TRB FINAL PROGRAM

Wireless remote strain monitoring equipment, J.F.K. Bridge, Ohio River at Louisville

Railway overpass of advanced, weldable, weathering steel, Lake Villa, Illinois

Slip form paving to extend Illinois North–South Tollway (I-355)

Developing a Research Agenda for Transportation Infrastructure Preservation and Renewal Conference

November 12–13, 2009

Keck Center of the National Academies
Washington, D.C.

Organized by

Transportation Research Board:
Performance Measurement Committee
Transportation Asset Management Committee
Data and Information Systems Section
Concrete Bridges Committee
Structural Fiber Reinforced Polymers Committee
Pavement Preservation Committee
Transit Management and Performance Committee
Commuter Rail Transportation Committee

www.TRB.org/conferences/2009/Infrastructure

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

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Research and Innovative Technology Administration,
U.S. Department of Transportation

Planning Team

Joseph L. Schofer, Northwestern University, *Chair*
Data and Information Systems Section
Leonard Evans, Ohio Department of Transportation
Performance Measurement Committee
Larry L. Galehouse, National Center for Pavement Preservation
Pavement Preservation Committee
Sue McNeil, University of Delaware
Transportation Asset Management Committee
John J. Myers, Missouri University of Science and Technology
Concrete Bridges Committee
Structural Fiber Reinforced Polymers Committee
Robert L. Peskin, AECOM Transportation
Transit Management and Performance Committee
Commuter Rail Transportation Committee
Michael P. Freeman, Union Pacific Railroad
Samer Madanat, University of California, Berkeley
Ali Maher, Rutgers University
Butch Wlaschin, Federal Highway Administration
Thomas Bolle, Research and Innovative Technology Administration
Robin Kline, Research and Innovative Technology Administration
Curtis Tompkins, Research and Innovative Technology Administration

TRB Staff
Thomas Palmerlee
Matthew Miller

TRB committees noted in bold

Poster Session Presenter Alert

Please bring your poster board presentation to

Keck Room 201

from **4:00 p.m. to 5:30 p.m., Thursday, November 12,**
to set up your presentation in advance of the Poster Session,
which begins promptly at 5:30 p.m. in the 3rd Floor Atrium.

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

The **Transportation Research Board** is one of six major divisions of the National Research Council, which serves as an independent adviser to the federal government and others on scientific and technical questions of national importance. The National Research Council is jointly administered by the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The mission of the Transportation Research Board is to provide leadership in transportation innovation and progress through research and information exchange, conducted within a setting that is objective, interdisciplinary, and multimodal. The Board's varied activities annually engage about 7,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest. The program is supported by state transportation departments, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation. **www.TRB.org**

Defining an Infrastructure Research Road Map

Schofer

Many elements of the nation's surface transportation infrastructure are deteriorating as a consequence of aging and growing stresses. The American Recovery and Reinvestment Act of 2009 provides an initial infusion of funds for transportation infrastructure renewal and restoration, but these resources are not yet sufficient for rebuilding and sustaining the condition and performance of that infrastructure. Under these circumstances, it is particularly important to develop and deploy the best methods and technologies to support effective management of transportation infrastructure.

This conference brings infrastructure owners and decision makers together with researchers to consider problems, needs, and achievements, and to define the directions for essential research to manage and preserve the nation's surface transportation infrastructure. Using presentations, breakout discussions, and posters showcasing research successes, we will work together to understand the challenges and opportunities facing the highway, public transit, and rail systems. This will provide the basis for the real work of the conference, developing a research road map to help guide future research that builds on those opportunities and meets those challenges.

We have organized our discussion of infrastructure research progress and opportunities into these four areas:

- Inventory and condition assessment methods, including technologies for intelligent infrastructure health monitoring; remote, automated sensing and reporting; and advanced models of deterioration processes;
- Innovative and environmentally responsible materials and methods for preservation, restoration, and reconstruction of transportation infrastructure;
- Strategies for rapid repair and rehabilitation, including new designs, construction procedures, contracting, incentives, and project management tools; and
- Methods to estimate life-cycle costs and to support decision making for infrastructure preservation and renewal.

The road map that we will develop together should serve as a guide for both research investors and producers in the deployment of resources and talent to assure the condition, performance, safety, and security of the nation's transportation system in the years ahead.

—Joseph L. Schofer
Conference Chair
Professor of Civil and Environmental Engineering
Northwestern University

Wednesday, November 11
6:00 p.m.–8:00 p.m., ***Keck Room 105***
Planning Team Meeting
Joseph L. Schofer, Northwestern University

Conference Sessions

Thursday, November 12

7:30 a.m.–8:30 a.m., ***Buffet Outside Keck 100***
Breakfast
Table seating available in Keck Rooms 105, 109, and 202 (2nd Floor)

8:30 a.m.–8:45 a.m., ***Keck Room 100***
Welcome and Introductions
Joseph L. Schofer, Northwestern University, *presiding*

8:45 a.m.–9:15 a.m., ***Keck Room 100***
Welcome and Introductory Remarks
Robert E. Skinner, Jr., Executive Director, Transportation Research Board;
Peter H. Appel, Administrator, Research and Innovative Technology Administration (RITA)

9:15 a.m.–9:45 a.m., ***Keck Room 100***
Federal Roles in Transportation Infrastructure Preservation and Renewal
Ray LaHood, Secretary of Transportation


LaHood

Secretary LaHood will provide information on transportation infrastructure issues from the department's perspective and speak about the federal commitment to infrastructure preservation and maintenance.

9:45 a.m.–10:15 a.m.
Break

10:15 a.m.–10:45 a.m., ***Keck Room 100***
Status and Needs of Our Highway Systems
Michael Miles, Deputy Director for Maintenance and Operations, California Department of Transportation


Miles

The maintenance and operations director of one of the largest state transportation departments will relate the importance and the challenges of preserving a large highway system to support a complex economy in a fiscally constrained environment. He will discuss strategies and techniques that are being used in California and the needs for new approaches that might come from future research.

10:45 a.m.–11:15 a.m., ***Keck Room 100***
Ensuring Our Transit Systems
Robert H. Prince, AECOM Transportation


Prince

The experience at the Massachusetts Bay Transportation Authority (MBTA) illustrates how transit agencies are beginning to approach infrastructure preservation. MBTA's former general manager will describe how the agency developed a state-of-good-repair (SGR) database to evaluate and quantify the condition and level of ongoing reinvestment needed for its entire physical plant.

11:15 a.m.–11:45 p.m., ***Keck Room 100***
Condition and Needs of U.S. Railroad Systems
David A. Connell, Union Pacific Railroad Company


Connell

This presentation will provide an up-to-the-minute look at where freight rail infrastructure stands, the issues the industry faces in managing that infrastructure, and how progress is being made to deal with these issues. The elements of most concern in addressing the immediate and future needs of the rail industry will be identified. This presentation also will address how public–private partnerships can be executed to address rail freight infrastructure issues.

11:45 p.m.–12:45 p.m., ***Buffet Outside Keck 100***
Lunch
Table seating available in Keck Rooms 105, 109, and 202 (2nd Floor)

12:45 p.m.–2:15 p.m., ***Keck Room 100***
Topic Keynotes

Inventory and Condition Assessment
Leonard R. Evans, Ohio Department of Transportation

Effective management of transportation infrastructure depends timely and actionable information for asset needs. Inventory and condition assessment is a fundamental activity supporting the transportation agency decision-making processes. This session features developments in data collection and analysis techniques (the use of GPS and alternative sensing technologies such as LIDAR) and presents future opportunities affecting resources and equipment.

Innovative Materials for Preservation, Restoration, and Reconstruction
Larry Galehouse, National Center for Pavement Preservation

The uncertainty of material supplies and the changing economic climate require improved materials to assure long-term infrastructure performance. Significant recent attention has focused on studies of nanoscience and nanotechnology for infrastructure. Directed research can drive the development of revolutionary materials technologies for infrastructure, including polymers, biomaterials, and carbon materials. The need for new and improved materials will be discussed.

Strategies for Rapid Repair and Rehabilitation
Robert L. Peskin, AECOM Transportation

This presentation develops a strategic context for considering alternative approaches for rapid implementation of infrastructure renewal. It addresses the rationale for the goal of rapid implementation, including early interruption of deterioration, minimizing adverse operational impacts, reducing inflationary impacts on construction cost, and avoiding repeated deployment and mobilization costs. It describes measures of effectiveness to gauge achievement and offers a framework for classifying rapid implementation tools. Understanding and measuring the impacts of rapid implementation of infrastructure renewal activities provide a basis for the selection, management, and financing of these projects. Several example projects will be discussed to illustrate the costs and benefits of alternative implementation approaches.

Methods to Support Infrastructure Preservation and Renewal
Samer Michel Madanat, University of California, Berkeley

This presentation will describe the state of the art and the challenges to advancing the science and practice of decision support for infrastructure preservation and renewal. Existing methods for performance modeling, cost prediction, and maintenance and repair optimization will be reviewed. Gaps in these methods will be identified, and recent research developments will be introduced.

Charge to the Research Agenda Working Groups
Joseph L. Schofer, Northwestern University

The research agenda, or road map, is a strategic plan for research investments and activities that will provide the ideas, technologies, and tools to assure the condition, performance, safety, and security of the nation's transportation system. The road map represents priority research thrusts based on needs and promise for success. The keynote talks, poster presentations, and breakout discussions will generate many ideas and opportunities for research. The task of constructing the road map is to organize these ideas into a smaller number of key thrusts and to set broad priorities on them. After the conference, the research road map will be widely distributed, including distribution at a reporting session scheduled for the TRB Annual Meeting and presentations at other meetings.

2:15 p.m.–2:45 p.m.
Break

2:45 p.m.–5:00 p.m.

Research Agenda Working Groups

Conference participants will separate into four working groups to develop components of an agenda of the most important and promising research to address critical issues facing transportation infrastructure. Groups will be organized around the four themes of the conference. Each group will meet Thursday afternoon and again Friday morning. These groups will begin with brief participant introductions. Each poster presenter will describe the substance and implications of his or her research. This session will discuss the following:

- Critical issues facing the topic area;
- Recent developments and breakthroughs in this part of the field that should rise to the top of the implementation agenda, or that provide a foundation for the next stage of research; and
- Selection of the most promising research areas and topics, considering both (1) identifying the greatest NEED and (2) identifying the greatest PROMISE for success.

Inventory and Condition Assessment Research Agenda Group, *Keck Room 100*
Leonard R. Evans, Ohio Department of Transportation; and Michael P. Freeman, Union Pacific Railroad, *presiding*

Innovative Materials for Preservation, Restoration, and Reconstruction Research Agenda Group, *Keck Room 105*
Larry Galehouse, National Center for Pavement Preservation; and Ali Maher, Rutgers University, *presiding*

Strategies for Rapid Repair and Rehabilitation Research Agenda Group, *Keck Room 109*
John J. Myers, Missouri University of Science and Technology; and
Robert L. Peskin, AECOM Transportation, *presiding*

Methods to Support Infrastructure Preservation and Renewal Research Agenda Group, *Keck Room 202*
Samer Michel Madanat, University of California, Berkeley; Sue McNeil, University of Delaware; and Butch Wlaschin, Federal Highway Administration, *presiding*

Poster Sessions and Reception

5:00 p.m.–6:30 p.m., Atrium, 3rd-Floor Level

4:00 p.m.–5:30 p.m., ***Keck Room 201***
Poster Setup Room Open for Poster Presenters
Materials Available:
30x40 Poster Board
Push Pins
Masking Tape

Inventory and Condition Assessment

Integration of Fundamental–Applied Studies and Laboratory–Field Demonstrations for Structural Health Monitoring of Transportation Infrastructure
F. Necati Catbas, Mustafa Gul and Ricardo Zaurin, University of Central Florida

Use of Continuous Deflection Measurement for Network-Level Pavement Health Monitoring
Gerardo W. Flintsch, Virginia Polytechnic Institute and State University; Brian Walter Ferne, Transport Research Laboratory, United Kingdom; and Brian Keith Diefenderfer, Virginia Transportation Research Council

Nondestructive Evaluation Technologies for Comprehensive Condition Assessment and Better Management of Bridge Decks
Nenad Gucunski, Rutgers University

Real-Time Bridge Monitors for Condition Assessment Decisions
Victor J. Hunt, Arthur J. Helmicki, and James A. Swanson, University of Cincinnati

Benchmark Problem on Health Monitoring of Highway Bridges: A Multi-Objective, Optimization-Based Approach
Sungmoon Jung, Seung-Yong Ok, and Junho Song, FAMU-FSU College of Engineering

Continuous Remote Condition Monitoring of an In-Service Historic Utility Tunnel
David Kosnik, Mathew Kotowsky, Daniel Marron, Richard Finno, and Charles Dowding, Northwestern University Infrastructure Technology Institute

Continuous Remote Structural Health Monitoring for Life Extension of an Uplift Bearing Assembly on the I-65 John F. Kennedy Bridge in Louisville, Kentucky
David Kosnik, Matthew Kotowsky, and Daniel Marron, Northwestern University Infrastructure Technology Institute; and Theodore Hopwood, University of Kentucky

Assessment of Steel Bridge Details with Acoustic Emission Monitoring
David Kosnik and Daniel Marron, Northwestern University Infrastructure Technology Institute

Wireless Sensor Networks to Monitor Crack Growth on Bridges
Matthew Kotowsky and Charles Dowding, Northwestern University Infrastructure Technology Institute

A National Committee on Performance-Based Infrastructure Asset Management
Franklin L. Moon, Drexel University; and David Lowdermilk and Emin Aktan, Pennoni Associates, Inc.

Assessing Asphalt Concrete Deterioration Model from In-Service Pavement Data
Saad Sarsam, University of Baghdad

Modeling Asphalt Pavement Surface Texture Using Field Measurements
Saad Sarsam, University of Baghdad

Rapid Pavement Condition Assessment
Nicholas P. Vitillo, Center for Advanced Infrastructure and Transportation

Sensor Technology for Cold Region Pavement Preservations
Xiong Yu, Case Western Reserve University

Innovative Materials for Preservation, Restoration, and Reconstruction

Performance-Related Specifications of New Jersey Asphalt Mixtures for Critical Applications: Implementation and Performance
Thomas A. Bennert, Rutgers University; Robert Blight, Robert W. Sauber, and Eileen C. Sheehy, New Jersey Department of Transportation

Enamel Coating: A New Approach for Steel Structure Preservation and for Long-Term RC Structure Performance
Genda Chen, Richard Brow, Jeffrey Volz, Signo Reis, Dongming Yan, Chris Werner, Xing Tao, and Mike Koenigstein, Missouri University of Science and Technology

Flexible-Start, Fixed-Duration Contracting for Construction of Transportation Projects: A Case Study of the Paseo Bridge Maintenance Project
Thomas Maze,* Kelly Strong, and Mohammed Al Qady, Iowa State University; Amr A. Kandil, Purdue University

Crack-Free Concrete Made with Nanofiber Reinforcement
Zoi Metaxa and Maria S. Konsta-Gdoutos, ACBM Center, Northwestern University; and Surendra P. Shah, Northwestern University

Structural Steel Coatings Technologies for Corrosion Mitigation
John J. Myers and Wei Zheng, Missouri University of Science and Technology

Applications of Basalt Fiber Reinforced Polymer (BFRP) Reinforcement for Transportation Infrastructure
Anil Patnaik, University of Akron

Pavement Preservation for High Traffic Volume Roadways: Current Practice and Current Needs
David G. Peshkin and Angela S. Wolters, Applied Pavement Technology, Inc.; and James S. Moulthrop, Fugro Consultants, Inc.

A Self-Healing Cementitious Composite Using Oil Core–Silica Gel Shell Passive Smart Microcapsules and Microcarbonfiber
Xianming Shi, Montana State University; Zhengxian Yang, Montana Department of Transportation

A Self-Healing Coating System Using Passive Smart Microparticles for the Corrosion Protection of Metals
Xianming Shi, Montana State University; Zhengxian Yang, Montana Department of Transportation; and Xiaodong He, Western Transportation Institute

Optimizing the Use of a High-LOI Bottom Ash, Nanoclay, and Ultrafine Fly Ash for Portland Cement Mortar
Xianming Shi, Montana State University; Zhengxian Yang, Montana Department of Transportation; and John Hollar, Montana State University

*recently deceased

Strength and Durability Properties of Portland Cement Mortar with Recycled Materials
Xianming Shi, Montana State University; Zhengxian Yang, Montana Department of Transportation; and John Hollar, Montana State University

Evaluation of Electroless Ni, Ni-P, and Ni-Zn-P Coatings for Protecting Steel Rebar from Chloride-Induced Corrosion
Xianming Shi, Montana State University; and Tuan Anh Nguyen, Western Transportation Institute

Evaluation of Piezo-Polymer WIM Uniformity Using Asphalt Pavement Analyzer
Patrick J. Szary, Rutgers University

Threshold of Vibrations During Initial and Final Curing Period of Green Concrete in Drilled Shaft Construction
Kamal Tawfiq, Florida State University; and Primus Vincent Mtenga and John Olusegun Sobanjo, Florida A&M University–Florida State University

Strategies for Rapid Repair and Rehabilitation

The Managing Agent Contractor (MAC) Contract—Getting it Right the First Time
Andrew Ardrey, Halcrow

Reclamation of Asphalt Pavements Using Coal Combustion Byproducts
Tarunjit Butalia, Ohio State University; and William E. Wolfe, Ohio State University

Lightweight Concrete Solutions for Transportation Infrastructure Needs
Reid Castrodale and Ken Harmon, Carolina Stalite Company

External Confinement and Energy Dissipation for Seismic Accelerated Bridge Construction
Genda Chen, Missouri University of Science and Technology

New Tools for Inspection and Evaluation of Steel Truss Bridge Gusset Plates
Christopher C. Higgins, Quang Nguyen, O. Tugrul Turan, and Robert Connor, Oregon State University

Effects of Design–Construction Interactions on PCC Pavements Constructability and Staging Methodologies in Georgia
Javier Irizarry, Daniel Castro, and Carlos Arboleda, Georgia Institute of Technology

Techniques for Rapid Repair and Strengthening Using Composite Technologies: Missouri Perspective
John J. Myers, Missouri University of Science and Technology

Digitization of Transportation and Civil Infrastructure for Assessment, Preservation, and Renewal
Bahram Ravani and Ty A. Lasky, University of California, Davis

Development of Pavement Maintenance Management System for Baghdad Urban Roadway Network
Saad Sarsam, and Amna Talal, University of Baghdad, Iraq

Use of Nanoclays to Improve Slipform Paving Derived from Self-Consolidating Concrete
Nathan Tregger and Surendra P. Shah, Northwestern University

Methods to Support Infrastructure Preservation and Renewal

Flexible Methods for the Development and Preservation of Transportation Infrastructure Systems: A Real Option Approach for Infrastructure Investment Decision Making
Baabak Ashuri, and Hamed Kashani, Georgia Institute of Technology

Decision Support System for Infrastructure Preservation and Management
Eddie Yein-Juin Chou, University of Toledo

Exploiting Advanced Inspection Technologies to Support Condition Assessment, Forecasting, and Decision Making
Pablo Luis Durango-Cohen and David Corr, Northwestern University

Using Current Service Models to Determine Future Research and Data Collection Needs: An Examination of Regional Salt Loads
Evan C. Bentz, University of Toronto, Canada; Mark Ehlen and M. D. A. Thomas, Life-365 Consortium II; and Tony Kojundic, Elkem Materials

Methodology for Sustainable Transportation Infrastructure Planning
John Guenther, Sharon DeMonsabert, and Maria Pena, George Mason University

The Impact of O&M Activities for Asset Preservation and Renewal on Life-Cycle Costs: Case Study from I-595 Corridor Roadway Improvements Project—A 35-Year Life-Cycle Project
Charles Henningsgaard, Roy Jorgensen Associates, Inc.; and Ramón Villaamil Perez, ACS Infrastructure Development

Pavement Preservation Saves Lives
Roger M. Larson, Applied Pavement Technology, Inc.

Life-Cycle and Economic Efficiency Analysis for Pavement Marking Materials: Two-Year Data Collection for the State of Maryland
Young-Jae Lee, Morgan State University, Sriram Jayanti, Morgan State University

Optimization of Maintenance and Replacement Policies for a Heterogeneous System of Infrastructure Facilities
Samer Michel Madanat and Charles-Antoine Robelin, University of California, Berkeley

Integrating Climate Change Mitigation Strategies into the Infrastructure Decision-Making Process
Sue McNeil, University of Delaware

Pavement Preservation and Sustainability
David G. Peshkin and Thomas John Van Dam, Applied Pavement Technology, Inc.

Modeling Costs and Effectiveness of Bridge Preservation Actions
John Olusegun Sobanjo, Florida A&M University–Florida State University; Omar Thomas, Florida State University

The Need to Preserve Existing Freight Infrastructure in the Face of Rapid Urban Development
Rebekah Karasko, North Central Texas Council of Governments

7:00 p.m.–9:00 p.m., ***Keck Room 105***
Planning Team Meeting (by invitation)

Friday, November 13

7:30 a.m.–8:30 a.m., ***Buffet Outside Keck 100***
Breakfast
Table seating available in Keck Room 105, 109, and 110

8:30 a.m.–10:00 a.m.
Research Agenda Working Groups (continued)
The Friday discussion objectives follow:

- Continue to identify and discuss most promising research areas.
- Derive general priorities based on need and promise. Focus should be on intermediate term—5-year time frame, with more general long-term research targets considered if relevant and time permits.
- Identify and discuss implementation barriers and opportunities.

Inventory and Condition Assessment Research Agenda Group (continued), ***Keck Room 100***
Leonard R. Evans, Ohio Department of Transportation; and Michael P. Freeman,Union Pacific Railroad, *presiding*

Innovative Materials for Preservation, Restoration, and Reconstruction Research Agenda Group (continued), ***Keck Room 105***
Larry Galehouse, National Center for Pavement Preservation; and Ali Maher, Rutgers University, *presiding*

Strategies for Rapid Repair and Rehabilitation Research Agenda Group (continued), ***Keck Room 109***
John J. Myers, Missouri University of Science and Technology; and Robert L. Peskin, AECOM Transportation, *presiding*

Methods to Support Infrastructure Preservation and Renewal Research Agenda Group (continued), ***Keck Room 110***
Samer Michel Madanat, University of California, Berkeley; Sue McNeil, University of Delaware; and Butch Wlaschin, Federal Highway Administration, *presiding*

10:00 a.m.–10:30 a.m.
Break

10:30 a.m.–noon, ***Keck Room 100***
Reports from the Research Agenda Working Groups
Joseph L. Schofer, Northwestern University, *presiding*

Inventory and Condition Assessment Research Agenda Group
Leonard R. Evans, Ohio Department of Transportation and Michael P. Freeman, Union Pacific Railroad
Innovative Materials for Preservation, Restoration, and Reconstruction Research Agenda Group
Larry Galehouse, National Center for Pavement Preservation and Ali Maher, Rutgers University
Strategies for Rapid Repair and Rehabilitation Research Agenda Group
John J. Myers, Missouri University of Science and Technology and Robert L. Peskin, AECOM Transportation
Methods to Support Infrastructure Preservation and Renewal Research Agenda Group
Samer Michel Madanat, University of California, Berkeley, Sue McNeil, University of Delaware, and Butch Wlaschin, Federal Highway Administration

Noon p.m.–1:00 p.m., ***Keck Room 100***
Lunch
Table seating available in Keck Room 105, 109, and 110

1:00 p.m.–3:00 p.m., ***Keck Room 100***

Developing a Research Agenda for Transportation Infrastructure Preservation and Renewal—Gaps and Priorities

Joseph L. Schofer, Northwestern University, *presiding*

This closing session will define an infrastructure research road map to assure the condition, performance, safety, and security of our transportation system in the years ahead. Participants will build on the work of the following four groups to identify the most promising research areas and topics, considering (1) the greatest need and (2) the greatest promise for success.

1. Inventory and Condition Assessment;
2. Innovative Materials for Preservation, Restoration, and Reconstruction;
3. Strategies for Rapid Repair and Rehabilitation; and
4. Methods to Support Infrastructure Preservation and Renewal Decision Making.

Special discussion will focus on themes that crosscut the areas.

3:00 p.m.–5:00 p.m., ***Keck Room 105***
Planning Team Meeting (by invitation)

RITA University Transportation Centers Program

The University Transportation Centers (UTC) program establishes internationally recognized centers of excellence, fully integrated within institutions of higher learning, that serve as a vital source of leaders prepared to meet the nation's need for safe, efficient, and environmentally sound movement of people and goods. Through education, research, and technology transfer at university-based centers of excellence, the program's mission is to advance U.S. technology and expertise in the many disciplines constituting the field of transportation. The program strengthens the American transportation workforce by awarding thousands of degrees to matriculating undergraduate, masters, and doctoral students. UTC activities also include innovative research focused on current and future transportation issues, resulting in various patents, copyrights, and other valuable contributions to transportation.

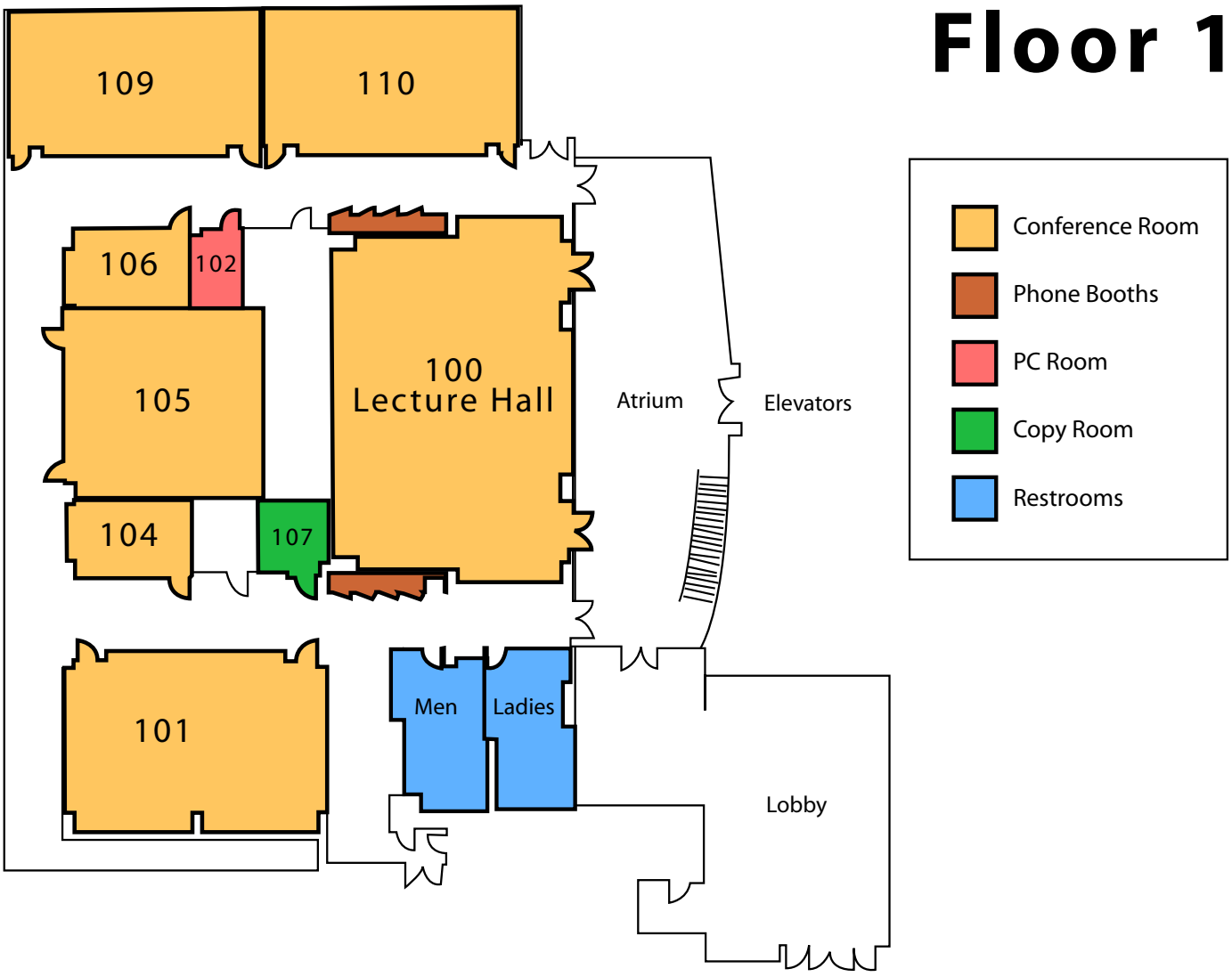
The UTC program, initiated in 1987 under the Surface Transportation and Uniform Relocation Assistance Act, authorized the establishment and operation of transportation centers in each of the 10 standard federal regions. The current program is authorized for up to $83.6 million per year from FY2005 through FY2009 and encompasses 60 UTCs and 125 universities (when consortium members are included).

History of Spotlight Conferences

The UTC program sponsors an annual conference that brings together the UTC community, USDOT and other federal, state, and local government agencies, and industry to discuss a particular transportation technology or issue. These spotlight conferences allow the various transportation communities to learn about the breadth of university work in a particular area and the innovations that are being realized. The conferences encourage interactions and synergies; identify key knowledge gaps; develop national research agendas; inform transportation policy; and identify promising initiatives for university research. There have been three spotlight conferences to date, each focused on a particular transportation-related issue: Radio frequency identification (2006), freight (2007), and demographics (2008). The 2009 conference is focused on Transportation Infrastructure Preservation and Renewal.

www.TRB.org/conferences/2009/Infrastructure

Keck Center Floor Plan



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