Sharing the Spirit of Innovation
Examples from the States

Plus:
Solving Highway Congestion
Lessons for Climate Change
Mapping Natural Hazmats
THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine

National Academy of Sciences
National Academy of Engineering
Institute of Medicine
National Research Council

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, and which 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 multidisciplinary. 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.

The National Research Council was organized by the National Academy of Sciences in 1916 to associate the broad community of science and technology with the Academy's purposes of furthering knowledge and advising the federal government. Functioning in accordance with general policies determined by the Academy, the Council has become the principal operating agency of both the National Academy of Sciences and the National Academy of Engineering in providing services to the government, the public, and the scientific and engineering communities.

www.TRB.org

TRANSPORTATION RESEARCH BOARD
2013 EXECUTIVE COMMITTEE*

Chair: Deborah H. Butler, Executive Vice President, Planning, and CIO, Norfolk Southern Corporation, Norfolk, Virginia
Vice Chair: Kirk T. Steunule, Director, Michigan Department of Transportation, Lansing
Executive Director: Robert E. Skinner, Jr., Transportation Research Board

Victoria A. Arroyo, Executive Director, Georgetown Climate Center, and Visiting Professor, Georgetown University Law Center, Washington, D.C.
Scott E. Bennett, Director, Arkansas State Highway and Transportation Department, Little Rock
William A. V. Clark, Professor of Geography (emeritus) and Professor of Statistics (emeritus), Department of Geography, University of California, Los Angeles
James M. Crites, Executive Vice President of Operations, Dallas–Fort Worth International Airport, Texas
John S. Halikowski, Director, Arizona Department of Transportation, Phoenix
Paula J. C. Hammond, Secretary, Washington State Department of Transportation, Olympia
Michael W. Hancock, Secretary, Kentucky Transportation Cabinet, Frankfort
Susan Hansan, Distinguished University Professor Emerita, School of Geography, Clark University, Worcester, Massachusetts
Steve Heminger, Executive Director, Metropolitan Transportation Commission, Oakland, California
Chris T. Hendrickson, Duquesne Light Professor of Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania
Jeffrey D. Holt, Managing Director, Bank of Montreal Capital Markets, and Chairman, Utah Transportation Commission, Huntsville, Utah
Kevin L. Keith, Missouri Department of Transportation, Jefferson City
Gary P. LaGrange, President and CEO, Port of New Orleans, Louisiana
Michael P. Lewis, Director, Rhode Island Department of Transportation, Providence
Joan McDonald, Commissioner, New York State Department of Transportation, Albany
Donald A. Osterberg, Senior Vice President, Safety and Security, Schneider National, Inc., Green Bay, Wisconsin
Steve Palmer, Vice President of Transportation, Lowe's Companies, Inc., Mooresville, North Carolina
Sandra Rosenbloom, Director, Innovation in Infrastructure, The Urban Institute, Washington, D.C. (Past Chair, 2012)
Henry G. (Gerry) Schwartz, Jr., Chairman (retired), Jacobs/Sverdrup Civil, Inc., St. Louis, Missouri
Kumuara C. Sinha, Olson Distinguished Professor of Civil Engineering, Purdue University, West Lafayette, Indiana
Daniel Sperling, Professor of Civil Engineering and Environmental Science and Policy; Director, Institute of Transportation Studies, University of California, Davis
Gary C. Thomas, President and Executive Director, Dallas Area Rapid Transit, Dallas, Texas
Phillip A. Washington, General Manager, Regional Transportation District, Denver, Colorado
Rebecca M. Brewster, President and COO, American Transportation Research Institute, Smyrna, Georgia (ex officio)
Anne S. Ferro, Administrator, Federal Motor Carrier Safety Administration, U.S. Department of Transportation (ex officio)
LeRoy Gishi, Chief, Division of Transportation, Bureau of Indian Affairs, U.S. Department of the Interior, Washington, D.C. (ex officio)
John T. Gray II, Senior Vice President, Policy and Economics, Association of American Railroads, Washington, D.C. (ex officio)
Michael P. Huerta, Administrator, Federal Aviation Administration, U.S. Department of Transportation (ex officio)
Joung Ho Lee, Associate Director for Finance and Business Development, American Association of State Highway and Transportation Officials, and Chair, TRB Young Members Council, Washington, D.C. (ex officio)
David T. Matsuda, Administrator, Maritime Administration, U.S. Department of Transportation (ex officio)
Michael P. Melaniphy, President and CEO, American Public Transportation Association, Washington, D.C. (ex officio)
Victor M. Mendez, Administrator, Federal Highway Administration, U.S. Department of Transportation (ex officio)
Robert J. Papp (Adm., U.S. Coast Guard), Commandant, U.S. Coast Guard, U.S. Department of Homeland Security (ex officio)
Cynthia L. Quarterman, Administrator, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation (ex officio)
Peter M. Rogoff, Administrator, Federal Transit Administration, U.S. Department of Transportation (ex officio)
David L. Strickland, Administrator, National Highway Traffic Safety Administration, U.S. Department of Transportation (ex officio)
Joseph C. Szabo, Administrator, Federal Railroad Administration, U.S. Department of Transportation (ex officio)
Polly Trottenberg, Under Secretary for Policy, U.S. Department of Transportation (ex officio)
Barry R. Wallenstein, Executive Officer, South Coast Air Quality Management District, Diamond Bar, California (ex officio)
Gregory D. Winfree, Acting Administrator, Research and Innovative Technology Administration, U.S. Department of Transportation (ex officio)
Frederick G. (Bud) Wright, Executive Director, American Association of State Highway and Transportation Officials, Washington, D.C. (ex officio)

* Membership as of February 2013
3 Implementers of Innovation: Findings from the Transportation Research Board’s 2012 State Partnership Visits Program
State departments of transportation (DOTs) and other agencies are meeting the challenge of continued economic uncertainties by implementing innovative solutions to transportation problems.

14 NEW SHRP 2 REPORT
Institutional Architectures to Improve Transportation Systems Management and Operations: Guidance for State Departments of Transportation
Stephen Lockwood
Transportation systems management and operations strategies focus on the causes of congestion and delay at the point of the problem—in real time—to reduce the impacts significantly. The strategies are cost-effective, minimally disruptive, and quickly implemented. SHRP 2 has developed comprehensive guidance to help state DOTs and their partners succeed in improving highway levels of service.

23 How Vulnerable Is Alaska’s Transportation to Climate Change?
Managing an Infrastructure Built on Permafrost
Billy Connor and James Harper
With warming permafrost, coastal erosion, and increasingly dramatic storm events, Alaska’s highways and other infrastructure are frequently icing, cracking, and washing away. Engineers and planners are addressing knowledge gaps in thermal and hydrological dynamics and are translating the findings into new and more robust designs.

Timo Saarenketo and Ron Munro

32 Mapping Naturally Occurring Hazardous Materials in Oregon:
Project Aims to Protect Transportation Personnel and Public Health
Matthew A. Mabey and Clark Niewendorp
Naturally occurring hazardous materials (NOHMs) are easily overlooked in standard environmental assessments and geologic investigations for transportation projects. Oregon DOT partnered with the state’s Department of Geology and Mineral Industries to identify the NOHMs of greatest concern, delineate the likely occurrences, and establish how to detect them, to protect the health and safety of agency personnel, construction workers, and the traveling public.

39 NEW TRB PUBLICATION
Rockfall: Characterization and Control
A. Keith Turner and G. P. Jayaprakash
The economic and public-safety consequences of rockfall-induced traffic disruptions, accidents, and injuries have spurred improvements in procedures for rockfall evaluation and mitigation, including new technologies and protections from rockfall hazards. A new TRB publication addresses the state of knowledge about rockfall.

42 NEW COOPERATIVE RESEARCH PROGRAMS REPORT
Guidebook for Sustainability Performance Measurement for Transportation Agencies
Josias Zietsman and Tara Ramani
A new guidebook from the National Cooperative Highway Research Program provides a variety of resources and a practical, phased approach for state DOTs and other agencies to tailor and implement a performance measurement program for sustainability that is relevant to their specific needs and contexts.
45 NEW COOPERATIVE RESEARCH PROGRAMS REPORT
Preserving and Protecting Freight Infrastructure and Routes
Mark E. Meitzen
The expansion of incompatible land uses raises serious threats to the U.S. freight transportation system. Research under the National Cooperative Freight Research Program (NCFRP) has developed tools and strategies to resolve or minimize the conflicts between nonfreight land use and freight corridors and facilities, implementing the principle of freight-compatible development.

50 NEW COOPERATIVE RESEARCH PROGRAMS REPORT
Understanding Urban Goods Movement
Suzann S. Rhodes
A comprehensive guide from NCFRP for planners and decision makers explains the importance of urban freight movements to the economic health of local communities, the impact of local regulations on efficient freight movement, and ways to accommodate and expedite urban goods movement while minimizing environmental impacts and adverse consequences for the community.

ALSO IN THIS ISSUE:

51 Research Pays Off
The Asphalt Binder Cracking Device Test
Sang-Soo Kim

54 Profiles
Transportation and public works engineer Ramankutty Kannankutty and pavement researcher and research administrator Harold (Skip) Paul

56 News Briefs
Agencies Reaching Customers with New Media
Stephanie Camay

58 TRB Highlights
Cooperative Research Programs News, 58

60 Bookshelf

64 Calendar

COMING NEXT ISSUE

Photographic highlights of sessions, events, presentations, meetings, exhibits, awards, and more from TRB’s 92nd Annual Meeting—including valedictory speeches by two major transportation leaders—is accompanied in the March–April issue of TR News by feature articles on the promise of connected vehicle technology; the accomplishments and vision of more than two decades of TransTech Academy; preparing urban students for careers in transportation; and practical insights from TRB’s first-ever virtual conference.

U.S. Secretary of Transportation Ray LaHood spoke at two TRB Annual Meeting events in January, reviewing initiatives, programs, and progress under his term. A record-setting attendance explored the theme of “Deploying Transportation Research: Doing Things Smarter, Better, Faster.”