Technology-Enabled Transportation Services

Plus:
A More Accessible Arctic
Funding and Managing Inland Waterways
A New Approach to Sustainability
Raising Security Awareness
Design Management for Fast-Track Projects
The National Academy of Sciences was established in 1863 by an Act of Congress, signed by President Lincoln, as a private, nongovernmental institution to advise the nation on issues related to science and technology. Members are elected by their peers for outstanding contributions to research. Dr. Ralph J. Cicerone is president.

The National Academy of Engineering was established in 1964 under the charter of the National Academy of Sciences to bring the practices of engineering to advising the nation. Members are elected by their peers for extraordinary contributions to engineering. Dr. C. D. Mote, Jr., is president.

The National Academy of Medicine (formerly the Institute of Medicine) was established in 1970 under the charter of the National Academy of Sciences to advise the nation on medical and health issues. Members are elected by their peers for distinguished contributions to medicine and health. Dr. Victor J. Dzau is president.

The three Academies work together as the National Academies of Sciences, Engineering, and Medicine to provide independent, objective analysis and advice to the nation and conduct other activities to solve complex problems and inform public policy decisions. The Academies also encourage education and research, recognize outstanding contributions to knowledge, and increase public understanding in matters of science, engineering, and medicine.

Learn more about the National Academies of Sciences, Engineering, and Medicine at www.national-academies.org.

The Transportation Research Board is one of seven major programs of the National Academies of Sciences, Engineering, and 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 various committees, task forces, and panels 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

TRANSPORTATION RESEARCH BOARD 2016 EXECUTIVE COMMITTEE*

Chair: James M. Crites, Executive Vice President of Operations, Dallas–Fort Worth International Airport, Texas
Vice Chair: Paul Trombino III, Director, Iowa Department of Transportation, Ames
Executive Director: Neil J. Pedersen, Transportation Research Board

Victoria A. Arroyo, Executive Director, Georgetown Climate Center; Assistant Dean, Centers and Institutes, and Professor and Director, Environmental Law Program, Georgetown University Law Center, Washington, D.C.
Scott E. Bennett, Director, Arkansas State Highway and Transportation Department, Little Rock
Jennifer Cohoon, Secretary, Delaware Department of Transportation, Dover
Malcolm Dougherty, Director, California Department of Transportation, Sacramento
A. Stewart Fotheringham, Professor, School of Geographical Sciences and Urban Planning, Arizona State University, Tempe
John S. Halikowski, Director, Arizona Department of Transportation, Phoenix
Susan Hanson, Distinguished University Professor Emerita, Graduate School of Geography, Clark University, Worcester, Massachusetts
Steve Heminger, Executive Director, Metropolitan Transportation Commission, Oakland, California
Chris T. Hendrickson, Hamerschlag Professor of Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania
Jeffrey D. Holt, Managing Director, Power, Energy, and Infrastructure Group, BMO Capital Markets Corporation, New York
S. Jack Hu, Vice President for Research and J. Reid and Polly Anderson Professor of Manufacturing, University of Michigan, Ann Arbor
Roger B. Huff, President, HGLC, LLC, Farmington Hills, Michigan
Geraldine Knatz, Professor, Sol Price School of Public Policy, Viterbi School of Engineering, University of Southern California, Los Angeles
Ysela Llor, Consultant, Miami, Florida
Melinda McGrath, Executive Director, Mississippi Department of Transportation, Jackson
James P. Redeker, Commissioner, Connecticut Department of Transportation, Newington
Mark L. Rosenberg, Executive Director, The Task Force for Global Health, Inc., Decatur, Georgia
Kumares 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
Kirk T. Steudle, Director, Michigan Department of Transportation, Lansing (Past Chair, 2014)
Gary C. Thomas, President and Executive Director, Dallas Area Rapid Transit, Dallas, Texas
Pat Thomas, Senior Vice President of State Government Affairs, United Parcel Service, Washington, D.C.
Katherine F. Turnbull, Executive Associate Director and Research Scientist, Texas A&M Transportation Institute, College Station
Dean Wise, Vice President of Network Strategy, Burlington Northern Santa Fe Railway, Fort Worth, Texas

James C. Card (Vice Admiral, U.S. Coast Guard, retired), Maritime Consultant, The Woodlands, Texas, and Chair, TRB Marine Board (ex officio)
T. F. Scott Darling III, Acting Administrator and Chief Counsel, Federal Motor Carrier Safety Administration, U.S. Department of Transportation (ex officio)
Marie Therese Dominguez, Administrator, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation (ex officio)
Sarah Feinberg, Administrator, Federal Railroad Administration, U.S. Department of Transportation (ex officio)
Carolyn Flowers, Acting Administrator, Federal Transit 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)
Paul N. Jaenichen, Sr., Administrator, Maritime Administration, U.S. Department of Transportation (ex officio)
Bevan B. Kirley, Research Associate, University of North Carolina Highway Safety Research Center, Chapel Hill, and Chair, TRB Young Members Council (ex officio)
Michael P. Melaniphy, President and CEO, American Public Transportation Association, Washington, D.C. (ex officio)
Gregory G. Nadeau, Administrator, Federal Highway Administration, U.S. Department of Transportation (ex officio)
Wayne Nastri, Acting Executive Officer, South Coast Air Quality Management District, Diamond Bar, California (ex officio)
Mark R. Roskelley, Administrator, National Highway Traffic Safety Administration, U.S. Department of Transportation (ex officio)
Craig A. Rutland, U.S. Air Force Pavement Engineer, U.S. Air Force Civil Engineer Center, Tyndall Air Force Base, Florida (ex officio)
Reuben Sarkar, Deputy Assistant Secretary for Transportation, U.S. Department of Energy (ex officio)
Gregory D. Winfree, Assistant Secretary for Research and Technology, Office of the Secretary, 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)
Paul F. Zukunft (Admiral, U.S. Coast Guard), Commandant, U.S. Coast Guard, U.S. Department of Homeland Security (ex officio)

* Membership as of April 2016.
3 NEW TRB SPECIAL REPORT
Between Public and Private Mobility: Examining the Rise of Technology-Enabled Transportation Services
Katherine Kortum
The rapid innovation and growth in technology-enabled mobility services has raised many policy issues. A new TRB study explores how the services are used, how they relate to established transportation modes, and the implications for policy development, regulation, transportation planning, and infrastructure investment.

9 HIGHLIGHTS FROM THE TRB ANNUAL MEETING 2016
Research Convergence for a Multimodal Future
The many modes of transportation intersected with technology, public health, and systems resiliency at the 95th Annual Meeting of the Transportation Research Board. Approximately 12,600 participants shared and explored research findings and applications in sessions, workshops, committee meetings, exhibits, awards, networking events, and more, as shown in these photo highlights.

21 NATIONAL RESEARCH COUNCIL ARCTIC MATTERS PROJECT FINDINGS
Getting Around in a More Accessible Arctic
Anne Johnson, Solmaz Spence, Katie Thomas, Lauren Everett, and Nancy Huddleston
Climate change is affecting the Arctic at a pace more rapid than in other places in the world and is having dramatic effects on how and where people can travel. A series of National Research Council reports makes clear that rising sea levels, ecological changes, geopolitical shifts, new opportunities for resource extraction, and countless other changes in the Arctic will have immediate and lasting effects around the globe.

24 Marine Board Recognizes Arctic Shipping as a Priority Issue
Scott Brotemarkle

27 TRB SPECIAL REPORT 315
Funding and Managing the U.S. Inland Waterways System: What Policy Makers Need to Know
Melissa Welch-Ross and Chris Hendrickson
Funding and managing the extensive and historic U.S. inland waterways system is a continuing challenge. A TRB study presents findings and recommendations for addressing infrastructure operations and maintenance, capital investment, federal appropriations, fees, and the need for implementing an asset management approach.

32 NCHRP REPORT 750, VOLUME 4
Sustainability as an Organizing Principle for Transportation Agencies: Transportation as a Means, Not an End
Gary R. McVoy
Transportation agencies can find support and direction in their essential service to society by pursuing the goal of triple bottom line sustainability—meeting today’s social, environmental, and economic needs while providing for those of future generations. A report in the NCHRP Foresight series offers a framework that applies triple bottom line sustainability precepts to decision making.

37 NCHRP REPORT 793
Incorporating Transportation Security Awareness into a State Agency’s Routine Operations and Training: A Shared Responsibility
Pat Bye and Jeffrey Western
An NCHRP report highlights the importance of security awareness for all transportation agency employees and contractors and presents techniques to integrate all-hazards security awareness into routine operations, maintenance, and training—within resource and budget constraints.
TR NEWS

features articles on innovative and timely research and development activities in all modes of transportation. Brief news items of interest to the transportation community are also included, along with profiles of transportation professionals, meeting announcements, summaries of new publications, and news of Transportation Research Board activities.

TR News is produced by the Transportation Research Board Publications Office
Javy Awan, Editor and Publications Director
Lea Camarda, Associate Editor
Jennifer J. Weeks, Photo Researcher
Juanita Green, Production Manager
Michelle Wandres, Graphic Designer

TR News Editorial Board
Frederick D. Hejl, Chairman
Christine L. Gerencher
Edward T. Harrigan
Christopher J. Hedges
Russell W. Houston
Katherine Kortum
Thomas R. Menzies, Jr.
G.P. Jayaprakash, Research Pays Off Liaison

Transportation Research Board
Neil Pedersen, Executive Director
Mark R. Norman, Director of Program Development and Strategic Activities
Russell W. Houston, Associate Executive Director
Ann M. Brach, Director, Technical Activities
Stephen R. Godwin, Director, Studies and Special Programs
Gary J. Walker, Director, Administration and Finance
Christopher W. Jenks, Director, Cooperative Research Programs

TR News (ISSN 0738-6826) is issued bimonthly by the Transportation Research Board, 500 Fifth Street, NW, Washington, DC 20001. Internet address: www.TRB.org.

Editorial Correspondence: By mail to the Publications Office, Transportation Research Board, 500 Fifth Street, NW, Washington, DC 20001, by telephone 202-334-2972, by fax 202-334-3495, or by e-mail jawan@nas.edu.

Subscriptions: North America: 1 year $60; single issue $12. Overseas: 1 year $85; single issue $12 plus shipping. Inquiries or communications concerning new subscriptions, subscription problems, or single-copy sales should be addressed to the Business Office at the address below, or by telephone 202-334-3216, fax 202-334-2519. Periodicals postage paid at Washington, D.C.

Postmaster: Send changes of address to TR News, Transportation Research Board, 500 Fifth Street, NW, Washington, DC 20001.

Notice: The opinions expressed in articles appearing in TR News are those of the authors and do not necessarily reflect the views of the Transportation Research Board. The Transportation Research Board and TR News do not endorse products or manufacturers. Trade and manufacturers’ names appear in an article only because they are considered essential.

Printed in the United States of America.

Copyright © 2016 National Academy of Sciences. All rights reserved. For permissions, contact TRB.

41 NCHRP REPORT 787
Design Management for Transportation Construction Projects: Design–Build and Construction Manager–General Contractor Methods
R. Edward Minchin, Jr., and Giovanni C. Migliaccio

In the past two decades, new methods have emerged to speed up the transportation construction process. An NCHRP report offers insights into the design management process under two of these fast-track approaches—construction manager–general contractor and design–build.

ALSO IN THIS ISSUE:

47 Research Pays Off
Composting Roadkill: Research and Implementation by the Virginia Department of Transportation
Bridget Donaldson and David Wilson

50 Profiles
Human factors psychologist and researcher Sue Chrysler; and traffic management and operations consultant Charles A. Fuhs

52 TRB Highlights
International Trade and Transportation: Annual Meeting Session Looks into Future Trends
Katherine F. Turnbull

54 News Briefs

56 Bookshelf

60 Calendar

COMING NEXT ISSUE

Feature articles in the May–June issue explore bus transportation in the United States: the intercity bus renaissance and curbside long-distance services; the myths, history, status, and future of bus rapid transit, with a case study of a newly launched service; technology-enabled bus services; the state of rural bus transit; transformative trends in bus transit data; the impacts of real-time transit information on riders’ satisfaction; a summary of a new TRB policy study on interregional travel; and more.