



FINAL PROGRAM



**11th University Transportation Centers
Spotlight Conference**
***Rebuilding and Retrofitting
the Transportation Infrastructure***

September 26-27, 2017

Washington, DC

Organized by
Transportation Research Board

Supported by
The University Transportation Centers Program
Office of the Assistant Secretary for Research and Technology
(OST-R)

www.trb.org/conferences/UTC2017.aspx

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TRANSPORTATION RESEARCH BOARD

Schedule of Events

	Tuesday, September 26, 2017	Wednesday, September 27, 2017
8:00 AM		Plenary Session: Reminder & Charge to Track Groups
8:30 AM	Opening Session: Keynoters & Charge to Track Groups	Track Breakouts (4) Presentations and Wrap Up
9:00 AM		
9:30 AM		
10:00 AM		
10:30 AM	Track Breakouts (4) Presentations	Plenary Session: Report Backs and Discussion: What Did We Learn?
11:00 AM		
11:30 AM		
Noon		
12:30 PM		
1:00 PM	Track Breakouts (4) Presentations	Implementation Panel and Adjourn
1:30 PM		
2:00 PM		
2:30 PM		
3:00 PM		
3:30 PM	Plenary Session: Day One Report	
4:00 PM	Backs on the State of the Practice and	
4:30 PM	Ideas for Advances	
5:00 PM	Poster Session and Reception	
5:30 PM		
6:30 PM		

Hotel Shuttle Service

Tuesday, September 26

Pick-up

7:00 a.m.–7:15 a.m.: Meet at Hotel Lobby
7:15 a.m.–7:30 a.m.: Leaving the hotel to Keck Center

Drop-off

6:30 p.m.–6:45 p.m.: Meet outside Keck Center
6:45 p.m.–7:00 p.m.: Leaving Keck Center to the hotel

Wednesday, September 27

Pick-up

7:00 a.m.–7:15 a.m.: Meet at Hotel Lobby
7:15 a.m.–7:30 a.m.: Leaving the hotel to Keck Center

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Welcome

Please join us in September for the 11th Annual University Transportation Centers Spotlight Conference. This event will bring together those who generate new concepts that address transportation problems and opportunities and those who own and manage our transportation systems. The focus this year will be on rebuilding and retrofitting transportation infrastructure, goals that are critical to our society and economy. The conference will give you the opportunity to share ideas and needs about transportation infrastructure, and through that exchange to enhance transportation performance.



The planning committee has created a rich and informative experience for all of us. Together we encourage you to engage, share ideas, learn, and help define a path toward more effective and efficient transportation infrastructure for the future. We look forward to seeing you at this important conference.

—**Joseph Schofer**

Chair, 2017 UTC Spotlight Planning Committee
Professor and Associate Dean of Engineering
Northwestern University

Planning Committee

Joseph Schofer, Northwestern University
Sreenivas Alampalli, New York State Department of Transportation
John Bulinski, CALTRANS
Steven Gillen, Illinois Tollway
Shauna Hallmark, Iowa State University
Kamal Khayat, Missouri University of Science and Technology
David Kosnik, CTLGroup
Ali Maher, Rutgers, The State University of New Jersey
Charles Schwartz, University of Maryland

Liaison

Robin Kline, OST-R, U.S. Department of Transportation
Timothy A. Klein, OST-R, U.S. Department of Transportation
Thomas G. Bolle, U.S. Department of Transportation (*retired*)

TRB Staff

Thomas M. Palmerlee, Associate Division Director
Mai Quynh Le, Associate Program Officer

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Conference Sessions

Tuesday, September 26, 2017

7:30 a.m.–5:00 p.m., *Outside Keck 100*

Registration

7:30 a.m.–8:30 a.m., *Outside Keck 100*

Breakfast

8:30 a.m.–10:00 a.m., *Keck 100*

Opening Session

Welcome and Introduction

Joseph Schofer, Professor of Civil Engineering and Transportation, Northwestern University

Keynote Presentations—the Challenges of Today and Tomorrow

ASCE Grand Challenge

Anthony Bartolomeo, President, Pennoni Associates

SEPTA: Pushing Past Just Survival

Jeffrey Knueppel, General Manager, Southeastern Pennsylvania Transportation Authority (SEPTA)

Charge to the Track Groups

Joseph Schofer, Professor of Civil Engineering and Transportation, Northwestern University

10:00 a.m.–10:30 a.m., *Outside Keck 100*

Break

10:30 a.m.–Noon

Track Breakouts: Needs, Advances, and Opportunities Before Us

Track 1: How Are We Doing? Condition Assessment and Evaluation, Keck 103

Sreenivas Alampalli, Director, New York State Department of Transportation, *presiding*

David Kosnik, Senior Engineer, CTL Group, *recording*

Innovative, practical technologies and approaches to evaluate current and future infrastructure conditions to assure safe and reliable infrastructure and support informed asset management.

Infrastructure Monitoring and Assessment: State-of-the-Art and Future

Farhad Ansari, Professor, University of Illinois, Chicago

Accelerated Testing for Infrastructure Applications: Challenges and Opportunities

Frank Moon, Professor of Civil and Environmental Engineering, Rutgers University

Track 2: Rehabilitating and Restoring the Current System, Keck 105

Ali Maher, Director of CAIT, Rutgers, The State University of New Jersey, *presiding*

Kamal Khayat, Professor, Missouri University Of Science and Technology, *recording*

Method, designs, and materials to rebuild and retrofit transportation infrastructure that will deliver effective and efficient performance and preserve resources for future generations.

A Roadmap for Test Methods, Models and Specifications for Concrete Durability Performance

Jason Weiss, Director of the Kiewit Center for Infrastructure and Transportation Research, Oregon State University

Performance Engineered Concrete Mixtures (PEMs) for Transportation Infrastructure Repair

Matthew D'Ambrosia, Principal Engineer, CTLGroup

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Track 3: Rapid Repair and Keeping Things Moving, Keck 106

John Bulinski, District Director, CALTRANS, *presiding*

Steven Gillen, Deputy Program Manager/Materials, Illinois Tollway, *recording*

Technologies and decision tools for quick restoration of deteriorated infrastructure, while assuring network resilience during repair activities, infrastructure failures and natural disasters.

How the Illinois Tollway Rebuilds/Expands a Metropolitan Expressway System Using 20 Billion Dollars of Private Funding with Minimal Impact to the Daily Commuters

Paul Kovacs, Chief Engineering Officer, Illinois State Toll Highway Authority

Illinois Tollway Life-Cycle Assessment – Tool Development and Implementation

William Vavrik, Vice President, Applied Research Associates, Inc.

Track 4: Managing the Assets, Keck 100

Shauna Hallmark, Director, Iowa State University, *presiding*

Sue McNeil, Professor, University of Delaware, *recording*

Strategies and tools for tracking and managing infrastructure assets to ensure the long term preservation of transportation infrastructure.

Using Transportation Asset Management to Improve System Performance

Butch Wlaschin, Head, FHWA Asset Management Office (retired)

Implementing a Transit Asset Management Program at a Legacy Transit System

Laura Zale, Senior Asset Management Engineer, SEPTA

Noon–1:00 p.m., *Outside Keck 100*

Lunch

1:00 p.m.–3:00 p.m.

Track Breakouts Discussion (Continued)

Track 1: How Are We Doing? Condition Assessment and Evaluation, Keck 103

Sreenivas Alampalli, Director, New York State Department of Transportation, *presiding*

David Kosnik, Senior Engineer, CTL Group, *recording*

Innovative, practical technologies and approaches to evaluate current and future infrastructure conditions to assure safe and reliable infrastructure and support informed asset management.

Condition of Our Bridges and of their “Conditions”: An Owner’s Perspective

Bojidar Yanev, Executive Director, Bridge Inspection & Bridge Management, New York City Department of Transportation

Extending Life of Bridges through Robotic Condition Assessment and Minimally Invasive Rehabilitation

Nenad Gucunski, Professor and Chair of Civil and Environmental Engineering, Rutgers University

Track 2: Rehabilitating and Restoring the Current System, Keck 105

Ali Maher, Director of CAIT, Rutgers, The State University of New Jersey, *presiding*

Kamal Khayat, Professor, Missouri University Of Science and Technology, *recording*

Method, designs, and materials to rebuild and retrofit transportation infrastructure that will deliver effective and efficient performance and preserve resources for future generations.

The Slow Race: Implementation of Innovations in Materials, Design, and Construction within DOT Organizations

Tyson Rupnow, Associate Director, Louisiana Transportation Research Center

Accelerated Bridge Construction: National Perspective and ABC-UTC Activities

Atorod Azizinamini, Professor and Chair of Structural and Bridge Engineering, Florida International University

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Track 3: Rapid Repair and Keeping Things Moving, Keck 106

John Bulinski, District Director, CALTRANS, *presiding*

Steven Gillen, Deputy Program Manager/Materials, Illinois Tollway, *recording*

Technologies and decision tools for quick restoration of deteriorated infrastructure, while assuring network resilience during repair activities, infrastructure failures and natural disasters.

Rapid/Overnight Renewal of America's High Volume Roadways Using Innovative Precast Concrete Pavement Technology

Shiraz Tayabji, Senior Principal Engineer, Advanced Concrete Pavement Consultancy LLC

Accelerating Construction Using Prefabricated Bridge Elements Connected with UHPC

Gregory Nault, Bridge Engineer, LafargeHolcim - Ductal

Track 4: Managing the Assets, Keck 100

Shauna Hallmark, Director, Iowa State University, *presiding*

Sue McNeil, Professor, University of Delaware, *recording*

Strategies and tools for tracking and managing infrastructure assets to ensure the long term preservation of transportation infrastructure.

Asset Management and Resilience: Connecting the Concepts to Building and Rebuilding Decisions

Sue McNeil, Professor, University of Delaware

3:00 p.m.–3:30 p.m., *Outside Keck 100*

Break

3:30 p.m.–5:00 p.m., *Keck 100*

Plenary Session: Day One Report Backs on the State of the Practice and Ideas for Advances

Sreenivas Alampalli, New York State Department of Transportation, *presiding*

5:00 p.m.–6:30 p.m., *Keck Atrium*

Poster Session and Reception

Track 1: How Are We Doing? Condition Assessment and Evaluation

Structural Assessment of Existing Road Bridges in Germany

Matthias Mueller, Juergen Krieger, Federal Highway Research Institut (BAST)

Allowing 129,000 Pound Trucks on Our Highways; What is the Cost? What are the Benefits?

Ahmed Ibrahim, Nicholas Saras, University of Idaho

A Primer on Concrete Pavement Forensics and Deterioration

Timothy Martin, CTLGroup

Statistical Method for Long-term Monitoring of Bridge Performance Using Structural Health Monitoring (SHM) and Weigh-in-Motion (WIM) Data

Fiorella Mete, Northwestern University; David Kosnik, CTLGroup

Automated Identification and Evaluation of Factors Influencing Highway Construction Projects

Ashraf Salem, Osama Moselhi, Concordia University

Health Monitoring Schemes for Double-Track Steel Railway Bridges

Daniel Linzell, Ahmed Rageh, University of Nebraska-Lincoln

Road Infrastructure Assessment with Smartphones in Vehicles

Christoph Mertz, Jinhang Wang, Carnegie Mellon University

Utilizing Unmanned Aircraft Systems for Infrastructure Management

Michael O'Connell, Patrick Szary, Rutgers University



Track 2: Rehabilitating and Restoring the Current System

An Advanced Understanding of the Source of the Chemical Damage in Concrete Pavement Exposed to Sodium Chloride Deicing Salt

Fadi Althoey, Yaghoob Farnam, Drexel University

Pat Daly Bridge Design and Construction with Conventional and Fiber Reinforced Polymer Materials - a Case Study of Materials Application and Accelerated Construction

Genda Chen, Missouri University of Science and Technology; Zhibin Lin, North Dakota State University

Enhancing Non-motorized Mobility within Construction Zones

Abul Mazumder, Upul Attanayake, Western Michigan University

Performance of Ultra-high Performance Concrete as Cast-in-Place Thin-Bonded Concrete Overlay

Mahdi Valipour, Kamal Khayat, Missouri University of Science and Technology

Compilation of ABC Solutions

David Garber, Florida International University

Laboratory Investigation of Integral Abutment Connection Details for ABC Projects

Travis Hosteng, Brent Phares, Bridge Engineering Center ISU

Self-Sustained Roadway through Innovative Energy Harvesting Solutions

Abbas Jasim, Hao Wang, Rutgers University

Towards Simulation-aided Predictive Demolition Planning

Seung Jae Lee, Florida International University

Retrofitting Damaged Bridge Elements Using Thin Ultra High Performance Shell Elements

Alireza Valikhani, Azadeh Jaber Jahromi, Florida International University

Track 3: Rapid Repair and Keeping Things Moving

Corrosion Of Post-Tensioned Tendons With Deficient Grout

Samanbar Perme, K.K Krishna Vigneshwaran, Florida International University

Seismic Performance of Simple for Dead Load and Continuous for Live Load (SDCL) Steel Bridge System

Amir Sadeghnejad, Atorod Azizinamini, Florida International University

Performance of Fiber-Reinforced Self-Consolidating Concrete for Repair of Flexural Structural Elements

Ahmed Abdelrazik, Kamal Khayat, Missouri University of Science & Technology

Application of Nano-Particle Enriched Epoxy Primer to Enhance Durability of Highway Steel Bridges

Saiada Fuadi Fancy, Md Ahsan Sabbir, Florida International University

Investigation of Macro-Defect Free Concrete for Accelerated Bridge Construction, including Robotic Construction

Katelyn Freese, Brent Phares, Iowa State University

Using Elastic Layer Theory to Investigate Use of Existing Pavement and Other Local Materials for Optimizing Concrete Pavement Structures

Richard Rogers, Cement Council Of Texas; Michael Plei, Commercial Metals Company

Alternative ABC Connections Using UHPC

Mohamadreza Shafieifar, Mahsa Farzad, Florida International University

Achieving Post-Earthquake Operational Performance in Existing Highway Bridges with Ductile Fuse Retrofit

Peter Dusicka, Ramiro Bazaez, Portland State University

Development and Deployment of Concrete Pavement Performance Related Specifications

William Vavrik, Shreenath Rao, Applied Research Associates, Inc.

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Track 4: Managing the Assets

Building Spatiotemporal Models for Pavement Surface Deterioration

Ahmad Alhasan, Omar Smadi, Iowa State University

Unsolicited Proposals in Transportation Infrastructure Delivery in the US: Current State and Best Practices

Offei Adarkwa, Omar Smadi, Iowa State University

Making the Case for Funding Highway Preservation First

Anne Carter, P.E., James Havu, Maine Department of Transportation

Rail Fatigue Life Forecasting Using Big Data Analysis Techniques

Allan Zarembski, John Cronin, University of Delaware

Wednesday, September 27, 2017

7:30 a.m.–10:00 a.m., Outside Keck 100

Registration

7:00 a.m.–8:00 a.m., Outside Keck 100

Breakfast

8:00 a.m.–8:30 a.m., Keck 100

Plenary Session: Recharge to the Track Groups and Continued Discussions

Research and action priorities for today and tomorrow

Steve Gillen, Illinois Tollway, *presiding*

8:30 a.m.–10:00 a.m.

Track Breakouts Continued. Discussion and Wrap Up

Track 1: How Are We Doing? Condition Assessment and Evaluation, Keck 103

Sreenivas Alampalli, New York State Department of Transportation, *presiding*
David Kosnik, CTL Group, *recording*

Track 2: Rehabilitating and Restoring the Current System, Keck 105

Ali Maher, Rutgers, The State University of New Jersey, *presiding*
Kamal Khayat, Missouri University Of Science and Technology, *recording*

Track 3: Rapid Repair and Keeping Things Moving, Keck 106

John Bulinski, CALTRANS, *presiding*
Steven Gillen, Illinois Tollway, *recording*

Track 4: Managing the Assets, Keck 100

Shauna Hallmark, Iowa State University, *presiding*
Sue McNeil, University of Delaware, *recording*

10:00 a.m.–10:30 a.m., Outside Keck 100

Break

10:30 a.m.–11:30 a.m., Keck 100

Plenary Session: Report Backs and Discussion: What Did We Learn?

Shauna Hallmark, Iowa State University, *presiding*

Panel

Sreenivas Alampalli, New York State Department of Transportation

Ali Maher, Rutgers, The State University of New Jersey

John Bulinski, CALTRANS

Shauna Hallmark, Iowa State University

11:30 a.m.–12:30 p.m., Outside Keck 100

Lunch

11:30 a.m.–12:30 p.m., Keck 106

Planning Committee Working Lunch Meeting (*invitation only*)

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12:30 p.m.–1:30 p.m., *Keck 100*

Implementation Panel: Where Do We Go from Here? How Can We Make Things Happen?

Joseph Schofer, Northwestern University, *presiding*

Panel

Jason Weiss, Oregon State University

Robert Peskin, AECOM

Paul Kovacs, Illinois State Toll Highway Authority

Charles Schwartz, University of Maryland

1:30 p.m.–2:00 p.m., *Keck 100*

Wrap Up and Adjourn

Joseph Schofer, Northwestern University, *presiding*

2:15 p.m.–3:15 p.m., *Keck 106*

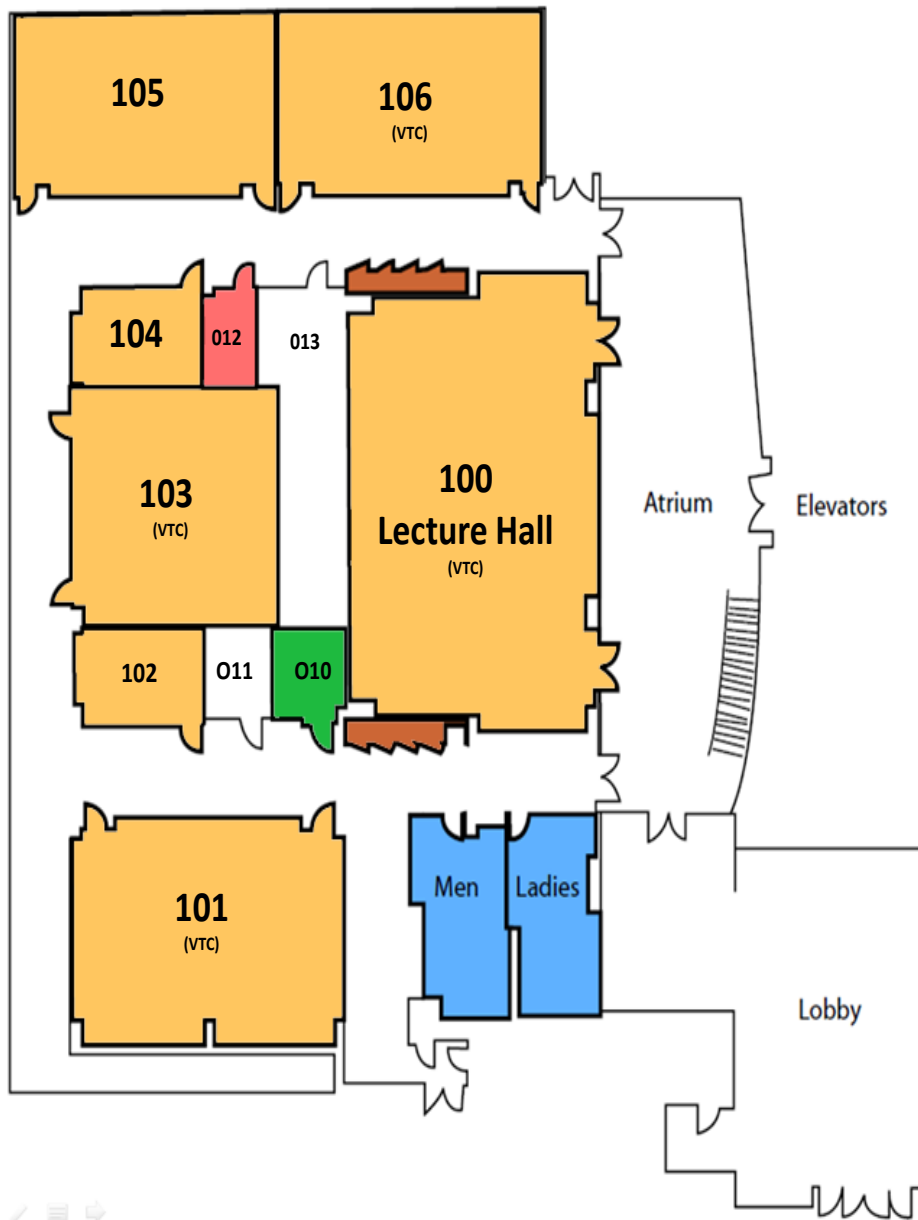
Planning Committee Debriefing (*invitation only*)

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Keck Center Floor Plan

Floor 1



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TRB 97th Annual Meeting

January 7-11, 2018

Walter E. Washington Convention Center
Washington, DC

September 26-27, 2017



Hotel Information

Capitol Skyline Hotel
10 “I” (eye) St SW
Washington, DC 20024

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