The Pavements Conference features three intimate pre-conference short courses, two off-site technical tours to local pavement related locations, four concurrent technical sessions, and poster sessions covering research, practice issues, and more.
Dear Attendee,

On behalf of the Transportation & Development Institute (T&DI) of ASCE, we welcome you to the International Conference on Highway Pavement and Airfield Technology.

This conference brings together researchers in pavements and airport safety technologies, designers, project/construction managers, academics, and contractors from around the world to discuss design, implementation, construction, rehabilitation alternatives, instrumentation and sensing, and recent research being performed. The theme of the conference is “Sustainable Pavements and Safe Airports,” and is dedicated to the state-of-the-art and state-of-practice areas of innovation, improved durability, cost-effective and more sustainable airport and highway pavements, and recent advancements and technologies to ensure safe and efficient airport operations today and into the future. The conference program includes the following:

• An extensive technical program developed by a scientific committee with over 120 members.

• Three short courses:
  ‣ Permeable Pavement Design, Construction & Maintenance
  ‣ Airport Pavement Design - FAARFIELD 1.4
  ‣ Environmental Project Declarations (EPD)

• Two technical tours:
  ‣ Rowan University - Center for Research and Education in Advanced Transportation Engineering Systems (CREATEs)
  ‣ The Capacity Enhancement Program (CEP) at the Philadelphia International Airport (PHL)

• Younger Member events

• Keynote lectures by ASCE award recipients

• Exhibits of companies driving sustainability, innovation, and quality in transportation and airport safety technologies

This Conference offers many opportunities to earn professional development hours (PDHs) for licensed professionals in meeting continuing education requirements. We look forward to continuing the tradition of another successful conference.

Regards,

Imad L. Al-Qadi, Ph.D., P.E., Dist. M.ASCE
University of Illinois at Urbana-Champaign Conference Co-Chair

Hasan Ozer, Ph.D., A.M.ASCE
University of Illinois at Urbana-Champaign Conference Co-Chair

Eileen M. Vélez-Vega, P.E., M.ASCE
Kimley-Horn Puerto Rico, LLC Conference Co-Chair

Scott D. Murrell, P.E., M.ASCE
Applied Research Associates Conference Co-Chair
Schedule-At-A-Glance

(Schedule-At-A-Glance)

Sunday, August 27, 2017
12:00 p.m. – 7:00 p.m.  Registration
1:00 p.m. – 5:00 p.m.  Short Course: Permeable Pavement Design, Construction & Maintenance Workshop (Extra ticket required)
1:00 p.m. – 5:00 p.m.  Short Course: Airport Pavement Design Workshop – FAARFIELD 1.4 (Extra ticket required)
1:00 p.m. – 5:00 p.m.  Short Course: Environmental Product Declarations (EPD) Workshop (Extra ticket required)
5:00 p.m. – 6:00 p.m.  Committee Meeting: Aviation Operations and Planning
6:00 p.m. – 7:30 p.m.  Andrea C. Baker Reception
6:00 p.m. – 7:30 p.m.  Exhibit Hall Opens

Monday, August 28, 2017
7:00 a.m. – 5:00 p.m.  Registration
7:30 a.m. – 8:00 a.m.  Breakfast
8:00 a.m. – 10:00 a.m.  Opening Plenary Session
10:00 a.m. – 10:30 a.m.  Networking Break
10:00 a.m. – 4:00 p.m.  Posters & Exhibit Hall Hours
10:30 a.m. – 12:00 p.m.  Concurrent Technical Sessions
12:00 p.m. – 1:30 p.m.  Awards Luncheon
1:30 p.m. – 2:00 p.m.  Networking Break
2:00 p.m. – 3:30 p.m.  Concurrent Technical Sessions
3:30 p.m. – 4:00 p.m.  Networking Break
4:00 p.m. – 5:30 p.m.  Concurrent Technical Sessions
5:45 p.m. – 6:45 p.m.  Younger Member Social Hour
7:00 p.m. – 8:00 p.m.  Exhibit Hall Closes

Tuesday, August 29, 2017
7:00 a.m. – 5:00 p.m.  Registration
8:00 a.m. – 8:30 a.m.  Breakfast
8:30 a.m. – 10:00 a.m.  Concurrent Technical Sessions
10:00 a.m. – 10:30 a.m.  Networking Break
10:00 a.m. – 3:30 p.m.  Posters & Exhibit Hall Hours
10:30 a.m. – 12:00 p.m.  Concurrent Technical Sessions
12:00 p.m. – 1:30 p.m.  Buffet Lunch
1:30 p.m. – 3:00 p.m.  Concurrent Technical Sessions
3:00 p.m. – 3:30 p.m.  Networking Break
3:30 p.m. – 5:00 p.m.  Concurrent Technical Sessions
5:15 p.m. – 6:15 p.m.  Younger Member Special Session
6:15 p.m. – 7:00 p.m.  Younger Member Social Hour

Wednesday, August 30, 2017
7:00 a.m. – 12:00 p.m.  Registration
8:00 a.m. – 8:30 a.m.  Breakfast
8:30 a.m. – 10:00 a.m.  Concurrent Technical Sessions
10:00 a.m. – 10:30 a.m.  Networking Break
10:30 a.m. – 12:00 p.m.  Concurrent Technical Sessions
12:00 p.m. – 1:00 p.m.  Lunch On Your Own
1:00 p.m. – 5:00 p.m.  Technical Tour: Rowan University – Center for Research and Education in Advanced Transportation Engineering Systems (CREATEs) (Extra ticket required)

Thank You to Our Sponsors

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Short Courses

Sunday, August 27, 2017
1:00 – 5:00 p.m.

Environmental Product Declarations (EPD)

Commonwealth A1 (2nd floor)

Instructors:
John Harvey, University of California – Davis
Richard Willis, NAPA
Brian Killingsworth, NRMCA
Amlan Mukherjee, Michigan Tech

Environmental Product Declarations (EPD) are documents that communicate the environmental impacts of a product from cradle to gate (gate of the manufacturer’s facility at which user takes ownership) of a material. EPDs are produced under Product Category Rules (PCR) that follow ISO standards for this use of life cycle assessment (LCA). EPDs can be used for informational purposes (reporting only) and are a source of up-to-date, regionally applicable data for use in any kind of pavement LCA. Provided construction, performance and end-of-life considerations are taken into account, EPDs can also be used as part of the material procurement process.

A few agencies are requiring EPDs for pavement and other transportation infrastructure materials in the United States for information purposes, with none yet using them as part of selection of materials. The pavement materials industry is being strongly incentivized to develop PCRs and produce EPDs by their inclusion in the LEED 4 framework. EPDs are used as part of pavement structure procurement in design-build-maintain projects in northern Europe. A workshop held in September 2016 was organized by Michigan Tech and attended by FHWA, several state and local government transportation agencies, industry, and academia to discuss the present status and issues with production and use of EPDs, and to begin to develop a road map for the future. This short course will summarize the results of the workshop and activities that have taken place following the workshop.

PDHs: 4 credits
Fee: $150 EB/$175 ADV

Airport Pavement Design Workshop – FAAFIELD 1.4

Congress A1 (4th floor)

Instructor:
Jeffrey Gagnon, Federal Aviation Administration

FAAFIELD 1.41 (FAA Rigid and Flexible Iterative Elastic Layered Design) was introduced in November 2016. FAAFIELD continues the “look and feel” of the FAA’s software FAAFIELD 1.3, but also includes significant changes. The FAAFIELD design procedure is the FAA’s standard for airport pavement design and is included in the FAA’s new Advisory Circular 150/5320-6F, “Airport Pavement Design and Evaluation.”

This FAA software workshop is intended for airport operators and others with a practical interest in airport pavement design. Participants in the workshop will:
1. Learn the principles of pavement design and pavement analysis using FAA software including FAAFIELD 1.4.
2. Experience hands-on demonstrations of the FAAFIELD software, with examples.
3. Understand the major difference between FAAFIELD and previous FAA design procedures.

It is highly recommended that workshop participants bring their own laptops so they can install FAAFIELD to follow along through the training and pavement design examples.

PDHs: 4 credits
Fee: $150 EB/$175 ADV

Permeable Pavement Design, Construction, & Maintenance

Congress C (4th floor)

Instructors:
David Hein, Applied Research Associates
David Smith, Interlocking Concrete Pavement Institute

This session will consist of the presentation of four case studies on key design, construction, and maintenance considerations for permeable interlocking concrete, porous asphalt, pervious concrete, and grid pavements. The ASCE Transportation and Development Institute is expected to publish a standard guideline for the design, construction, and maintenance of permeable pavements. ASCE committee members and invited guests will provide an overview of permeable pavements, highlights of the new ASCE standard, and key lessons learned to ensure the success of permeable pavements for airports, roadways, and parking area pavements.

Topics covered include the following:
- Permeable pavement structural and hydraulic design
- Site evaluation and suitability of permeable pavements
- Construction practices for success
- Maintenance of permeable pavements
- Life-cycle cost and water quality improvement benefits
- Case studies and lessons learned

PDHs: 4 credits
Fee: $150 EB/$175 ADV

A permeable paver demonstration, Austin's Ferry, Tasmania, Australia
Photo by JJ Harrison
Sunday, August 27

Registration
12:00 p.m. – 7:00 p.m.

Committee Meeting: Aviation Planning & Operations
5:00 p.m. – 6:00 p.m., Congress A (4th Floor)

Exhibit Hall Open
6:00 p.m. – 7:30 p.m.

Andrea C. Baker Reception
6:00 p.m. – 7:30 p.m., Millennium Hall (2nd floor)
Break the ice with a little networking among colleagues and exhibitors on the first night of the conference. Welcome old friends, colleagues, and see what’s new in technology and services offered by our exhibitors. Relax and Enjoy!

Monday, August 28

Registration
7:00 a.m. – 5:00 p.m., Commonwealth Pre-function (2nd floor)
(Closed for Lunch from 12:00 p.m. - 1:30 p.m.)

Breakfast
7:30 – 8:00 a.m., Millennium Hall (2nd floor)

Opening Plenary Session
8:00 a.m. – 10:00 a.m., Commonwealth B, C, D (2nd floor)

Welcome by the Co-Chairs
8:00 a.m. – 8:15 a.m.

Welcome Remarks by Kelvin Wang, Ph.D., P.E., M.ASCE, President, T&D of ASCE
8:15 a.m. – 8:30 a.m.

Keynote Speech by Chellie Cameron
CEO, Philadelphia International Airport
8:30 a.m. – 9:00 a.m.

Keynote Speech by Shiraz Tayabji, Ph.D., P.E., F.ASCE
President, Advanced Concrete Pavement Consultancy
9:00 a.m. – 9:30 a.m.

Francis C. Turner Lecture by Robert Lytton, Ph.D., M.ASCE
Benson Chair Professor, Texas A&M University
9:30 a.m. – 10:00 a.m.

Networking Coffee Break in the Exhibit Hall
10:00 a.m. – 10:30 a.m., Millennium Hall (2nd floor)

Poster Session and Exhibit Hall Open
10:00 a.m. – 4:00 p.m., Millennium Hall (2nd floor)
Authors will be available to discuss their posters from 2:00 – 3:30 p.m. See the poster session grid for details.

Concurrent Technical Sessions
10:30 a.m. – 12:00 p.m.

Awards Luncheon and Carl Monismith Lecture
12:00 p.m. – 1:30 p.m., Commonwealth B, C, D (2nd floor)

Carl Monismith Award Winner
David A. Anderson,
Penn State University

Francis C. Turner Award Winner
Robert Lytton,
Texas A&M University

Airfield Pavement Practitioner Award Winner
Wayne J. Seiler,
All About Pavements, Inc.

Networking Coffee Break in the Exhibit Hall
1:30 p.m. – 2:00 p.m., Millennium Hall (2nd floor)
Sponsored by Kimberly Horn

Concurrent Technical Sessions
2:00 p.m. – 3:30 p.m.

Networking Coffee Break in the Exhibit Hall
3:30 p.m. – 4:00 p.m., Millennium Hall (2nd floor)

Concurrent Technical Sessions
4:00 p.m. – 5:30 p.m.

Committee Meeting: Airfield Pavements
5:45 p.m. – 6:45 p.m., Congress A (4th floor)

Committee Meeting: Highway Pavements
7:00 p.m. – 8:00 p.m., Congress B (4th floor)
**Tuesday, August 29**

**Registration**
7:00 a.m. – 5:00 p.m., Commonwealth Pre-function (2nd floor)
(Closed for Lunch from 12:00 p.m. - 1:30 p.m.)

**Breakfast**
8:00 – 8:30 a.m., Millennium Hall (2nd floor)

**Concurrent Technical Sessions**
8:30 a.m. – 10:00 a.m.

**Networking Coffee Break in the Exhibit Hall**
10:00 a.m. – 10:30 a.m., Millennium Hall (2nd floor)

**Poster Session and Exhibit Hall Open**
10:00 a.m. – 3:30 p.m.
Authors will be available to discuss their posters from 10:30 a.m. to 12:00 noon and 1:30 to 3:00 p.m. See the poster grid for details.

**Concurrent Technical Sessions**
10:30 a.m. – 12:00 p.m.

**Buffet Lunch in the Exhibit Hall**
12:00 p.m. – 1:30 p.m.

**Concurrent Technical Sessions**
1:30 p.m. – 3:00 p.m.

**Networking Coffee Break in the Exhibit Hall**
3:00 p.m. – 3:30 p.m., Millennium Hall (2nd floor)

**Concurrent Technical Sessions**
3:30 p.m. – 5:00 p.m.

**Younger Member Special Session**
5:15 p.m. – 6:15 p.m., Commonwealth A (2nd floor)

**What I Wish I Knew**
Unwritten rules, hard won knowledge through mistakes, and general career advice; things that leaders and respected veterans of civil engineering have earned, and things our younger members need!
Come hear a panel discussion on this topic as experienced leaders of the field pass on their hard-won advice to the younger members.

**Younger Member Social Hour**
6:15 p.m. – 7:00 p.m., Commonwealth Pre-function (2nd floor)
Come network with leaders in the civil engineering field. The event allows younger members an opportunity to speak directly with company leaders, academic administrators, and other “movers and shakers” in the transportation field.

**Wednesday, August 30**

**Registration**
7:00 a.m. – 12:00 p.m., Commonwealth Pre-function (2nd floor)

**Breakfast**
8:00 – 8:30 a.m., Commonwealth Pre-function (2nd floor)

**Concurrent Technical Sessions**
8:30 a.m. – 10:00 a.m.

**Networking Break**
10:00 a.m. – 10:30 a.m., Commonwealth Pre-function (2nd floor)

**Concurrent Technical Sessions**
10:30 a.m. – 12:00 p.m.

**Lunch On Your Own**
12:00 p.m. – 1:00 p.m.

**Technical Tours**
Shuttles for the technical tours will begin loading at 12:45 p.m. in the front of the hotel on Market Street.

**Rowan University — Center for Research and Education in Advanced Transportation Engineering Systems (CREATEs)**
(Extra ticket required)
1:00 p.m. – 3:00 p.m.

**The Capacity Enhancement Program (CEP) at the Philadelphia International Airport (PHL)**
(Extra ticket required)
1:00 p.m. – 5:00 p.m.
Sunday, August 27, 2017

1:00 p.m. – 5:00 p.m.  
**Permeable Pavement Design, Construction and Maintenance Workshop**, Instructor: David Hein, AIA, David Smith, KFI  
**Congress C (4th floor)**

1:00 p.m. – 5:00 p.m.  
**Airport Pavement Design Workshop — FAARFIELD 1.4**, Instructor: Jeff Gagnon, FA  
**Congress A (4th floor)**

1:00 p.m. – 5:00 p.m.  
**Environmental Product Declarations (EPD) Workshop**, Instructors: John Harvey, UC Davis; Richard Willis, NAPA; Brian Killingsworth, NRCA; and Amlan Mukherjee, Michigan Tech  
**Congress A1 (2nd floor)**

6:00 p.m. – 7:30 p.m.  
**Exhibit Hall Open**  
**Millennium Hall (2nd floor)**

6:00 p.m. – 7:30 p.m.  
**Andrea C. Baker Welcome Reception**  
**Millennium Hall (2nd floor)**

Monday, August 28, 2017

7:30 a.m. – 8:00 a.m.  
**Breakfast**  
**Millennium Hall (2nd floor)**

8:00 a.m. – 10:00 a.m.  
**Opening Plenary Session**  
**Commonwealth B, C, D (2nd floor)**  
**Moderators & Co-Hosts:** Imad Al-Qadi, UIUC; Scott Murrell, AIA; Eileen Velez-Vega, Kimley Horn; Hassan Ozer, UIUC  
**Welcome Remarks:** Kelvin Wang, T&D President  
**Keynote Speech:** Chellee Cameron, CEO, Philadelphia International Airport  
**Keynote Speech:** Long-Life and Sustainable Concrete Pavements – A Perspective, Shiraz Tayabji, President, Advanced Concrete Pavement Consultancy  
**Francis C. Turner Lecture:** Pro-Active Pavement Engineering and Management: Robert Lytton, Senior Vice President, Texas A&M University

10:00 a.m. – 10:30 a.m.  
**Networking Coffee Break in the Exhibit Hall**  
**Millennium Hall (2nd floor)**

10:00 a.m. – 4:00 p.m.  
**Poster Session and Exhibit Hall Open**  
**Millennium Hall (2nd floor)**

10:30 a.m. – 12:00 p.m.  
**Concurrent Sessions**

<table>
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<tr>
<th>TRACK A: Design &amp; Construction</th>
<th>TRACK B: Materials</th>
<th>TRACK C: Airfield and Safety</th>
<th>TRACK D: Innovations &amp; Sustainability</th>
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</table>

**A.1 Mechanistic Methods and Advanced Modeling to Predict Pavement Response**  
**Moderator:** Musharrof Zaman, The University of Oklahoma

**Effects of Concrete Stiffness on Mechanistic-Empirical Performance of Un-bonded Jointed Plain Concrete Overlays**, Gouhar Sabih and Rafiqul Tarefder, University of Texas – Austin  
**Extended Finite Element Modeling of Crack Propagation in Asphalt Concrete Pavements Due to Thermal Fatigue Load**, Mohammad Hosssain, Abdalla Faith E Abdellatif, and Rahbi Mehdi, Bradley University, Mal. Islam, Colorado State University-Pueblo, Rafiqul Tarefder, The University of New Mexico  
**Simulation of Extreme Cooling Effects on the Propagation of Reflection Cracks**, Hao Yin and Tinoanu Mandal, Soma Technolo, Richard Jr and R. Rutter, Federal Aviation Administration

**B.1 Performance and Sustainability Evaluation of In-Place and Central Plant Recycling Options**  
**Moderator:** Richard Willis, National Asphalt Pavement Association

**Key Findings from a Comprehensive Study to Investigate the Mechanistic Properties of Pavements Rehabilitated Using Three Full-Depth Reclamation Strategies**, David Jones, Sherman Louw, and Rangsong Wu, University of California, Davis  
**Effect of Gradation and Aged Binder Content of Reclaimed Asphalt Pavement (RAP) on Properties of Designed Cold-Recycled Asphalt Mix**, Amr Ghavidzoo and Paul Sahts, Tinkrs, Inc; Mohammed Ibrahim El-sharkawi Altho, Zogay University, Hossein Ajdali, City of San Juan Capistrano  
**Research on Sustainable Pavements:** Changes in In-Place Properties of Recycled Layers Due to Temperature and Moisture Variations, Rajib Mallick, Warner Polytechnic Institute; Heather Miller and Samayeh Eftekhari, University of Massachusetts, Amherst; Maureen Keeler, Lacoana, USDA Forest Service, Jo Sias Daniel, University of New Hampshire  
**Improving the Mechanical Properties of Cold Mix Asphalt Mixtures Reinforced by Natural and Synthetic Fibres**, Heyder Shanbana, Felicite Rudder, and William Atherton; University of Florida  

**C.1 Airport Operational Safety**  
**Moderator:** Ralph Wessels, Port of Seattle

**Ensuring Safe Airports: Modeling Resilience of Airport Infrastructure to Extreme Weather Related Storm Surge Threats**, Frederick Kautz, Rajib Mallick, and Michael Radzicki, Warner Polytechnic Institute  
**FAA Airport Safety R&D Update**, Jim Patterson, Federal Aviation Administration  
**Innovative Safety Technologies Employed in Changi Airport in Singapore**, Eric Chan, Changi Airport Group, LLC  
**Design and Construction of Runway Extension and Runway Safety Area on Runway 08R-26L at Vancouver International Airport, George Nowak, Hatch Infrastructure

**D.1 Next Generation Structural Health Monitoring of Highways/ Airfield Pavements**  
**Moderator:** David Jones, University of California, Davis

**Long-Term Performance Monitoring of Pavement Surface Characteristics with 3D Surface Data**, Qiang Joshua Li, Jason Zhan, and Kelvin C.P. Wang, Oklahoma State University  
**Next-Generation, Autonomous Health Monitoring and Management of Transportation Infrastructure Using Unmanned Aircraft Systems**, Halil Ceylan, Akash Vidyadharan, Kashtuirangun Gopalakrishnan, Sungwhan Kim, and Christina Blaabjerg, Iowa State University; Tyler Carter, InfraDrone LLC  
**Use of Lidar and Photogrammetry for Automatic Detection of Volumetric Distresses on Paved Runway Surfaces**, Ernest Bernrey, U.S. Army Engineer Research and Development Center

12:00 p.m. – 1:30 p.m.  
**Awards Luncheon**  
**Commonwealth B, C, D (2nd floor)**

**Francis C Turner Award:** Robert Lytton, Texas A&M University  
**Airfield Pavement Practitioner Award:** Wayne J. Seiler, All About Pavements, Inc.  
**Robert Horaniej Award:** W. Charles (Charlie) Greer, Jr., AME E&I (Retd)  
**James Laurie Prize:** Jeff Gagnon, Federal Aviation Administration  
**Carl Monismith Award and Lecture:** Measurement of Asphalt Binder Properties for Performance Grading - Rheology from Needles to Chips, David Anderson, Pennsylvania State University

1:30 p.m. – 2:00 p.m.  
**Networking Coffee Break in the Exhibit Hall, Sponsored by Kimley Horn**  
**Millennium Hall (2nd floor)**

2:00 p.m. – 3:30 p.m.  
**Poster Sessions in Exhibit Hall – Authors Available for Discussion**  
(See page 13 for details)  
**Millennium Hall (2nd floor)**
## Monday, August 28, 2017 (continued)

### 2:00 p.m. – 3:30 p.m.

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<tbody>
<tr>
<td><strong>A.2 M-E Design Implementation and Regional Calibration</strong>&lt;br&gt;Moderator: Shelley Steffens, The Pennsylvania State University</td>
<td><strong>B.2 Concrete Pavement Technology and Performance</strong>&lt;br&gt;Moderator: Lev Khazanovich, University of Pittsburgh</td>
<td><strong>C.2 Advanced Modeling and Analysis of Airfield Pavements</strong>&lt;br&gt;Moderator: Jeffery Gagnon, Federal Aviation Administration</td>
<td><strong>D.2 Innovative Methods for Highway and Airfield Pavements</strong>&lt;br&gt;Moderator: Greg White, University of the Sunshine Coast</td>
</tr>
<tr>
<td>Interactions Between Concrete Coefficient of Thermal Expansion and Moisture-Related Shrinkage, Angel Mateas, John Harvey, Fabian Paniagua, Julia Paniagua, and Rongzong Wu, University of California Pavement Research Center</td>
<td>Effect of Joint Width and Slab Curvature on Measured Load Transfer Efficiency for Dowelled Joints in Jointed Plain Concrete Pavements, Julie Vandenbossche and Kevin Alland, University of Pittsburgh</td>
<td>Airfield Pavement Responses Under Full HWD and Moving Aircraft Loading, Hao Wang, Rutgers University</td>
<td>Experimental Investigation of Energy Harvesting Prototypes for Asphalt Roadways, Samer Dessouky and Hossein Roshani, University of Texas at San Antonio</td>
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### 3:30 p.m. – 4:00 p.m.

**Networking Coffee Break in the Exhibit Hall Millennium Hall (2nd floor)**

### 4:00 p.m. – 5:30 p.m.

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<tr>
<td><strong>A.3 Design and Construction of Permeable Pavements</strong>&lt;br&gt;Moderator: David Smith, Interlocking Concrete Pavement Institute</td>
<td><strong>B.3 Asphalt Mixture Characterization</strong>&lt;br&gt;Moderator: Mohammad Imran Hassain, Bradley University</td>
<td><strong>C.3 Case Studies of Airfield Construction Projects</strong>&lt;br&gt;Moderator: Murray Flynn, Federal Aviation Administration</td>
<td><strong>D.3 Intelligent Compaction: Challenges and Future Implementation</strong>&lt;br&gt;Moderator: Mehran Mazzari, California State University, Los Angeles</td>
</tr>
<tr>
<td>Fully Permeable Pavement for Stormwater Management: Progress and Obstacles to Implementation, John Harvey, Sifong Shan, Hui Li, David Jones, and Rongzong Wu, University of California Pavement Research Center. Analysis of the Utilization of Open Graded Friction Course (OGFC) in the United States, Mbakisi Onyango, University of Tennessee at Chattanooga; Mark Woods, Tennessee Department of Transportation. Introduction to Pervious Cellular Concrete, Applications/Recent Projects, Nico Sutmaller and Milton Gomez, Aix Industries</td>
<td>Development of the Duplicate Shear Test for Asphalt Mixtures, Mohammadreza Khaejeh Hosseini, Texas A&amp;M University; Stefan Romanoschi, Reza Saeedzadeh, and Nicky Alborioeh, University of Texas at Austin</td>
<td>Runway Paving at Thule Air Base, Greenland, John Rushing, ERDC</td>
<td>Illinois Tollway IC Project, Erol Tatumluer, University of Illinois Urbana-Champaign; David White, Iowa State University/Innis Geotechnics, Inc.</td>
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**Technical Program**

www.pavementsconference.org 9
Tuesday, August 29, 2017

8:00 a.m. – 8:30 a.m.  Breakfast in the Exhibit Hall  Millennium Hall (2nd floor)

8:30 a.m. – 10:00 a.m.  Concurrent Sessions

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<tr>
<td>Commonwealth C (2nd floor)</td>
<td>Commonwealth B (2nd floor)</td>
<td>Commonwealth A (2nd floor)</td>
<td>Commonwealth D (2nd floor)</td>
</tr>
</tbody>
</table>

A.4 Airfield Pavement Construction 
Moderator: Rich Thuma, Crawford, Murphy & Tilly

B.4 Characterization of Recycled Materials in Asphalt Mixtures 
Moderator: Samer Desoky, University of Texas at San Antonio

C.4 Airfield Pavement Design 
Moderator: Neveen Garg, Federal Aviation Administration

D.4. Performance Based Specifications 
Moderator: Ali Bakti, University of California, Davis

Runway Ride Quality Techniques, Tips and 23 Years of Insight, Michael Gerardi, JPK Consultants
Building a Smooth Runway, Richard Boudreau, Boudreau Engineering, Inc.; Jeremy Hendricks, XCarly Improvement; Joseph Snyder, Michael Baker International
Design and Accelerated Construction of Runway 81/26R at Hartsfield-Jackson Atlanta International Airport, Quintin Watkins and Joseph Snyder, Michael Baker International

Legal Case Study on Whitetopping Projects: How to Prevent Random or Uncontrolled Cracking, Thomas Olson, Olson Construction Law, P.C.
Laboratory Investigation of Longevity and Cracking Resistance of Recycled Asphalt Mixtures, Majtaba Mohammadafzali, Hesham Ali, and Aidin Massallih, Florida International University

Rutting Susceptibility of Asphalt Mixes with High RAP Content Using Rheological and Performance-Based Test Methods, Syed Ahsik Ali, Shihani Rani, and Musharrat Zaman, The University of Oklahoma; Rouzbeh Ghahabi, South Dakota State University; Craig Parker, Silver State Construction Co., Inc.

Implications of Using RAP in Asphalt Mixes for Airfield Pavements, Mohammad Zia Alavi and David Jones, University of California Pavement Research Center
Effect of RAP on Cracking and Rutting Resistance of HMA Mixes, Daba Gedafa, Rajib Saha, Anthony Berg, Bishal Karki, and Robeam Melaku, University of North Dakota

Assessment of Emulsified RAP Cold Mixes via Non-Destructive Testing, Ilker Boz, Michigan State University; Xuan Chen and Mansour Salamaian, Pennsylvania State University

Airfield Pavement Slab Life Initiative, Gregory Climer, Federal Aviation Administration; Airport Safety & Standards

Typical Material Properties of Pavements Sampled for the Extended Airfield Pavement Life Program, Timothy Parsons, Applied Research Associates; David Brill, Federal Aviation Administration

Evaluation of Airfield Pavements Using FAARFIELD, Andreas Loizos, National Technical University of Athens

Advances in FAA Pavement Thickness Design Software - FAARFIELD 1.41, David Brill, Federal Aviation Administration

Predicting the Soil Deformation and Fatigue Performance of a Temporary Airfield Matting System Using Full-scale Data and Laboratory Testing, Timothy Rushing, U.S. Army Engineer Research and Development Center

Effect of Sample Size and Plan on Percent Within Limits for Quality Control and Assurance, Syed Haider, Gopikrishna Musurum, and Karim Chatti, Michigan State University

Improving Compaction Quality of Unbound Pavement Layers Using Continuous Compaction Control, Luis Lemus, Cesar Tirado, and Soheil Nazarian, The University of Texas at El Paso; Mehran Mazzari, California State University Los Angeles

Performance-Related Specification for In-place Air Void of Asphalt Pavement, Hao Wang, Rutgers University

Hot Mix Asphalt Segregation Detection Using Florida Texture Meter, Mohammad Ali Baqerzad, Majtaba Mohammadafzali, Amir Massallih Hamed, and Hesham Ali, Florida International University; Bouzid Choubane and Charles Holzschuher, Florida Department of Transportation

Developing Performance-Related Specfications for Preservation Treatments — Micro-surfacing, Syed Haider, Michigan State University

10:00 a.m. – 10:30 a.m.  Networking Coffee Break in the Exhibit Hall  Millennium Hall (2nd floor)

10:30 a.m. – 12:00 p.m.  Poster Sessions in Exhibit Hall  (See page 14 for details) Millennium Hall (2nd floor)

10:30 a.m. – 12:00 p.m.  Concurrent Sessions

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A.5 Airport Design Specification and Materials 
Moderator: Rick Boudreau, Boudreau Engineering, Inc.

B.5 Constitutive Modeling and Characterization for Asphalt Mixtures 
Moderator: Hao Wang, Rutgers University

C.5 Airfield Pavement Asset Management 
Moderator: Albert Larkin, Federal Aviation Administration

D.5 Climatic Change and Pavement Infrastructure 
Moderator: John Harvey, University of California, Davis

A Review of Airfield Pavement Structure Design/Analysis Codes, Ernie Heymsfield, University of Arizona
Providing a Durable Concrete Specification at Kansas City International Airport, Christopher Decker, R&M International, Inc.
FAA Pavement Related Advisory Circles, Gregory Cline, Federal Aviation Administration
Towards a Performance-Based Airport Asphalt Specification, Greg White, University of the Sunshine Coast
Incorporation of Reliability into Airport Pavement Design Using Backcalculation Pavement Layer Moduli, Richard Ji, Federal Aviation Administration; Nasser Saab, Applied Research Associates

A Laboratory Evaluation of Aging on the Viscoelastic Material Functions of Asphalt Concrete and Its Binder, A.S.M. Rahman, Hassan Faisal, and Rafiqul Tarefder, The University of New Mexico
Application of Ultrasonic Pulse Velocity Testing of Asphalt Concrete Mixtures to Improve the Prediction Accuracy of Dynamic Modulus Master Curve, Peshouhavan Tavassoli-Kheirf, Ilker Boz, Xuan Chen, and Mansour Salamaian, The Pennsylvania State University


Puerto Rico Airport Pavement Maintenance and Management Program, Eileen Velez-Vega, Kimley-Horn Puerto Rico, LLC

Characterization of Pavement Condition Index Deterioration Curve Shape for USAF Airfield Pavements, Timothy Parsons, Applied Research Associates

Applying Pavement Management to New Jersey’s Airports, Michael Frabizzio, Advanced Infrastructure Design, Inc.


A Real Option and System Dynamics Simulation Framework for Resilient Multi-stage Design of Pavements Facing Uncertain Climate Change Threats, Frederick Kautz, Rajibul Malik, and Michael Rodzicki, William Paterson Institute Planning for Coastal Storm Surge Flood Protection within MassDOT’s Metropolitan Highway System, Steven Miller, Massachusetts DOT

Proactively Accounting for the Uncertain Climate Changes by Moving Towards Flexibility Considerations in Pavement Infrastructure Management Systems, Tariq Usman Saeed and Samuel Labey, Park University

Incorporating Climate Variability in Pavement Life Cycle Assessment, Yaning Qiao, Oscar Valle, Eshan Dave, and Weiwei Ma, University of New Hampshire, Center for Infrastructure Resilience to Climate (CIRC)

12:00 p.m. – 1:30 p.m.  Buffet Lunch in the Exhibit Hall  Millennium Hall (2nd floor)

1:30 p.m. – 3:00 p.m.  Poster Sessions in Exhibit Hall  (See page 15 for details) Millennium Hall (2nd floor)
### Technical Program (continued)

**Tuesday, August 29, 2017**

**1:30 p.m. – 3:00 p.m.**

**Concurrent Sessions**

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<th>TRACK D: Innovations &amp; Sustainability (Commonwealth D 2nd floor)</th>
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**Lessons Learned from the Canadian Agency Implementation of Transportation Asset Management Systems, David Hein and Shilla Khanal, Applied Research Associates, Inc.**


**Use of Multiple Non-Destructive Evaluation Approaches in Connecticut to Establish Accurate Joint Repair and Replacement Estimates for Composite Pavement Rehabilitation, Kathleen Keegan, Jonathan Gould, and Tamim Khan, AECOM.**

**A Comparison of Traffic Speed Deflectometer and Falling Weight Deflectometer Data, Eyal Levensberg, Technical University of Denmark; Brit Christensen, Norwegian Public Roads Administration; Matteo Pettinari and Susanne Bechazer, The Danish Road Directorate.**

**Potential Applicability of SIR in Geophysical Investigation of Pavement Structures, Masurur Mahedi, Iowa State University; MD Sahabuddin, Assif Ahmed, and Carlos Flores, The University of Texas at Arlington; Ahmed Nawal Alshaim, Souqtech Engineering and Testing; Mohammad Sadik Khan, Jackson State University.**

**Comparison and Application of LWD and PWD on Paved Road Sections, Xiaochao Tang, Waseda University; Richard Ji, Federal Aviation Administration.**

**Towards Improved Temperature Correction for NDT Data Analyses, Michael Brouin and A. Duprey, French Civil Aviation Technical Center (STAC).**

**Field Investigation of Dowel Misalignment at LTPP Sections, Shreematha Rao and Lavmkirathan Premkumar, Applied Research Associates.**

**Behavior of P-401 HMA Surface in Accelerated Pavement Testing at High Temperatures and Tire Pressures, Navneet Garg, Federal Aviation Administration; Timothy Parsons, Applied Research Associates.**

**Sensitivity Analysis of Rut Depth to Longitudinal Measurement Location in Accelerated Pavement Testing with a Heavy Vehicle Simulator, Timothy Parsons and H. Kazzemi, Applied Research Associates; Navneet Garg, Federal Aviation Administration.**

**Concrete Pavement Overlay Load Test at the FAA’s National Airport Pavement Test Facility, Hao Yin, Genis Tecno Technologies.**

**Full-Scale Accelerated Pavement Tests on Perpetual Pavements at FAA’s National Airport Pavement Test Facility, Navneet Garg, Federal Aviation Administration.**

**Pavement-Vehicle Interaction Related Research at the MIT Concrete Sustainability Hub, James Mack, CIDES, Mehdi Akbarian, Arghaban Loughghalam, and Franz Ullm, Massachusetts Institute of Technology.**

**Investigation of Tire/Pavement Contact Stresses and Stains Displacement Under the Moving Load and Some Effects on the Flexible Pavements, Ainaleem Mega and Hamid Nilkraz, Curtiss University.**

**Effect of Pavement Structural Response on Vehicle Fuel Consumption: Phase II Field Data Collection Methods and Preliminary Results, Ali Butt, Darren Reger, and John Harvey, University of California Davis; Imen Zabaar and Karim Chakki, Michigan State University; Eremel Coleri, Oregon State University; Arghaban Loughghalam, Massachusetts Institute of Technology.**

**Alternative Laboratory Characterization of Low Rolling Resistance Asphalt Mixtures, Matteo Pettinari, Erik Nielsen, and Bjarne Schmidt, Danish Road Directorate.**

**3:00 p.m. – 3:30 p.m.**

**Networking Coffee Break in the Exhibit Hall Millennium Hall (2nd floor)**

**3:30 p.m. – 5:00 p.m.**

**Concurrent Sessions**

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**A Comparison of Traffic Speed Deflectometer and Falling Weight Deflectometer Data, Eyal Levensberg, Technical University of Denmark; Brit Christensen, Norwegian Public Roads Administration; Matteo Pettinari and Susanne Bechazer, The Danish Road Directorate.**

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**Field Investigation of Dowel Misalignment at LTPP Sections, Shreematha Rao and Lavmkirathan Premkumar, Applied Research Associates.**

**Unbound Material Performance in Full- Scale Accelerated Pavement Tests of Airport Pavements at NAPTIF, Navneet Garg, Federal Aviation Administration.**

**Soils and Aggregates: The Foundations of Pavement Performance, Charles Schwartz, University of Maryland.**

**Influence of Stress State on M-E Designs of Aggregate Layers, Errol Tuutimuk, University of Illinois.**

**Development of Rapid Three-Dimensional Finite-Element Based Rigid Airfield Pavement Foundation Response and Moduli Prediction Models, Halil Geyikian, Iowa State University.**

**Application of the FAA Linear Elastic Program LEAF to Monitor Pavement Elastic Behaviors, Injun Song, CSU Inc. Review of a Procedure for Calibrating Unbound Layer Rutting Model in Flexible Airfield Pavements Using Accelerated Pavement Testing Data, Rongzong Wu, John Harvey, Qi Ren, and David Jones, University of California Pavement Research Center; Navneet Garg, Federal Aviation Administration.**

**Design Features of the FAA’s Full Scale Accelerated Pavement Test Facility NAPMRC, Murphy Flynn, Federal Aviation Administration.**

**Preliminary Test Results from Test Cycle-1 at FAA’s National Airport Pavement and Materials Research Center (NAPMRC), Navneet Garg, Federal Aviation Administration.**

**Panelists:**

- Gregory D. Cline, P.E., Sr. Pavements Civil Engineer, Federal Aviation Administration, Office of Airports Safety & Standards, Airports Engineering Division
- Gary L. Mitchell, P.E., Vice President—Airports and Pavement Technology, American Concrete Pavement Association
- Ernesto Larrazabal, P.E., Assistant Chief Civil Engineer, The Port Authority of New York and New Jersey

**5:15 p.m. – 6:15 p.m.**

**Younger Member Social Hour Commonwealth Pre-function (2nd floor)**

**6:15 p.m. – 7:00 p.m.**

**Younger Member Social Hour Commonwealth A (2nd floor)**
Wednesday, August 30, 2017

8:00 a.m. – 08:30 a.m. Breakfast Commonwealth Pre-function (2nd floor)

8:30 a.m. – 10:00 a.m. Concurrent Sessions

|----------------------------------------------------------|-------------------------------------------------|------------------------------------------------------|-------------------------------------------------|

Remote Sensing for Pavement Evaluation and Traffic Characterization, Eyal Levenberg, Technical University of Denmark

Precision Assessment of the Florida Texture Meter in Hot Mix Asphalt, Mahamadtaqi Baqersad, Mojtaba Mohammadjalali, Amirmosad Hamedi, and Hesham Ali, Florida International University, Bouzid Chaouane and Charles Holzschuher, Florida Department of Transportation

Certification of Inertial Profilers, Rohan Perera, SME

10:30 a.m. – 12:00 p.m. Networking Coffee Break Commonwealth Pre-function (2nd floor)

10:00 a.m. – 10:30 a.m. Concurrent Sessions

|----------------------------------------------------------|-------------------------------------------------|------------------------------------------------------|-------------------------------------------------|

Characterization of Flexible Pavement Surface Rutting at NAPTF Using Ultra-high Speed 3D Scanner Under Accelerated Pavement Testing, Qiang Li, CSRA

Effect of Loading Conditions on the Magnitude and Variation of Pavement Responses in Accelerated Loading Testing, Cary Zimmerman, Virginia Tech Transportation Institute

Effect of Pavement Structure and Loading Conditions on Subgrade Stresses Measured at the National Airport Pavement Test Facility, Carlos Cary, Gimmis Technologies; Nonveet Garg and David Brill, Federal Aviation Administration; Qiang Li, CSRA International, Inc.

In-place Stabilization for the Rehabilitation of Taxiway S at Nashville Intl Airport, Manuel Bejarano and David Schilling, ATCONS

Performance Evaluation of a Polymer Binder Stabilized Aggregate Mixture: A Pilot Study, Elie Hajj, Murugayyah Piratheepan and Peter Sebaaly, University of Nevada


Evaluation of Flexible Pavement Using HWD and PSPA at National Airport Pavement and Materials Research Center (NAPMRC), Qiang Li, CSRA International, Inc.

Development of New Roughness Standard for In-Service Airport Pavement, Albert Larkin, Federal Aviation Administration

Recent Innovations in the Design of Bonded Concrete Overlays on Asphalt, John Harvey, UC, Davis

Transforming the Design Process for Unbonded Concrete Overlays on Concrete Pavements, Lev Khazanovich, University of Pittsburgh

Precast Panels that are Removable & Replaceable and Provide an Overnight Solution that Won’t Rut, Peter Smith, Fort Miller, Inc.

Backcalculated E’ for Rehabilitation Design with Pavement ME, Harold Von Quentin, Applied Research Associates

12:00 p.m. – 1:00 p.m. Lunch On Your Own

1:00 p.m. – 3:00 p.m. Technical Tour: Center for Research and Education in Advanced Transportation Engineering Systems (CREATEs) Lab of the Henry M. Rowan College of Engineering at Rowan University Shuttles will begin loading at 12:45 p.m. in the front of the hotel on Market Street.

1:00 p.m. – 5:00 p.m. Technical Tour: Philadelphia International Airport (Capacity Enhancement Program) Shuttles will begin loading at 12:45 p.m. in the front of the hotel on Market Street.
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<td>Analysis of Large Stone Asphalt Pavement Responses, Zila Mascarenhas, Matheus Gaspar, Kamilla Vasconcelos, and Liedi Bermucci, University of São Paulo</td>
<td>Reflective Cracking Model Based on Extended Finite Element Method, Kairat Tuleubekov, SRA International, Inc.; Hao Yin, Gemini Technologies; David Brill, Federal Aviation Administration, Airport Technology R&amp;D Branch</td>
<td>A Synthesis of Asphalt Foaming Parameters and Their Association in Foamed Binder and Mixture Characteristics, Biswajit Bariggi and Rafiqul Tarefder, University of New Mexico</td>
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<td>A Study on Use of Locally Available Gravel in Pavement Base and Sub-Base, Mahabir Panda and Prasanta Kumar Bhuyan, National Institute of Technology Rourkela</td>
<td>Measured Versus Inter-converted Viscoelastic Material Functions of Asphalt Concrete, A. S. M. Rahman, Hassan Faisal, and Rafiqul Tarefder, The University of New Mexico</td>
<td>Influence of Viscosities of PDA Pitch and Flux on Blended Bitumen Viscosity, Uma Chakkoth, Parag Ravindran, and Murali Krishnan, Indian Institute of Technology Madras</td>
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<td>Geogrid/Geotextile Stabilization</td>
<td>Experimental Evaluation of the Interaction between Geosynthetic Reinforcements and Hot Mix Asphalt, Ghokam Hassem Roohi, Amr Mansy, and Jorge G. Zornberg, The University of Texas at Austin</td>
<td>Creep Stiffness Master Curve of Recycled Asphalt Pavement (RAP) Modified Asphalt Binders Based on Binder Beam Rheometer (BBR) Test Data, Umme Mannan, Hassan Faisal, and Rafiqul Tarefder, University of New Mexico</td>
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<td>A Molecular Dynamics Simulation Approach to Predict Release of Polycyclic Aromatic Hydrocarbons from Asphalt Concrete Pavements, Mohammad Hassain and J. P. S. Yadavalli, Bradley University; Hassain Azam, Manhattan College; Helin Pan, WSP/Parsons Brinckerhoff</td>
<td>Binder Homogeneity of Recycled Asphalt Mixtures, Mojtaba Mohammadazadi, Mohamadrazi Baqersad, and Hesham Ali, Florida International University</td>
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<td>Research on Mesoscopic Fatigue Mechanism and Dem Model of Asphalt Mixture, Wenliang Wu and Minghui Li, South China University of Technology</td>
<td>Characterization of Masonic Property Through Nanoindentation Test, Zahul Khan, Hassan Faisal, and Rafiqul Tarefder, University of New Mexico</td>
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<td>Effect of Fineness Modulus and Uniformity Coefficient on the Complex Modulus Function of Asphalt Concrete, A. S. M. Rahman and Rafiqul Tarefder, The University of New Mexico</td>
<td>Pros &amp; Cons of New Technologies Employed in Asphalt Binder Study, S M Kamal Hossain, Punit Singhvi, Hasan Ozer, and Imad Al-Qadi, University of Illinois; Hassan Baaj, University of Waterloo</td>
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<td>Abstracts Due September 15, 2017</td>
<td>Evaluation of the Longevity of Retraced Paint Pavement Marking Retroreflectivity Levels on Tennessee Highways, Mbakisiya Onyango and Joseph Owino, University of Tennessee at Chattanooga; Deo Chimba, Tennessee State University; Jerry Hatcher, Tennessee Department of Transportation</td>
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**Monday Afternoon Posters**

August 28, 2:00 p.m. – 3:30 p.m., Millennium Hall (2nd floor)
**Tuesday Morning Posters**

August 29, 10:30 a.m. – 12:00 p.m., Millennium Hall (2nd floor)

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**Pavement Monitoring, Evaluation, and Nondestructive Testing**

- Modelling a Hybrid Pavement Conditions Monitoring Framework for Botswana District Road Transportation Networks, Adewole Oladele, Botswana International University of Science and Technology
- Preliminary Performance of a Deep-Learning System for Automated Cracking Survey, Qiang Joshua Li and Kelvin Wang, Oklahoma State University
- Selection of Critical Time for Preventive Maintenance Treatment at Project Level, Sakthivelan Ramachandran, Chethana Ramachandra, and Veeraragavan A, IIT Madras

**Concrete Pavement Technology**

- Experimental Analysis of Interface Shear Fatigue Performance of Ultra-thin Whitetopping, K. Jayakesh and S.N. Suresha, National Institute of Technology Karnataka
- Full Field Temperature Curling Evaluation of Continuously Reinforced Highway Concrete Pavement, Youngguk Seo, Kansas State University; Han Jim Oh, Korea Expressway Corporation; Young Kyo Cho and Seong-Mun Kim, Kyung Hee University
- Performance of Fiber-Reinforced Polymer Panels as an Expedient Temporary Repair for Airfields, Webster Floyd, U.S. Army Engineer Research and Development Center
- Frictional Characteristics and Joint Activation Within Unbonded Concrete Overlays of Existing Concrete and Composite Pavements, Julie Vandenbossche, Steve Sachs, John DeSantis, and Kevin Alland, University of Pittsburgh
- Testing and Characterization of Asphalt Mixtures
- Effects of RAP Sources for Performance Testing of Asphalt Concrete, Hassan Faisal, Umme Mannan, A.S.M. Rahaman, and Rafiqul Tarek, University of New Mexico
- Stress, Temperature and Load Frequency Sensitivity of Cold Recycled Mixtures, Andre Kuchiishi, Kamilla Vasconcelos, Lucas Andrade, and Liedi Bernucci, Polytechnic School from University of Sao Paulo
- Effect of Nanomaterials on Binder and Mix Performance, Daba Gedafa, University of North Dakota
- Impact of Rejuvenators on the Binder Rheological Characterization of Hot In-place Recycled Mixtures, Puneet Singhvi, Hassan Ozer, Imad Al-Qadi, and Robeam Melaku, University of Illinois at Urbana Champaign
- Laboratory Performance of Superpave Mixes for Perpetual Pavements, Priyanka Ashoka and A.U. Ravi Shankar, National Institute of Technology Karnataka (NITK); Goutham Sarang, National Institute of Technology Calicut (NITC); B.M. Laksh, IITG College of Engineering
- Influence of Coal Combustion by Products Carbon Content on Aging Related Performance of Asphalt Mastics and HMA, Emil Bautista, Geotest, Inc.; Ahmed Faheem and Mohammed AlSalih, Temple University; Clayton Cloutier and Konstantin Sobolev, University of Wisconsin-Milwaukee

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**THULE AIR BASE, Greenland -- Contractors work to upgrade the Thule Air Base runway July 11, 2015. The first half of the project -- the first 5,000 feet of the 10,000 foot runway -- began in early June and is scheduled to be completed by Sept. 15. The second half of the upgrade will begin next year. (U.S. Air Force photo by Tech. Sgt. Jared Marquis)**
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<td>Synthesis of Superhydrophobic Coating Materials for Asphalt Concrete Pavements, Halil Ceylan, Ali Reza Sassani, Sungwhan Kim, Kasthurirangan Gopalakrishnan, and Ali Arabzadeh, Iowa State University Effect of Deicing Chemicals on Water and Ice Repellent Concrete Pavements, Halil Ceylan, Ali Arabzadeh, Sungwhan Kim, Kasthurirangan Gopalakrishnan, Alireza Aline, Sriram Sundararajan, and Peter Taylor, Iowa State University Concrete Pavement Containing Phase Change Materials to Melt Snow and Ice, Yaghoob Farnam, Drexel University; Hadi Shagerdi, Pablo Zavattieri, and John Haddock, Purdue University; Jason Weiss, Oregon State University</td>
<td>Synergistic Effect of Cement and Mucilage Opuntia Ficus-indica Cladodes on Strength Properties of Lateritic Soil, Ayobami Busari, Olatokunbo Ofuyatn, and Joseph Akinmusuru, Covenant University; Ogunro Vincent, University of North Carolina Quantifying the Sustainability of Rapid-Setting Calcium Sulfoaluminate Concrete, Eric Bescher, University of California Los Angeles; John Kim, CTS Cement Manufacturing Co.</td>
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<td>ASR Induced Blowups in Airfiled Pavements: Identification, Evaluation, and Repair of Materials Related Distress, Benjamin Borch, CTLGroup</td>
<td>Advanced Statistical Learning and Prediction of Complex Runway Incursion, Ikkyun Song, Iowa State University</td>
<td>Join us in New Orleans for the ASCE Convention</td>
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**Tuesday Afternoon Posters**

August 29, 1:30 – 3:00 p.m., Millennium Hall (2nd floor)
Rowan University – Center for Research and Education in Advanced Transportation Engineering Systems (CREATEs)

Wednesday, August 30, 1:00 p.m. – 3:00 p.m.

The Center for Research and Education in Advanced Transportation Engineering Systems (CREATEs) at Rowan University has a certified Construction Materials Laboratory and a Full-Scale Accelerated Pavement Testing Facility. These resources are located at the South Jersey Technology Park (107 Gilbreth Pkwy, Mullica Hill, NJ). Through a tour of CREATEs facilities, the attendees will get a chance to see Rowan’s Heavy Vehicle Simulator and Rowan’s Heavy Weight Deflectometer. The attendees will also learn more about the various research projects that are currently being conducted at CREATEs.

The entire group of attendees will sit through a 15-minute presentation at the South Jersey Tech Park. The attendees will then be divided into two groups; Group 1 will be taken on a tour of the certified binder and construction materials laboratory while Group 2 will tour the accelerated pavement testing facility. These tours will be approximately 45 minutes long. The groups will then be swapped to tour the facilities they did not get a chance to see. In these tours, posters of current and completed projects in the laboratory and at accelerated pavement test facility will be presented. The estimated time for these tours will be approximately 2 hours including transition periods.

PDHs: 2 credits
Fee: $25 EB/$40 ADV

The Capacity Enhancement Program (CEP) at the Philadelphia International Airport (PHL)

Wednesday, August 30, 1:00 p.m. – 5:00 p.m.

The Capacity Enhancement Program (CEP) at Philadelphia International Airport (PHL), a multi-year, multi-phased program, is comprised of a complex grouping of airfield and facilities projects. The CEP’s airfield efforts have been broken into various stages of development. Stage 1 of the airfield development includes three distinct projects: Realign Taxiway H and Establish Taxiway F (North), Install Runway 9R Replacement Localizer, and Runway 27L Extension and Associated Taxiways.

At the time of the 2017 ASCE Highway and Airfield Pavement Conference, PHL will be in the middle of construction for the RW 27L extension and Associated Taxiway Project. The project includes earthwork, subgrade stabilization, Portland cement concrete pavement hold pads, and hot mixed asphalt runway/taxiway pavements. Also included, PHL has been working with the FAA technology center to install pavement monitoring instrumentation for the new PCC and HMA pavements. The Runway 27L & Associated Taxiways project total approximately $125 million in construction cost.

PDHs: 3 credits
Fee: $25 EB/$40 ADV
ADA Compliance
The Loews Philadelphia Hotel is fully accessible to the physically challenged and provides auxiliary aids and services. If you require special assistance at the Pavements Conference, please submit a written description of your requirements with your registration form or email registrations@asce.org BEFORE, July 12, 2017. While ASCE will make every effort to meet the needs of the physically challenged, accommodations cannot be guaranteed without prior notification.

Attendee Packets
Advance registrants will receive their name badges and any tickets ordered at the ASCE Registration Desk during registration hours. Advance registrants should present the official ASCE registration receipt to on-site registration staff to obtain Pavements Conference materials. If you submit a registration form via fax or postal mail one week prior to or after the registration cutoff date, please be sure to bring a copy of your fax or postal confirmation (as well as your email confirmation if you have received one), along with the original registration form paperwork to ensure ASCE on-site registration staff can process your registration. Due to the time constraints near and after the registration cutoff date, the appropriate paperwork may not have been forwarded to the on-site staff before their departure.

Attire
The dress code for the Pavements Conference is business casual (i.e. slacks, casual dresses) to business attire (i.e. neckties, business suits). Meeting room temperatures will vary, so wear layered clothing to ensure your personal comfort. We also recommend attendees wear comfortable shoes. Please note that certain events may have specific details on attire, and you should refer to the event description for more information.

Badge Policy and Ribbons
Your Pavements Conference registration name badge is your admission to the educational sessions. Please wear your badge at all times while at the Loews Philadelphia Hotel. Tickets are required for the pre- and post-convention events, meals, and special events. Where tickets are required, please be sure to bring your tickets with you to each event as you will not be admitted without a ticket. Ribbons will be available at the Registration Desk. ASCE recommends you remove your badge when leaving the hotel.

City Information
For more information on Philadelphia, PA, or the surrounding area, please visit the location page on the Pavements Conference website.

Sustainable Congress Policy Statement
ASCE is committed to sustainable meetings in accord with the ASCE policy on The Role of the Civil Engineer in Sustainable Development. ASCE defines sustainability as a set of economic, environmental, and social conditions in which all of society has the capacity and opportunity to maintain and improve its quality of life indefinitely, without degrading the quantity, quality, or availability of natural resources and ecosystems. Sustainable development is the process of converting natural resources into products and services that are more profitable, productive, and useful, while maintaining or enhancing the quantity, quality, availability, and productivity of the remaining natural resource base and the ecological systems on which they depend. To that end, ASCE works with hotels and convention centers that strive to make our events green and include amenities such as reusable pitchers and water coolers rather than plastic bottles.

International Letter of Invitation Requests
- Send requests to International@asce.org and your conference invitation letter will be prepared and sent in pdf format via email. Registration must be completed and paid before a Letter of Invitation can be sent. A copy of your registration confirmation email must accompany your letter request. Please be ready to provide your complete official name, date of birth, physical address, email address, and passport number (if available)
- Letters may be faxed if requested. Please provide a fax number and indicate that, in addition to the email copy, you would also like to receive the letter via fax.
- Letters cannot be emailed or sent to the U.S. Embassy or Consulate. ASCE cannot intervene on behalf of invitees with the U.S. Embassy or Consulate via fax, phone, surface mail, or email.
- If you have any questions, please contact us at: international@asce.org.
- If you are unable to obtain a visa, your cancellation must be received in writing by ASCE by, August 2, 2017, to receive a refund for registration fees. A $100 processing fee will be deducted from all refunds.
- Visit the conference website for additional information regarding letters of invitation.

Meeting Room Overcrowding
ASCE will make every effort to schedule popular events in rooms large enough to accommodate anticipated attendance. Because many events are extremely popular, it is wise to select alternative events as you plan your conference schedule. ASCE and the Loews Philadelphia Hotel are REQUIRED to follow local fire regulations and may ask participants in rooms filled to capacity to choose another event.

No Smoking Policy
ASCE supports a “No Smoking” policy. Smoking is prohibited in the Loews Philadelphia Hotel, and at all indoor venues hosting ASCE events.

Proceedings
All full registrants will receive a copy of the proceedings at registration check-in.

Professional Development Hours (PDHs)
You may earn 22 PDHs, which are nationally recognized units of record, by attending the Pavements Conference concurrent sessions and short courses. Please note there are differences from state to state in continuing education requirements for professional engineering licensure. ASCE follows NCEES guidelines on continuing professional competency. Because continuing education requirements for P.E. license renewal vary from state to state, ASCE strongly recommends that individuals regularly check with their state requirements that affect P.E. licensure and the ability to renew licensure. For details on your state’s requirements, please go to: www.ncees.org/licensing_boards.php.

Recording of Sessions
Video or audio recording of any educational session is strictly prohibited without prior written permission from both ASCE and the session presenter(s).

Release/Waiver/Special Assistance
Photographs and Video: Photographs and video of the event may be taken by ASCE, its agents, contractors, or representatives, and such photographs and video may be used for any purpose at ASCE discretion.

Liability Waiver: By submitting my registration, I acknowledge and agree that I am undertaking to participate in the conference activities as my own voluntary and intentional act. I agree that I alone am responsible for determining whether I am physically capable of participating in any conference activity, and I understand that there is risk associated with my participation, which may include without limitation, injury or loss caused by my own negligence or the negligence of others. With knowledge and acceptance of the risks involved, I accept full responsibility for my own safety and wellbeing. In consideration of my participation in conference activities, I hereby waive, release, hold harmless, and discharge ASCE and its officers, directors, and employees from any and all loss or injury that may be suffered by me in connection with conference activities to the fullest extent permitted by law.

Weather
The temperatures should average from a high of about 85 and low of about 70 degrees.
**Housing**

Official Headquarters Hotel of the Pavements Conference 2017:

**Loews Philadelphia Hotel**

Standard Room Rates:

**Single/ Double** $169.00 per night

A very limited number of rooms are being held at the prevailing government rate.

*All room rates are subject to applicable tax*

In order to receive the discounted Pavements Conference room rate, you must ask for the ASCE/Pavements Conference 2017 room block when calling to make your reservation.

**Reservation cutoff date:** Thursday, August 3, 2017

**Parking**

Valet Parking is available at $49 per night, and is the only hotel parking option.

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**Younger Member Social Hour**

**Tuesday, August 29, 6:15 p.m. – 7:00 p.m.**

After discussing the unwritten rules, hard-won knowledge through mistakes, and general career advice, come network with leaders in the civil engineering field. The Younger Member Social Hour provides an opportunity to speak directly with company leaders, academic administrators, and others in the civil engineering field and pavements research and development fields. Join us!
Early Bird Registration Discount
ASCE invites registrants to take advantage of an early bird registration discount. The deadline for early bird registration is July 12, 2017. Registration forms, including complete payment information, must be RECEIVED by this date to qualify for the early bird registration discount.

Advance Registration Discount
ASCE invites registrants to take advantage of an advanced registration discount. The deadline for advanced registration is August 2, 2017. Registration forms, including complete payment information, must be RECEIVED by this date to qualify for the advanced registration discount.

On-site Registration
Please do not mail registration forms through the U.S. Postal Service after August 2, 2017, in order to ensure your registration is processed in a timely manner. After this date, registrations must be secured with a credit card either online via the conference website or download the PDF registration form and submit it onsite along with your full credit card payment.

Members Benefit: Receive Member Rates
Not a member of ASCE? Join today and save on your conference registration. Simply visit www.asce.org/join or call (800) 548-ASCE (2723) to request an application and/or register for the conference. For more information on member benefits, go to www.asce.org/membership. NOTE: You must be a member in good standing to qualify for the member rates.

Payment Information
Acceptable forms of payment include:

CHECK: Payable to Pavements Conference 2017 (In U.S. dollars, drawn on a U.S. bank. Include attendee’s name in the memo area of the check.)

CREDIT CARD: VISA, MasterCard, American Express, Diners Club, and Discover

PURCHASE ORDER: P.O. #, company name and address or other billing address (This includes Government P.O. use)

Mail registrations to: Pavements Conference 2017, P.O. Box 79668, Baltimore, MD 21279-0668 OR register online at www.pavementsconference.org. Must be postmarked by August 2, 2017.

Full payment MUST accompany all registration forms. Forms will not be processed without payment or copy of purchase order.

Your conference registration gives you admittance to the following:

<table>
<thead>
<tr>
<th>Event</th>
<th>Full Registration</th>
<th>Daily: Monday</th>
<th>Daily: Tuesday</th>
<th>Daily: Wednesday</th>
<th>Student*</th>
<th>Exhibitor</th>
<th>Sponsor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome Reception (Sunday)</td>
<td>✓</td>
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<tr>
<td>Awards Luncheon (Monday)</td>
<td>✓</td>
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<tr>
<td>Tuesday Buffet Lunch</td>
<td>✓</td>
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<tr>
<td>Proceedings</td>
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*Proof of student status required

Cancellations/Refunds
All cancellations must be received by ASCE in writing. A refund will be issued, minus a $100 processing fee, if the cancellation notice is received by August 2, 2017. No refunds will be made for cancellations received after August 2, 2017. Send cancellations to Registrations or fax to (866) 902-5593.

On-Site Registration Hours
Sunday, August 27 12:00 – 7:00 p.m.
Monday, August 28 7:00 a.m. – 5:00 p.m.
Tuesday, August 29 7:00 a.m. – 5:00 p.m.
Wednesday, August 30 7:00 a.m. – 12:00 p.m.

*Hours are subject to change.

The on-site Registration Desk will be closed for no more than one hour each day for lunch. Please come back at the appropriate time so we can better serve you. Thank you.

Registration Questions
For registration questions contact registrations@asce.org or call (800) 548-2723 or (703) 295-6300 and ask to speak with a registration customer service representative.

Confirmation of Registration
A confirmation will be emailed to all advance registrants within one week of registering for the conference. Advanced registrants will receive their name badges and any tickets ordered at the on-site ASCE Registration Desk during registration hours. If you do not receive confirmation within one week, please contact ASCE registration at (800) 548-2723 and ask to speak with Customer Service, or email registrations@asce.org. Please reference the Pavements Conference 2017 in the subject line.

Speaker Registration
All speakers are required to register for the conference by May 1, 2017. Speakers must check in at the conference registration desk to pick up badges and tickets.
Sponsors & Exhibitors

Booth # 20
Aero Aggregates
www.aerogauggregates.com
Ultra-Lightweight Aggregates, produced from 100% recycled glass. High compressive strength, high friction angle and environmentally stable closed cell aggregates with high insolation value.

ASCE Philadelphia Section
asce-philly.org
For over 100 years, the Philadelphia Section of ASCE have been serving a community full of Civil Engineering professionals, younger members, and students, in Philadelphia and surrounding regions.

Conference Technical Workshop Copper Sponsor

Booth # 9
Aerix Industries
www.aerixindustries.com
Aerix Industries manufactures and supplies a dynamic product line of engineered foam liquid concentrates. It’s high-quality, lightweight, cost-effective and the most stable in the industry.

Booth # 3
Alchemy - Spetec, LLC
www.alchemy-spetec.com
Alchemy-Spetec is 100% focused on providing the most powerful polymers, painless procedures and rapid results. Seal leaks, stabilize soil, lift slabs.

Booth # 15
www.ara.com
ARA provides services and technologies that enhance facility safety and security, and support the full infrastructure life cycle – from planning through preservation.

Conference Technical Tour Silver Sponsor

Booth # 6
Associated Asphalt
www.associatedasphalt.com
Associated Asphalt has supplied quality performance graded liquid asphalts since 1948, servicing the highway and airfield industry and meeting their highest performance demands.

CH2M
CH2M
www.ch2m.com
CH2M leads the professional services industry providing consulting, design, engineering and management services for clients needing world-class solutions in environmental; industrial and advanced facilities; transportation; and water markets.

Conference Technical Tour Silver Sponsor

Crawford, Murphy & Tilly
www.cmtengr.com
For over 70 years, Crawford, Murphy & Tilly (CMT) has provided planning, design, and construction services to civilian and military airports throughout the United States. CMT offers our clients the insights of a highly-focused group of aviation professionals. Our genuine customer-centric approach means an uncommon level of investment in client goals and success. Our creative approaches, backed by decades of experience, deliver value in performance and results.

Conference Lanyard Silver Sponsor

Booth # 10
CTS Cement Manufacturing Corporation
www.ctscement.com
Rapid Set® cement products are used in airfield and highway pavement applications requiring high durability and fast strength gain, achieving one-hour structural and drive-on strength.

Booth # 5
The Geo-Institute of ASCE
www.asce.org/geotechnical-engineering/geo-institute
The Geo-Institute is a member organization of over 13,000 individual and corporate geo-professionals who share a mutual interest in protecting the public and improving and sustaining the built environment. We investigate natural and man-made hazards; assess the earth’s soils and rock properties; and construct sound and reliable engineered facilities and structures.

Booth # 17
Infrasense
www.infrasense.com
Infrasense is a consulting firm that specializes in the non-destructive evaluation (NDE) of bridge decks, highway and airfield pavements, tunnels, parking structures, and other transportation facilities. We utilize ground penetrating radar (GPR), infrared thermography (IR), impact echo (IR), and other acoustic and geophysical technologies to detect and map subsurface conditions.

Kimley-Horn
Kimley-Horn
www.kimley-horn.com
Kimley-Horn provides a wide range of consulting services to public and private clients for the visible built environment and the less-visible elements related to these facilities. We plan and design roadways and bridges, airport runways and transportation systems; traffic signals, water/sewer systems, parking, transit systems, and more. We are civil, transportation, and systems engineers; urban and land planners; environmental specialists; landscape architects and urban designers; and computer/systems specialists.

Break Bronze Sponsor

Booth # 18
KSE Testing Equipment
www.kesslerdcp.com
KSE Testing Equipment is the leading Dynamic Cone Penetrometer manufacturer; and distributor for Zorn Soil/Asphalt Light Weight Deflectometers and MIT pavement thickness/dowel bar NDT equipment.

Booth # 7
Nomaco
www.nomaco.com
Nomaco provides a complete line of construction foam products including expansion joint, concrete forms and backer rod materials for commercial, airfield, roadway and other DOT applications.

Booth # 16
SealMaster
sealmaster.net
SealMaster pavement maintenance products for airfields are engineered to protect, preserve and extend the operative life of paved assets for maximum durability and sustainability.

Booth # 14
Slag Cement Association
www.slagecement.org
The Slag Cement Association is dedicated to communicating the performance and environmental benefits of slag cement and slag blended cements through promotion, education and technology development.

Booth # 4
Triple Bonded
www.triplebonded.com
TripleBonded is a distributor and installer of the USA-made concrete repair product FastPatch, specifically engineered for spalls, deteriorating joints, and keeping pavement in peak condition.

Booth # 8
URETEK USA INC.
www.uretekusa.com
Uretek USA specializes in Soil Stabilization and Pavement Lifting. Return your pavement system to its original design with a stronger subbase, improved soil structure, and zero daytime lane closures.

Booth # 19
Zydex Industries
www.zydexindustries.com
Zydex offers state of art Nanotechnology GREEN products for the 21st century. Based on an Organo-silane nanotechnology re-active chemistry that loves water and oil (hydrophobic) and will not stick to steel lower maintenance cost at plant and field on equipment.