00–4:50 PM

37

Owning Your Responsibility and Knowing Your Resources

This session will show participants how to take responsibility and ownership of a project through project delivery. Using the proper escalation model from project development through construction ensures that risks are managed and metrics are met.

Angie Fegaras, Lyndsay Quist, Louis Feagans and Robert Tally, INDOT

Moderated by Melody Coleman, INDOT

STEW 202

PDH 1

TUESDAY, 11:00–11:50 AM

38

Indiana Stream and Wetland Mitigation Program

This presentation discusses the development of an in-lieu fee mitigation program for Indiana, including 404, 401, and CIF and isolated wetlands permits.

Laura Hilden, INDOT

Moderated by Kenny Franklin, INDOT

UNION FACW

PDH 1

TUESDAY, 1:00–2:50 PM

39

LPA ERC Recertification Training

Topics covered in this course include understanding contracts, how to negotiate, invoicing, and project delivery. This course will satisfy ERC requirements for one year following completion. Pre-registration for this course is required. To register, please send an e-mail to LPAQuestions@indot.in.gov with the subject line "Road School ERC Recertification." Please include your name, agency, and telephone number. There will be an LPA Program update prior to the training.

Kathy Eaton-McKalip, Jessica Miller and Jennifer Beck, INDOT

Moderated by Lora Lewis, INDOT

UNION FACW

PDH 2

TUESDAY, 3:00–4:50 PM

40

Utility Coordination on LPA Projects

Utility coordination can make or break a local public agency's project budget and schedule. The session will educate local public agency (LPA) employees in responsible charge (ERCs) and designers on the utility coordination process, the utility coordinator's responsibilities, the project manager's responsibilities, and the LPA ERC's responsibilities and how they work collectively to remediate utility conflicts during design and avoid conflicts in the field, while maintaining the design and construction schedules and overall project budget.

Natalie Parks and Eric Farny, American Structurepoint, Inc.

Moderated by Kenny Franklin, INDOT

UNION FACW

PDH 2

WEDNESDAY, 8:00–8:50 AM

98

Transportation and Economic Development: Characterization of Economic Development Impact of Corridor Improvements

Transportation plays an important role in the development and prosperity of human beings. The project development process involves the analysis of different alternatives along with their possible impacts and benefits. Nowadays, renewed importance on safety and economic development is generating a shift from only-mobility-oriented projects to more diverse-goals-oriented developments. This study summarizes the tools and methodologies used in practice for the assessment of the economic development potential of highway corridor improvements.

Davis Chacon Hurtado, Nadia Gkritza and Jon Fricker, Purdue University

Moderated by Patrick Conner, Purdue University

UNION FACW

PDH 1

WEDNESDAY, 9:00–9:50 AM

99

MPO Red Flag Investigation— Look Before You Leap

Red flag investigations (RFIs) are becoming a common part of metropolitan transportation plans. However, they have tremendous value at the project level to assist in more accurate project scoping and scheduling. Learn how RFIs can also assist in developing more accurate cost estimates, and how comparative RFIs can help with project eligibility, as well as prioritizing and selecting projects. Integrating the RFI process with environmental mitigation planning and other regional environmental initiatives will also be discussed.

*Anna Burman, GISP-Tippecanoe County Area Plan Commission
David Benefiel, AICP-Heartland Metropolitan Planning Organization
Kathy Luther, MPA-MSES—Northwestern Indiana Regional Planning Commission*

Moderated by Patrick Conner, Purdue University

UNION FACW

PDH 1

WEDNESDAY, 10:00–10:50 AM

100

INDOT eNHS, HPMS, GIS and Integration

MAP-21 significantly altered the national highway system (NHS) network, Highway Performance Monitoring System (HPMS) data requirements, geographic information systems (GIS), and data integration. This session will review the enhanced NHS (eNHS) and how it came to be what it is, the HPMS data requirements associated with the eNHS, and the GIS implications of data integrations and submittals, as well as list some of the other systems touched by these changes.

Eric Conklin and Mark McMahan, INDOT

Moderated by Patrick Conner, Purdue University

UNION FACW

PDH 1

WEDNESDAY, 11:00–11:50 AM

101

Incorporating ADA Requirements and Understanding Nondiscrimination Obligations

Successful Implementation of ADA Transition Plans: Indiana LPAs | Over the past few years, local public agencies (LPAs) within Indiana have stepped up compliance with the Americans with Disabilities Act by completing and implementing their transition plans. Some have done exceptionally well. This session highlights these successful practices so that other communities can learn the lessons to better implement their own plans.

*Ken Woodruff, FHWA
Cathy Gross, City of Monticello
Laurie Hardwick, City of Greencastle*

Moderated by Patrick Conner, Purdue University

UNION FACW

PDH 1

Obligations for Nondiscrimination as an INDOT Subrecipient |

As subrecipients, local public agencies (LPAs) are responsible for making sure that no person is discriminated against in their implementation of the Federal-aid Highway Program. This session will give participants an understanding of their nondiscrimination obligations as well as provide specific tool to help LPAs meet these obligations.

*Ken Woodruff, FHWA
Erin Hall, INDOT*

WEDNESDAY, 2:00–2:50 PM

102

Incorporating Trees and Vegetation into Streets and Roads to Improve Storm Water Quality, Safety and Aesthetics

How to Develop a Successful Stormwater Program | Trees can be incorporated into a public stormwater management program, contribute to compliance with MS4 regulations, and be managed to maximize their significant stormwater benefits. Details on state and local stormwater regulatory requirements will be presented as well as the valuable relationship between urban forest management, green street concepts, and stormwater compliance. Additionally, the challenges of budgeting for urban forest management, coordinating with other departments, and strategies to reduce liabilities will be discussed.

*Matthew Lake, Town of Merrillville Stormwater Utility
Reggie Korthals, Indiana Department of Environmental Management*

A Refreshing Look at Roadway Projects | This presentation will provide information that leads to better planning and establishment of safe, successful, aesthetically pleasing, and environmentally conscious highway projects integrating trees and other vegetation in ways that fit the needs of the plant material, project, and community. Case studies of successful highway and roadway projects in Indiana that address common project challenges such as planning, partnerships, and positive perception will be discussed.

Carrie Tauscher, Community & Urban Forestry, IDNR, Division of Forestry

Moderated by Jacob Bannister, Davey Resource Group

UNION FACW

PDH 1

WEDNESDAY, 3:00–3:50 PM

103

Error and Omissions, Change Orders and Lessons Learned

This session will discuss the change order process, what lessons INDOT and consultants can learn from this process, and how we can improve our plans for future lettings and designs.

Louis Feagans, INDOT

Moderated by Jacob Bannister, Davey Resource Group

UNION FACW

PDH 1

WEDNESDAY, 4:00–4:50 PM

104

Contaminated Sites and Their Effect on Your Project Schedule and Budget

This presentation will outline typical and worst-case scenario impacts from known and unknown contamination on road projects throughout the state. Potential pitfalls and remedies will be discussed. Examples will be provided of remedial designs and their uses as well as some innovative attempts to limit costs and incorporate remedial design into road project development.

Kenneth McMullen, Michael Baker International

Moderated by Jacob Bannister, Davey Resource Group

UNION FACW

PDH 1



PUBLIC RELATIONS AND COMMUNICATIONS

WEDNESDAY, 8:00–9:50 AM

105

Media Relations

This presentation will discuss how to come up with a plan to respond to media requests and how to build a two-way conversation with reporters. We will also discuss how to effectively convey your message during times of crisis.

Liz Evans, Purdue University
David MacAnally, 13 WTHR Indianapolis

Moderated by Teresa Morris, Purdue University

STEW 314

PDH 2

WEDNESDAY, 10:00–10:50 AM

106

Game Theory in Civil Engineering and Public Relations

This presentation uses a lighthearted interactive approach to discussing the application of game theory and strategy in the practice of civil engineering and public relations. Examples such as addressing public perceptions, dealing with the public, resolving disputes, and negotiating will be discussed using the applied topics of strategic thinking, addressing perception and emotion, and sequential and simultaneous game modeling, among others.

John Beery, City of Noblesville

Moderated by Teresa Morris, Purdue University

STEW 314

PDH 1

WEDNESDAY, 11:00–11:50 AM

107

Know Before You Go: Social Media/ Communications Outreach

How does a state transportation agency effectively communicate the impacts and benefits of a complex highway improvement project? The communications program must be comprehensive and proactive with a robust stakeholder database, a customer relations management system which enables information to be tailored for affected audiences, a frequently updated website, effective news media relations, and engaging social media platforms. This approach allows for a broad distribution of information and informational videos. The main mantra of an integrated transportation communications program is "Know Before You Go."

Alexander Lee, CH2M HILL
Shane Peck, Parsons Brinckerhoff

Moderated by Teresa Morris, Purdue University

STEW 314

PDH 1

WEDNESDAY, 2:00–2:50 PM

108

Roundabouts 101 - A Bookends Approach to Public Understanding of Roundabouts

When unique intersection challenges call for innovative design solutions, roundabouts are sure to follow. A carefully planned approach at engaging the public in this conversation can alleviate apprehension for this age-old European intersection option that is gaining traction throughout the State. Join in as consultants, INDOT and local officials share ideas on a creative approaches to public information meetings and community events that have engaged the public throughout the project development and helped bring new understanding to the world of roundabouts. The session will include an informal mock public information meeting followed by a panel discussion from those who have seen the first-hand benefits of engaging and educating the public on roundabouts.

Jeff Whitaker and David Goffinet, Lochmueller Group
Joe Wellman, City of Washington, IN
Craig Parks and Michael Maurovich, American Structurepoint, Inc.
Travis Mankin, INDOT

Moderated by Sam Taylor, Purdue University

STEW 314

PDH 1

WEDNESDAY, 3:00–3:50 PM

109

Social Media for Local Government Agencies

With more and more people communicating online, many local agencies are adopting social media as part of their outreach efforts. This session will include a breakdown of the most common social media networks used by local agencies, ideas for useful and engaging content, and a discussion of best practices for social media communications. Examples will be drawn from other local agency success stories, including local agencies within Indiana.

Sam Taylor, Purdue University, Speaker and Moderator

STEW 314

PDH 1



PUBLIC SAFETY

WEDNESDAY, 8:00–11:50 AM

110

IN-TIME National Traffic Incident Management First Responder Course

INDOT, in association with the Indiana State Police and other public agencies, is participating in Indiana's Traffic Incident Management Effort (IN-TIME), which meets to promote best practices for mitigation and safe handling of traffic incidents. Fire and police, along with others at a crash scene, may not always handle the cleanup in the most efficient manner. The National Traffic Incident Management Responder Training Program that is provided by members of IN-TIME promotes education and good working relationships to improve that efficiency. Attendees of this 4-hour course will walk away with powerful training that will help them at every traffic incident scene.

Mike Lepper, Indiana State Police
Steve Harney, INDOT

Moderated by Steven Harney, INDOT

STEW 214AB

PDH 4

WEDNESDAY, 2:00–2:50 PM

111

NIMS Compliance: A Curse or an Advantage?

The National Incident Management System (NIMS) was mandated by Homeland Security Presidential Directive 5 to provide a consistent nationwide framework for governmental, private sector, and non-governmental organizations to work effectively and efficiently together to prepare for, respond to, and recover from domestic incidents, regardless of cause, size, or complexity. We will discuss how we can apply NIMS to help us be safer and more effective rather than just viewing it as another government mandate that makes our job more difficult.

Steve Orusa, City of Fishers

Moderated by Carol Shelby, Purdue University

STEW 214AB

PDH 1

WEDNESDAY, 3:00–3:50 PM

112

USGS Flood Inundation Mapping Program of Indiana

The U.S. Geological Survey (USGS) Flood Inundation Mapping Program (FIMP) focuses its efforts at state and local levels to help communities understand flood risks and make cost-effective mitigation decisions. The program partners with local communities to assist in the development and validation of flood inundation map libraries. In turn, communities use these maps to help protect lives and property. This presentation will describe the efforts of the USGS FIMP in Indiana.

Moon Kim, U.S. Geological Survey

Moderated by Carol Shelby, Purdue University

STEW 214AB

PDH 1

ROAD SCHOLAR

About Road Scholar

The Road Scholar Program was established as a core body of knowledge necessary to perform the duties of a local transportation official. Participants attend twelve core courses and elective conferences and workshops to accrue credit hours. The value of actual on-the-job work experience is recognized and is given credit at the rate of 30 credits for each year of experience (300 credit hours is the maximum allowed for work experience). Once the twelve courses are completed and 300 credit hours have been obtained, participants are presented with the award of "Road Scholar".

"Master Road Builder" is awarded once 600 credit hours have been accrued.

Since its inception, 110 officials have been awarded Road Builder and 29 have achieved the status of Master Road Builder. These officials come from 93 different agencies statewide and represent close to 300 years of service to Indiana street and highway departments.

Those twelve courses and their basic content are as follows:

1. **POWERS & DUTIES.** This course reviews the duties required by law as outlined in the Indiana Code as well as promotes effective working relationships and leadership and management skills.
2. **LIABILITY AND RISK MANAGEMENT.** Learn OSHA requirements and commercial driver's license (CDL) requirements as well as discuss tort liability claims and transportation liability.
3. **HIGHWAY FUNDING.** View LTAP's "bead demo" that visually captures the path federal and state funds take before they reach your agency. You'll also learn some revenue sources for street and highway departments.
4. **PURCHASING AND PUBLIC CONSTRUCTION.** Receive updates from the State Board of Accounts and learn proper protocol for emergency purchasing.
5. **ROADWAY SAFETY.** Learn low-cost safety measures that can greatly decrease crash rates on both low-volume and high-volume roads. Learn how to obtain crash data and how to put it to good use.
6. **BASICS OF A GOOD ROAD.** Learn the fundamentals of road design, how to select concrete and asphalt materials, and basic drainage laws.
7. **TEMPORARY TRAFFIC CONTROL.** Attendees learn the safety requirements for developing a temporary traffic control plan for their worksite as well as implementation and design of a work zone.
8. **MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).** This course covers MUTCD updates as well as legal aspects and tort claims. Learn sign management software and stay current on retroreflectivity regulations as well as those for work zone apparel.
9. **BRIDGE BASICS.** This course covers basic structure types and bridge terminology as well as design, maintenance, inspection, and funding.
10. **DRAINAGE.** Legal aspects and drainage laws are discussed as well as basic hydrology, structure types, and hydraulic design and sizing.
11. **ROAD AND BRIDGE PLAN READING.** Attendees will learn vocabulary and symbol definitions and specifications for bridges and roads.
12. **ESTIMATING CONSTRUCTION COST AND QUANTITIES.** A math refresher is followed by lessons in calculating area and volume, quantities, and costs.

TUESDAY, 2:00–4:50 PM

41

Indiana LTAP Road Scholar Core Course #1 Powers and Duties of Local Highway and Street Officials

This three-hour course is part of the Indiana LTAP Road Scholar program and is identified as core course #1. The Indiana Road Scholar program was established to build a core body of knowledge necessary to perform the duties of a local transportation official. Core course #1 will cover two main topics: asset management for local agencies and administration and management of local roads and streets.

Katie Zimmerman, Applied Pavement Technology
Richard Domonkos, Purdue University

Moderated by Richard Domonkos, Purdue University

KRANNERT AUDITORIUM

WEDNESDAY, 8:00–11:50 AM

113

Indiana LTAP Road Scholar Core Course #2 Liability and Risk

This three-hour course is identified as core course #2 in the Indiana LTAP Road Scholar program. The Indiana Road Scholar program was established to build a core body of knowledge necessary to perform the duties of a local transportation official. Core course #2 will cover some of the complex issues that arise when managing employees and developing and administering employment policies within a public works or county highway department in Indiana.

Bob Davidson, Public Risk Underwriters of Indiana
Susie Fields, Midwest Toxicology Services
Larry Mote, Jr., Indiana State Police

Moderated by Richard Domonkos, Purdue University

KRANNERT AUDITORIUM

SAFETY

TUESDAY, 3:00–3:50 PM

42

Enhancing Red Light Compliance

As part of the Minnesota DOT's Toward Zero Deaths program, a device was created to enable the State Patrol officers to witness red light violations from downstream positions to make enforcement safer. Besides live video, the system also records still frames of the violations to be used as evidence and performance metrics that help target enforcement scheduling and provide countermeasure evaluations. Minnesota does not allow automated enforcement.

Daniel Shamo, AECOM Corporation

Moderated by Jill Palmer, Shrewsberry & Associates, LLC

STEW 310

PDH 1

TUESDAY, 4:00–4:50 PM

43

Evaluating Truck Rollover at Roundabouts on High-Speed Roads

As construction of roundabouts on high-speed roads has commenced, truck overturning has become a concern. This research describes a rollover model more generalized than those previously used in this application, accounting for the complex paths and varying tilt of heavy vehicles such as semitrailers. The model is applied to examine how close heavy vehicles encroach on critical rollover conditions, including for understanding whether inward circulatory superelevation affords considerable advantages over the commonly used outward design.

Thomas Hall, Purdue University

Moderated by Jill Palmer, Shrewsberry & Associates, LLC

STEW 310

PDH 1

WEDNESDAY, 8:00–8:50 AM

114

Highway Safety Improvements for Your Roads

Over time, the FHWA has produced a lot of safety information, regulations, and initiatives: Proven Safety Countermeasures, Every Day Counts, and more. In all of this there is one goal: Save lives and prevent serious injuries. Join us as we navigate through the great safety initiatives you can consider for use on the roads in your care. We will also survey many of the effective safety initiatives already implemented on Indiana roads.

Rick Drumm, FHWA

Moderated by Tom Ford, INDOT

STEW 310

PDH 1

WEDNESDAY, 9:00–9:50 AM

115

Local Traffic Safety Programs—New Developments

The presentation will provide an update on newer traffic safety initiatives, the latest developments to local traffic safety programs, and changes to the local Highway Safety Improvement Program (HSIP) guidance document. This presentation is a companion to the Draft 2015 Strategic Highway Safety Plan (SHSP) for Indiana presentation.

Michael Holowaty, INDOT

Moderated by Tom Ford, INDOT

STEW 310

PDH 1

WEDNESDAY, 10:00–10:50 AM

116

Draft 2015 Indiana Strategic Highway Safety Plan

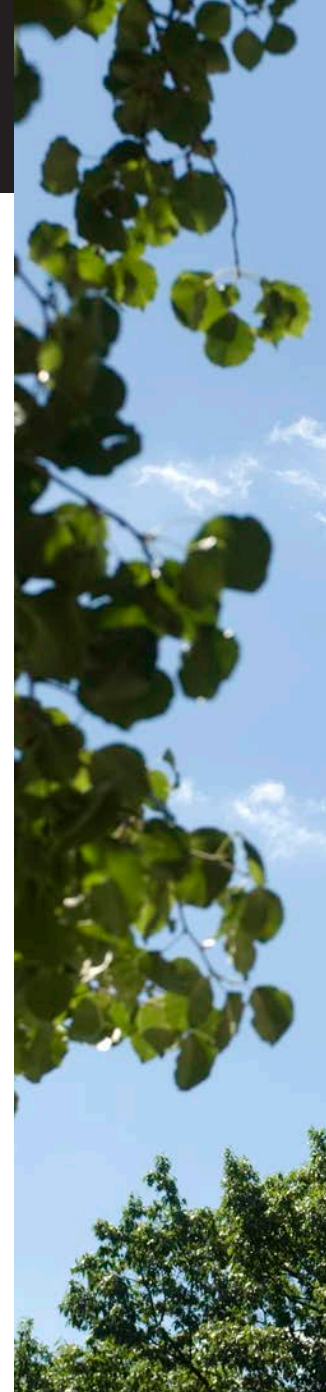
Indiana's ability to expend federal Highway Safety Improvement Program (HSIP) funds requires implementing a data-driven Strategic Highway Safety Plan (SHSP), which guides the types of roadway infrastructure countermeasures preferred for HSIP funding. Learn about what an analysis of the nearly two million police crash reports filed in Indiana since 2004 reveals about the state's traffic safety improvement needs and what emphasis areas are targeted in the draft 2015 SHSP.

Roger Manning, INDOT

Moderated by Tom Ford, INDOT

STEW 310

PDH 1



WEDNESDAY, 11:00–11:50 AM

117**Traffic Safety Project Development**

This session provides a regional perspective for identifying and developing safety projects for federal Highway Safety Improvement Program funding through a multi-agency partnering approach. Learn how to develop and deliver viable safety improvement projects through the utilization of crash information, community assessments, and partnering with local public agencies. Several examples of successful projects will be discussed.

Dan Avery, Northeastern Indiana Regional Coordinating Council

Moderated by Tom Ford, INDOT

STEW 310

PDH 1

WEDNESDAY, 2:00–2:50 PM

118**Crash Analysis**

Vehicle-related crashes are one of the leading causes of injury and death in the United States. Come learn about how metropolitan planning organizations (MPOs) partner with local communities to use crash analysis data to improve safety outcomes and operations for all road users and to demonstrate the benefits of transportation investments. Learn how two MPOs and a county analyze, communicate, and utilize crash information. Topics may include GIS/cartographic methods, connections to planning and funding, integrating crash analysis and corridor speed studies, integrating crash analysis with Complete Streets designs, and bike/pedestrian crash analysis.

*Tim Stroshine, Tippecanoe County Area Plan Commission
Mike Parks, Tippecanoe County Highway Department
Dan Avery, Northeastern Indiana Regional Coordinating Council*

Moderated by Laura Slusher, Purdue University

STEW 310

PDH 1

WEDNESDAY, 3:00–3:50 PM

119**Successful Traffic Calming and Speed Control for Local Agencies**

Calm Down: Implementation of a Neighborhood Traffic Calming Program | What is your City's policy for addressing neighborhood traffic concerns? This presentation will provide a history on traffic calming policies, a discussion on the nature of the issues and problems faced by residential neighborhoods, and a review of today's recommended traffic calming measures for improving safety. National programs as well as programs throughout the state of Indiana will be reviewed. The design and implementation of South Bend's 2015 Neighborhood Traffic Calming Program will be shared.

Kara Boyles, City of South Bend

Moderated by Laura Slusher, Purdue University

STEW 310

PDH 1

Slow Down! Effective Speed Control for Local Agencies | Speeding is a common complaint to many local agencies and can also be a contributing factor in crashes of all types. Controlling speeds is paramount to keeping our communities happy and improving safety for all road users. In this session we will explore ways to effectively control speeding on local and rural roads through engineering, education, and enforcement. We will also discuss common misconceptions about speed control and "fixes" that may actually lead to increased vehicle speeds.

Laura Slusher, Purdue University

TRAFFIC OPERATIONS

TUESDAY, 11:00–11:50 AM

44

Diverging Diamond Interchange Signal Performance Measures and Optimization

This session uses high-resolution event data to develop performance measures to evaluate operations at a DDI in Salt Lake City, Utah. A new three-phase configuration was developed and deployed to address the internal queuing that occurs with two-phase timing. Video from a tethered unmanned aerial vehicle (UAV) was prepared that demonstrates the vehicle arrival characteristics by overlaying vehicle detection and signal state graphics on the video.

*Alexander Hainen, University of Alabama
Amanda Stevens, INDOT*

Moderated by Anthony Perkinson, FHWA

STEW 218AB

PDH 1

TUESDAY, 2:00–3:50 PM

45

Connected Vehicle Infrastructure Deployment Considerations for Transportation Agencies

This presentation describes deployment considerations for connected vehicle infrastructure by state and local transportation agencies in light of a 2014 U.S. DOT decision regarding the future of connected vehicle safety and based on lessons learned from the Safety Pilot Connected Vehicle Model Deployment. Included are policy review and lessons learned from Safety Pilot and other connected vehicle test programs.

Bradley Miller and Jim Barbaresso, HNTB Corporation

Moderated by Anthony Perkinson, FHWA

STEW 218AB

PDH 2

TUESDAY, 4:00–4:50 PM

46

Shockwave Boundary Identification Using Cloud-Based Probe Data

An important component of actively managing freeways is systematically identifying recurring and nonrecurring congestion, particularly the location of the shockwave boundary between the two flow regimes. Over the last five decades, an extensive number of publications have described point-based detection models. The emerging widespread availability of true space mean speed data obtained from probe vehicles drastically simplifies the incident detection problem.

Howell Li, Stephen Remias and Chris Day, Purdue University

Moderated by Anthony Perkinson, FHWA

STEW 218AB

PDH 1

WEDNESDAY, 8:00–9:50 AM

120

Improving Traffic Performance Through Research and Technology

Signalized Arterial Performance Ranking with Probe Data | Performance measures are important for managing transportation systems and demonstrating accountability. This session presents a scalable methodology for analyzing arterial travel times, taking into account both the central tendency of the travel time and its reliability. Findings will be presented from a pilot analysis that was carried out for 28 arterials including a total of 341 signalized intersections from across the state of Indiana.

Chris Day, Purdue University

Traffic Signal Performance Measures for Maintenance | This session provides a demonstration of maintenance-related performance measures used to detect abnormal pedestrian push button operations and vehicle detections. This may include complete loss of detection or varying degrees of intermittent failures. Case studies of the use of these measures on active systems will be presented.

Jay Grossman, Elkhart County Highway

Introduction to INDOT's New Online Traffic Database and Use of Miovision Turning Movement Count Technology | INDOT is using a new online traffic count database that offers users access to the most current traffic count data available. This session will provide an overview of the software and demonstrate the powerful search and reporting options available. Participants will learn some of the nuances of the system to allow better interpretation of the data. Discussion will also include a description of the Miovision turning movement data collection system.

Gregory Katter, INDOT

Field Evaluation of Red Light Running Identification Methods |

A new methodology is proposed to identify intersections with high numbers of red light-running vehicles. An overview of the field performance of this methodology, based on high-resolution signal controller data, is presented.

Steve Lavrenz, Purdue University

Moderated by Jeff Hill, City of Fishers

STEW 202

PDH 2



WEDNESDAY, 8:00–8:50 AM

121

Developments in Highway Lighting Research and Standards

This presentation will focus on recent developments in INDOT's design procedures and specifications and on current research into the impact of lighting on intersection safety and whether solid state light sources provide a particular advantage.

*David Boruff and Lalit Garg, INDOT
Ted Sommer, London Witte Group*

Moderated by Alan Holderread, INDOT

STEW 218AB

PDH 1

WEDNESDAY, 9:00–9:50 AM

122

City of South Bend Downtown Two-Way Conversion

The City of South Bend has launched the Smart Streets initiative to improve the role of streets through implementation of the Complete Streets philosophy. As part of this initiative, the Downtown Two-Way Conversion Plan was developed with a goal of revitalizing South Bend's downtown. This session will describe the Smart Streets initiative, discuss the traffic study of the Downtown Two-Way Conversion Plan, and provide an update on the conversion process.

*Ryan Huebschman, American Structurepoint, Inc.
P. Corbitt Kerr and Roger Nawrot, City of South Bend*

Moderated by Alan Holderread, INDOT

STEW 218AB

PDH 1

WEDNESDAY, 10:00–10:50 AM

123

Multimodal Simulation as a Tool for Complex System Evaluations

Today's simulation tools are becoming increasingly capable of replicating transportation behaviors beyond the automobile. Chris Beard of Lochmueller Group will present case studies of multimodal simulations developed in support of transportation planning for a major medical campus in St. Louis, Missouri. Examples will include pedestrian and traffic simulations of complex intersections (including a partial continuous flow intersection), pedestrian simulations within the confines of a busy transit station, and simulation of drop-off/pick-up activities within an auto court/porte cochere using multiple vehicle types, including valet, self-park, chair cars, and others. These simulations and their robust output helped facilitate data-driven decision-making by medical planners regarding the future of the rapidly expanding campus.

Tim Miller and Chris Beard, Lochmueller Group

Moderated by Alan Holderread, INDOT

STEW 218AB

PDH 1

WEDNESDAY, 11:00–11:50 AM

124

Evaluation of Flashing Yellow Operations in Indiana

Through the support of JTRP project SPR-3725, an evaluation of options for the implementation of flashing yellow arrows for permissive left turns was evaluated. A review of the findings of the final report will be presented. This will include results of a survey about driver response to signal heads and data from field observations of actual driving behavior at the two test sites in Indiana. The result of this research concluded that there was no observable data demonstrating that mixed orientation traffic signals would present a safety issue for drivers. In conjunction with results from NCHRP Project 20-07, there is reason to believe that safety would be improved by placing the left turn signal in a horizontal orientation while leaving the adjacent through signals in a vertical orientation.

Robert Rescot, Purdue University Calumet

Moderated by Alan Holderread, INDOT

STEW 218AB

PDH 1

WEDNESDAY, 2:00–2:50 PM

125

2013–2014 Indiana Mobility Report and Applications

This session presents the 2013–2014 Indiana Mobility Report, which examines the mobility performance of Indiana's state highway system. Minute-by-minute crowdsourced probe vehicle speed data and vehicle volume data are used to develop performance measures that identify, quantify, and visualize the location and duration of congestion. A variety of performance measures are developed to examine the Interstate system operated by INDOT. The report presents overall system performance, including a monthly overview covering January 2011 through June 2014 and selected highlights of significant projects.

Stephen Remias and Chris Day, Purdue University

Moderated by Ed Cox, INDOT

STEW 218AB

PDH 1

WEDNESDAY, 3:00–3:50 PM

126

Diamond Interchange Designs: Selection, Implementation and Performance

Double Crossover Diamond Interchange Selection and Implementation | Indiana has constructed its first double crossover diamond (DCD) interchange, and its second and third DCD interchanges are set for construction in the near future. This presentation will examine their selection during the engineering and operational acceptability stage of the Interchange Justification Report, including traffic modeling, vehicular safety and pedestrian safety. The presentation will also discuss geometric design and traffic plan development after selection as the preferred alternative.

*Ben Carnahan, Parsons Transportation Group
Adam Burns, Crawford, Murphy & Tilly Engineering & Consultants*

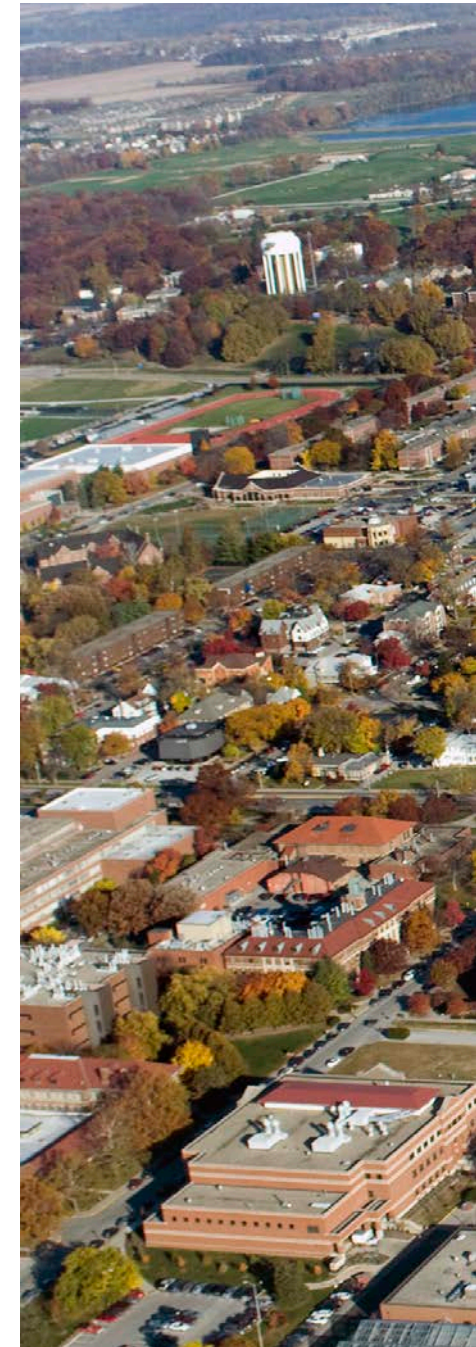
Moderated by Ed Cox, INDOT

STEW 218AB

DuPont Road DDI: A Case Study | The new diverging diamond interchange (DDI) that opened in October 2014 is the first DDI to be constructed in the state of Indiana. This presentation will cover the basic concept, design benefits and challenges, signalization, and lessons learned, as well as report on how well the new interchange is performing now that construction is complete.

*Greg Rominger, Burgess & Niple, Inc.
Susan Doell, INDOT*

PDH 1



URBAN PLANNING

WEDNESDAY, 2:00–2:50 PM

127

West Lafayette's State Street Corridor

Purdue University and the City of West Lafayette have partnered to advance a project to enhance the West Lafayette State Street corridor from the Wabash River through the Purdue University campus to U.S. 231. This session will provide an informational presentation that will describe this exciting and innovative project with an introduction by Purdue University President Mitchell E. Daniels Jr. and City of West Lafayette Mayor John R. Dennis.

David Buck, City of West Lafayette Public Works Director

Moderated by Michael B. Cline, Purdue University Vice President for Physical Facilities

FOWLER

PDH 1





Hannah Ogburn
Government Transportation Safety
Specialist

3M Traffic Safety and Security Division

3M Center, Building Q235-03-A-53
St. Paul, MN 55144-1000
651 368 1853 Cell
hogburn@mmm.com

HP Sewer Pipe Meets AASHTO M330

HP Storm pipe, manufactured with polypropylene resin, exhibits superior strength and performance for storm sewer applications. HP Storm meets AASHTO M330 and ASTM F2736 and F2881. The pipe is available in diameters from 12"-60" and lengths of 20'. The water tight joint utilizes dual gaskets and a smooth interior provides excellent flow characteristics.



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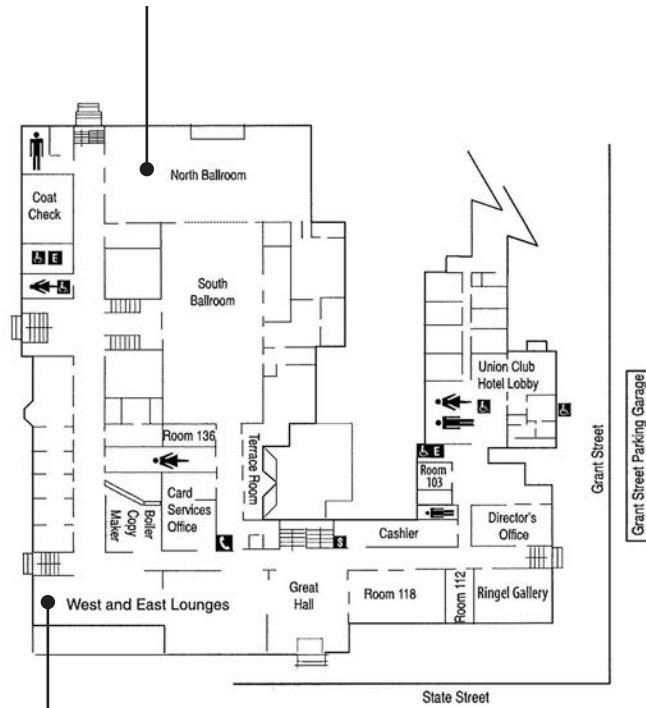


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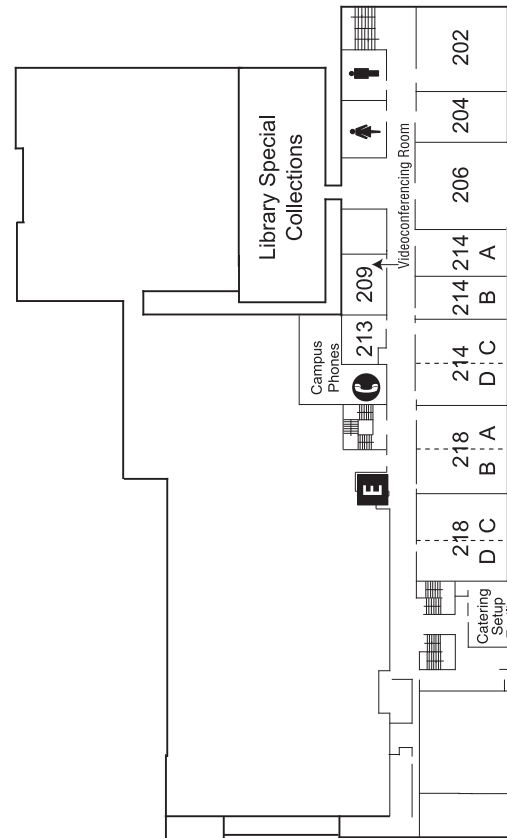
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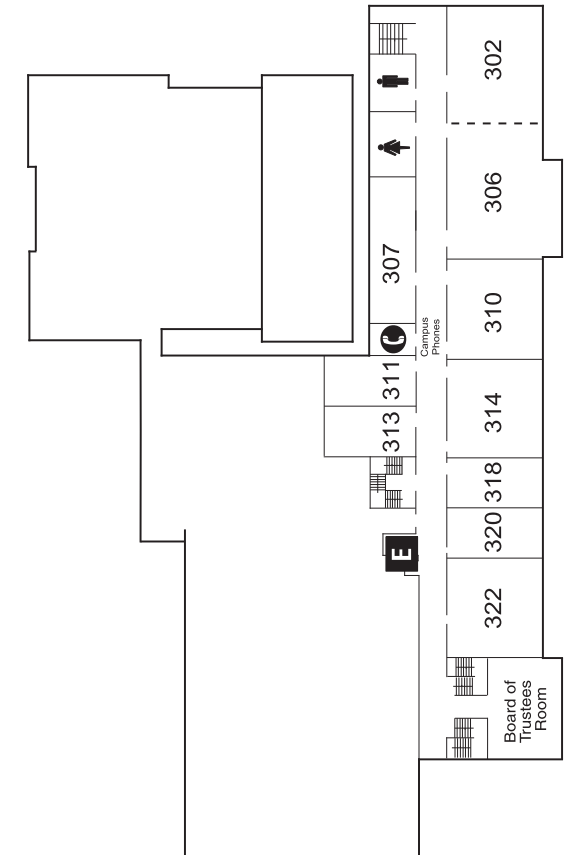
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