

TR NEWS

NUMBER 301

JANUARY-FEBRUARY 2016



Disruptions and Transformations *Findings from the States*

Plus:

Responding to Extreme Weather Events

Transportation, Productivity, and the Economy

Evolutions in Geometric Design

Shared Rail Corridor Management

Reducing Emissions from Daily Travel

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The **Transportation Research Board** is one of seven 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 varied 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.
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* Membership as of February 2016.

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3 Reducing Carbon Dioxide Emissions from Daily Travel: Insights from Germany

Ralph Buehler

Examining the effects of vehicle technology and fuel efficiency, travel behavior, and transportation policy—including gasoline taxes and land use planning—in reducing carbon dioxide emissions from daily travel, the author offers insights into ways that the United States can benefit from adapting Germany's model.

8 Steering the Way Through Disruptions and Transformations: Findings from the Transportation Research Board's 2015 State Partnership Visits Program

In every mode and in nearly every area of expertise, state transportation agencies are experiencing technological disruptions and transformations, according to findings from the annual state partnership visits by TRB senior program staff. The report presents a tour of the innovative solutions, programs, and research under way and needed to adapt, apply, and prepare for technological changes.

18 NCHRP REPORT

Productivity: The Connection Between Transportation Performance and the Economy

Glen Weisbrod

By expanding access to labor markets, supplier markets, and customer markets, transportation infrastructure enables greater productivity for producers of goods and services, as well as for transportation providers. Many state departments of transportation (DOTs) are adopting prioritization criteria and planning methods that recognize the effects of productivity in selecting infrastructure projects.

22 NCHRP SYNTHESIS REPORT

Responses to Extreme Weather Impacts: Practices in the U.S. Transportation Sector

Chris Baglin

A synthesis report identifies lessons learned from eight state-level responses to extreme weather events that affected transportation operations and infrastructure. The report examines related practices and outlines ways to share knowledge and to collect and analyze data for decision support.

27 NCHRP REPORT

Evolutions in the Geometric Design of Highways and Streets: Integrating Performance-Based Analysis

Brian L. Ray

Many agencies with limited funding have embraced the concept of flexible geometric design solutions to meet project needs and intended outcomes. An NCHRP report presents a framework to support a range of initiatives, including context-sensitive design and solutions, performance-based practical design, flexibility in design, complete streets, and multimodal design.

32 NCHRP REPORT

Rail Corridor Capacity: Unraveling the Mysteries of Shared Corridor Management

David P. Simpson, Alan Bing, and Justin Fox

States play a key role in sponsoring and funding passenger rail operations. A new NCHRP report offers straightforward, user-friendly guidance on rail capacity modeling for transportation planners, public officials, rail service operators, and corridor owners working together to build a successful foundation for shared rail investment and high levels of rail service integrity.



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COVER: A large-scale crash in a snowstorm closes I-80 in Wyoming. State DOTs play a major role in keeping highways open and interstate freight flowing—Wyoming DOT is developing applications to provide travel advisories, roadside alerts, and more. (Photo: Wyoming DOT/Wyoming Highway Patrol)

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.

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37 POINT OF VIEW

Estimating Preconstruction Costs: Who Cares? Why Bother?

Douglas D. Gransberg

Accurately estimating and fully funding preconstruction services should diminish the changes during construction to correct design errors; the cost savings could increase the number of projects a state DOT can finance each fiscal year, the author maintains. An NCHRP project has developed an estimating process using standard commercial spreadsheet and database software.

40 Improving the Reliability and Resiliency of Traffic Signals in an Urban Environment: Cost-Benefits in Washington, D.C.

Soumya S. Dey, Benito O. Pérez, and Rahul Jain

The efficiency of the District of Columbia's transportation network depends on the reliability and resiliency of the signal system. The deployment of generators and of uninterruptible power supply battery backup units for strategic signals has provided benefits that outweigh the associated costs, as the authors document.

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Low-Cost Approach to Reducing Crashes on Multilane Undivided Highways in Louisiana
Kirk Zeringue and Xiaoduan Sun

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COMING NEXT ISSUE

A photo essay documents the array of sessions, workshops, events, interactions, exchanges, awards, and more at the 95th Annual Meeting of the Transportation Research Board in January. Feature articles present transportation-related findings from a series of policy studies by the National Academies of Sciences, Engineering, and Medicine on the global connection to changes in the Arctic; plus results from research projects on sustainability as an organizing principle for transportation agencies; incorporating transportation security awareness into state DOT operations and training; design management for projects using design-build and construction manager-general contractor arrangements; and more.



TRB's 95th Annual Meeting drew a record-breaking crowd of students and transportation professionals to Washington, D.C., to share research and to hear from such distinguished speakers as U.S. Transportation Secretary Anthony Foxx, who emphasized the role of transportation in creating opportunity.