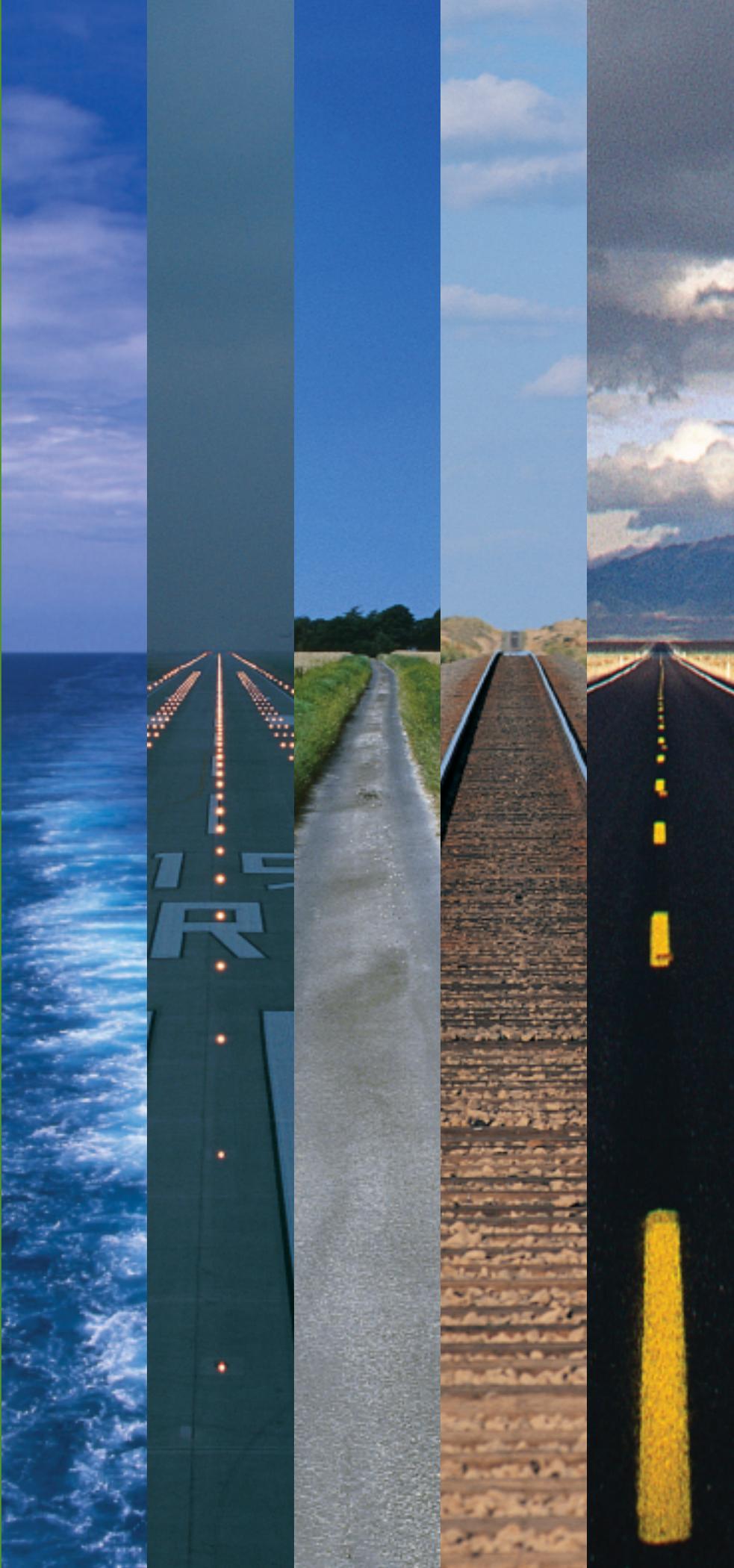


Transportation Research Board
2004 Annual Report



TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

The mission of the Transportation Research Board is to promote innovation and progress in transportation through research. In an objective and interdisciplinary setting, the Board facilitates the sharing of information on transportation practice and policy by researchers and practitioners; stimulates research and offers research management services that promote technical excellence; provides expert advice on transportation policy and programs; and disseminates research results broadly and encourages their implementation.

THE NATIONAL ACADEMIES™
Advisers to the Nation on Science, Engineering, and Medicine

The nation turns to the National Academies—National Academy of Sciences, National Academy of Engineering, Institute of Medicine, and National Research Council—for independent, objective advice on issues that affect people’s lives worldwide. Established in 1916 under the congressional charter of the private, nonprofit National Academy of Sciences, the National Research Council brings the entire scientific and technical community to bear on national problems through its volunteer advisory committees. The principal operating agency of both the National Academy of Sciences and the National Academy of Engineering, the National Research Council is administered jointly by the two academies and the Institute of Medicine.

The National Research Council has six major program units. One of these is the Transportation Research Board, which was organized in 1920 and is charged with promoting innovation and progress in transportation through research.

DEAR SUPPORTER OF TRB

For many transportation agencies throughout the United States, 2004 has been a year of uncertainty. Agencies have not known what federal transportation programs will be in effect in 3 months, much less in 3 years. The reason for the uncertainty is that Congress has been unable to complete a comprehensive reauthorization bill for the federal surface transportation programs that expired at the end of September 2003. Federal transportation funding has continued intermittently, as Congress has passed, and the President has signed, a series of short-term extensions of programs authorized in 1998.

Research programs are no exception. Pending issues in reauthorization include discretionary research budgets at the U.S. Department of Transportation (DOT), federal support for state highway research programs, and the future of congressionally designated research programs. In addition, proposals for new research programs are awaiting decisions. Reauthorization could have profound effects on the direction and scale of federal transportation research, which in turn could have significant impacts on TRB.

In the meantime, TRB activities have continued almost without interruption during the past year. For this, we are grateful to our sponsors, who have supported TRB despite the uncertainties. As a result, this was a year of substantial accomplishment, as the following



highlights—and the detailed sections of this annual report—attest.

Executive Director Robert Skinner, Jr. (*left*), and Michael Townes, 2004 Executive Committee Chair.

ANNUAL MEETING AND CONFERENCES

The 2004 Annual Meeting attracted more than 9,300 participants, a new record with a slight gain on the 2003 totals. The meeting included more than 500 sessions, 350 committee meetings, and 150 meetings of affiliated organizations. The spotlight themes were infrastructure renewal, security, and long-term transportation funding.

Among the meeting highlights were the Chairman's Luncheon, at which David Billington, Gordon Y. S. Wu Professor of Engineering and Operations Research and Director of the

David Billington, featured speaker at the 2004 Annual Meeting Chairman's Luncheon, meets with Cardozo Senior High School students enrolled in the Transportation and Technology Academy, which promotes transportation-related careers and higher education.



Program on Architecture and Engineering at Princeton University, presented an informative and entertaining look at bridges around the world; a special session on the future role of the federal government in the various modes and in transportation in general, at which Jeffrey Shane, U.S. DOT Under Secretary for Policy, moderated presentations by the administrators of the department's component agencies; and the Thomas B. Deen Distinguished Lecture, delivered by Richard O. Jones, retired Regional Counsel for the Federal Highway Administration (FHWA).

During the course of the year, TRB sponsored 28 specialty conferences, cosponsored 17 others, and conducted more than 60 workshops. Major TRB-sponsored conferences addressed emerging issues such as performance measurement, access management, safety-conscious planning, women's issues in transportation research, sustainability, and bus rapid transit.

RESEARCH MANAGEMENT

In 2004, the National Cooperative Highway Research Program (NCHRP) and the Transit

Cooperative Research Program (TCRP) operated at virtually the same funding levels as in 2003—\$35.4 million and \$8.2 million, respectively.

Nearly 70 NCHRP research reports were published during the year, including 7 volumes of a planned 22-volume series on best practices in highway safety. The safety reports describe strategies for reducing collisions of various types—for example, those that involve heavy trucks, pedestrians, or older drivers—and for addressing such factors as intersection design, utility pole location, aggressive driving, and seatbelt use.

TCRP published 29 research reports on public transportation topics. These included a comprehensive assessment of transit-oriented land development in the United States and the first compilation of statutes, regulations, and case law relating to transit law.

Last year, a congressionally mandated TRB study recommended the creation of an airport cooperative research program modeled after NCHRP and TCRP. Congress authorized the program in the Vision 100—Century of Aviation Reauthorization Act, passed at the end of 2003. The Act was too late, however, for a 2004 appropriation, but the Federal Aviation Administration (FAA) provided funds for start-up planning with representatives of the Airports Council International.

Additional proposals for research, potentially involving management by TRB, were included in either the House or Senate reauthorization bills passed in 2003—for example, an environment and planning cooperative research program, a freight cooperative research program, and the Future Strategic Highway Research Program (F-SHRP). The authorizing language for the environment and planning program and for F-SHRP closely follows the recommendations in TRB Special Reports 268 and 260, respectively. NCHRP and FHWA jointly supported the preparation of detailed work plans for F-SHRP, and during the past year, work continued on institutional and administrative issues related to the start-up.

ADVICE TO POLICY MAKERS

TRB published policy study reports this year on the marine transportation system and the fed-

A well-attended session on bus rapid transit was among the 500 sessions, 55 specialty workshops, 350 committee meetings, exhibits, and meet-the-author poster sessions at the 2004 Annual Meeting.





Steven Ernst of FHWA and Structures Section Chair Mary Lou Ralls participated in a panel discussion on recommendations for bridge and tunnel security at the 2004 Annual Meeting, which spotlighted transportation security in many sessions.

eral role, the federal program for developing and deploying intelligent transportation systems standards, and state and local land use measures to enhance safety near transmission pipelines. A special TRB committee completed review of travel forecasting models for the Metropolitan Washington Council of Governments, while other committees neared completion of studies on the relationship between physical activity, public health, transportation, and land use and on the feasibility of a cooperative research program for hazardous materials transportation. Studies were initiated on transportation information management, the fuel economy and safety of low rolling-resistance tires, and the introduction of nonindigenous species into the Great Lakes via the St. Lawrence Seaway.

TRB also is collaborating with other National Research Council (NRC) units on studies on transporting nuclear waste to Nevada's Yucca Mountain, transportation and ecological improvements to the Upper Mississippi-Illinois Waterway, and security vulnerabilities of the nation's chemical industry infrastructure.

INTERNATIONAL ACTIVITIES

In June 2004, the TRB Task Force on International Activities delivered final recommendations to the TRB Executive Committee. In response, the TRB Executive Committee established the post of International Secretary and appointed Michael D. Meyer of the Georgia Institute of Technology to fill the duties. The

International Secretary will work closely with the TRB standing Committee on International Activities to carry out several task force recommendations, such as encouraging international participation at the TRB Annual Meeting, facilitating international participation in other TRB activities, increasing Board involvement in research-related activities outside the United States, and strengthening the international transportation research community.

These outreach activities build on an already strong international portfolio. The 2004 Annual Meeting included 16 sessions dedicated to international issues and attracted more than 900 people from outside the United States; TRB sponsored or cosponsored 11 international conferences in 2004; and through the cooperative research programs, the Board has been sponsoring overseas scanning tours for highway and transit officials to see firsthand the innovative transportation operations and practices in other countries.

TRANSPORTATION SECURITY

As a continuing priority for U.S. transportation agencies, security is reflected in research and in the activities of the Board. During the past year, our cooperative research programs completed projects on security-related topics such as customer communications and training, development of a field personnel manual for responding to threats, the establishment of centers for information-sharing and analysis, and the applicability of portable explosives-detection devices in transit environments.

To foster and increase coordination and collaboration on security research, TRB organized a workshop in June, convening representatives from 25 TRB technical activities committees, the U.S. Department of Transportation, the Transportation Security Administration of the U.S. Department of Homeland Security, and other interested partners.

REORGANIZATION OF TECHNICAL ACTIVITIES COMMITTEES

The revised organizational structure of the Technical Activities Division standing committees took effect in January 2004. We believe that the combined functional and modal struc-



Joseph Boardman, 2004 Executive Committee Vice Chair, participates in 2004 business meeting.



Michael Meyer was named the Executive Committee's first International Secretary.



A delegation of transportation professors from Lanzhou Jiaotong University in China visited TRB in December 2003 during a nationwide tour of academic, governmental, and private-sector institutions to gather information on managing transportation research and practice.

ture will increase the synergy among the groups, so that TRB standing committees are better able to address the variety of specific and crosscutting transportation research issues. Kudos to Anne Canby, Chair of the Technical Activities Council; Mark Norman, Director of the Technical Activities Division; and the members of the Technical Activities Council for taking on this challenge and guiding the implementation.

NATIONAL ACADEMIES UPDATES

By the time we write next year's letter to TRB supporters, the National Academy of Sciences



The Marian Koshland Science Museum, which opened in April 2004 at the National Academies' Keck Center, Washington, D.C., contains a major exhibit on global warming.

(NAS) will have a new president. Bruce Alberts, the current NAS President and NRC Chair, will complete his second term on June 30, 2005, after 12 years in office. The nomination process for his successor began in 2004, with election in early 2005.

In April the Marian Koshland Science Museum opened at the National Academies' Keck Center. Endowed by NAS member Daniel Koshland in memory of his wife, also an NAS member, the museum promotes the relevance of science to everyday life. One of the major exhibits addresses global warming, a topic of particular interest to the transportation community.

STAFF NEWS

Nancy A. Ackerman, TRB's longtime publications director, retired this year. In her career at TRB, Nancy introduced significant upgrades in the quality and appearance of our publications. Her successor is Javy Awan, who has been with TRB for 5 years and previously was assistant director of publications and managing editor.

Michael S. Townes
Chair, Executive Committee

Robert E. Skinner, Jr.
Executive Director

TRANSPORTATION RESEARCH BOARD 2004 EXECUTIVE COMMITTEE*



Townes



Behrens



Campbell



Carlson



Craig



Boardman



Duncan



Giuliano



Groseclose



Hanson



Skinner



Hertwig



Jeff



Kanafani



Kirby



Levinson



McNeil



Meyer



Murray

Chair: **Michael S. Townes**, President and CEO, Hampton Roads Transit, Virginia
Vice Chair: **Joseph H. Boardman**, Commissioner, New York State Department of Transportation, Albany
Executive Director: **Robert E. Skinner, Jr.**, Transportation Research Board

Michael W. Behrens, Executive Director, Texas Department of Transportation, Austin

Sarah C. Campbell, President, TransManagement, Inc., Bethesda, Maryland

E. Dean Carlson, Director, Carlson Associates, Topeka, Kansas (Past Chair, 2002)

John L. Craig, Director, Nebraska Department of Roads, Lincoln

Douglas G. Duncan, President and CEO, FedEx Freight, Memphis, Tennessee

Genevieve Giuliano, Director, Metrans Transportation Center, and Professor, School of Policy, Planning, and Development, University of Southern California, Los Angeles (Past Chair, 2003)

Bernard S. Groseclose, Jr., President and CEO, South Carolina State Ports Authority, Charleston

Susan Hanson, Landry University Professor of Geography, Graduate School of Geography, Clark University, Worcester, Massachusetts

James R. Hertwig, President, CSX Intermodal, Jacksonville, Florida

Gloria J. Jeff, Director, Michigan Department of Transportation, Lansing

Adib K. Kanafani, Cahill Professor of Civil Engineering, University of California, Berkeley

Ronald F. Kirby, Director, Transportation Planning, Metropolitan Washington Council of Governments, Washington, D.C.

Herbert S. Levinson, Principal, Herbert S. Levinson Transportation Consultant, New Haven, Connecticut

Sue McNeil, Director, Urban Transportation Center, and Professor, College of Urban Planning and Public Affairs and Department of Civil and Materials Engineering, University of Illinois, Chicago

Michael D. Meyer, Professor, School of Civil and Environmental Engineering, Georgia Institute of Technology, Atlanta

Carol A. Murray, Commissioner, New Hampshire Department of Transportation, Concord

* Membership as of December 2004.



Njord



Plavin



Rebensdorf



Shucet



Walton



Watson



Blakey



Bonasso



Brewster



Bugliarello



Collins



Dorn



Hamberger



Horsley



Kowalewski



Millar



Monro



Peters



Rudzinski



Runge



Sandberg



Schubert



Shane



Strock



Venezia

John E. Njord, Executive Director, Utah Department of Transportation, Salt Lake City

David Plavin, President, Airports Council International, Washington, D.C.

John H. Rebensdorf, Vice President, Network Planning and Operations, Union Pacific Railroad Company, Omaha, Nebraska

Philip A. Shucet, Commissioner, Virginia Department of Transportation, Richmond

C. Michael Walton, Ernest H. Cockrell Centennial Chair in Engineering, University of Texas, Austin

Linda S. Watson, Executive Director, LYNX—Central Florida Regional Transportation Authority, Orlando

Marion C. Blakey, Administrator, Federal Aviation Administration, U.S. Department of Transportation (ex officio)

Samuel G. Bonasso, Acting Administrator, Research and Special Programs Administration, U.S. Department of Transportation (ex officio)

Rebecca M. Brewster, President and COO, American Transportation Research Institute, Smyrna, Georgia (ex officio)

George Bugliarello, Chancellor, Polytechnic University, Brooklyn, New York; Foreign Secretary, National Academy of Engineering, Washington, D.C. (ex officio)

Thomas H. Collins (Adm., U.S. Coast Guard), Commandant, U.S. Coast Guard, Washington, D.C. (ex officio)

Jennifer L. Dorn, Administrator, Federal Transit Administration, U.S. Department of Transportation (ex officio)

Edward R. Hamberger, President and CEO, Association of American Railroads, Washington, D.C. (ex officio)

John C. Horsley, Executive Director, American Association of State Highway and Transportation Officials, Washington, D.C. (ex officio)

Rick Kowalewski, Deputy Director, Bureau of Transportation Statistics, U.S. Department of Transportation (ex officio)

William W. Millar, President, American Public Transportation Association, Washington, D.C. (ex officio) (Past Chair, 1992)

Betty Monro, Acting Administrator, Federal Railroad Administration, U.S. Department of Transportation (ex officio)

Mary E. Peters, Administrator, Federal Highway Administration, U.S. Department of Transportation (ex officio)

Suzanne Rudzinski, Director, Transportation and Regional Programs, U.S. Environmental Protection Agency (ex officio)

Jeffrey W. Runge, Administrator, National Highway Traffic Safety Administration, U.S. Department of Transportation (ex officio)

Annette M. Sandberg, Administrator, Federal Motor Carrier Safety Administration, U.S. Department of Transportation (ex officio)

William G. Schubert, Administrator, Maritime Administration, U.S. Department of Transportation (ex officio)

Jeffrey N. Shane, Under Secretary for Policy, U.S. Department of Transportation (ex officio)

Carl A. Strock (Maj. Gen., U.S. Army), Chief of Engineers and Commanding General, U.S. Army Corps of Engineers, Washington, D.C. (ex officio)

Robert A. Venezia, Program Manager, Public Health Applications, Office of Earth Science, National Aeronautics and Space Administration (ex officio)

EXECUTIVE OFFICE

The TRB Executive Office provides policy and operational guidance for programs and activities; oversees committee and panel appointments and report review; provides personnel support for TRB staff; develops and directs the Board's communications and outreach efforts; provides staff support to the Executive Committee and its Subcommittee for National Research Council (NRC) Oversight; and maintains liaison with the executive offices of the National Academies, the Board's parent institution. The Executive Office also manages the editing, production, design, and publication of many TRB reports, including its journal series, magazine, and other titles.

OVERSIGHT ACTIVITIES

The Executive Office supports the work of the TRB Executive Committee, which provides policy direction to TRB programs and activities within the overall policies of the National Academies. Oversight of committee and panel appointments and of report review is the responsibility of the Executive Committee's Subcommittee for NRC Oversight, which ensures that TRB meets institutional standards and that its activities are appropriate for the National Academies. As part of its oversight function, the subcommittee monitors the Board's progress in expanding the representa-

tion of minorities and women on TRB committees and panels. C. Michael Walton, TRB Division Chair for NRC Oversight, heads this subcommittee and represents TRB as an ex officio member on the NRC Governing Board.

The Executive Office processes the Board's large volume of committee and panel appointments and maintains committee membership records. A hallmark of the National Academies is its institutional process to ensure the independent, rigorous review of reports. In maintaining these high standards, TRB carefully matches the review criteria and procedures to the type of report.

PUBLICATIONS

To fulfill one of its oldest missions, TRB disseminates transportation research results and

Subcommittee for National Research Council (NRC) Oversight: Robert Skinner, Jr., C. Michael Walton, Joseph Boardman, Genevieve Giuliano, Michael Townes, Suzanne Schneider, and John Craig. (Not pictured: Susan Hanson.)





C. Michael Walton
 Chair
 Subcommittee for
 NRC Oversight



Robert E. Skinner, Jr.
 Executive Director



Suzanne B. Schneider
 Associate Executive
 Director

technology information through an extensive array of timely publications. The Board has gained national and international prominence for its books and reports assessing the state of the art or practice in specific areas of transportation, presenting the results of transportation research, addressing major national transportation policy issues, and identifying research needs. TRB continues to expand its publishing effort by releasing a growing number of titles electronically, some exclusively in electronic format.

TRB books and reports cover 16 broad categories and topics, spanning the range of transportation functions and modes. The TRB Publications Office produces titles in the following series:

- *Transportation Research Record: Journal of the Transportation Research Board* gathers technical papers, originally presented at TRB Annual Meetings and other conferences, that have been accepted for publication through peer review. Each year, the Board publishes approximately 40 volumes of the journal, containing nearly 700 papers grouped by subject. Papers presented at the Annual Meeting and approved for publication are issued within 7 to 12 months. A

CD-ROM collects the entire year's Records, adding a 5-year index of authors, titles, and subjects.

- The bimonthly magazine *TR News* features timely articles on innovative and state-of-the-art research and practice in all modes of transportation. News items of interest to the transportation community, profiles of transportation professionals, book and journal summaries, meeting announcements, and highlights of TRB activities also are included. Selected features of *TR News* are posted on the TRB website, and the full issue is made accessible on the web on a four-month delay.¹
- *Special Reports* contain the results of TRB policy studies on issues of national importance in transportation. These studies, many conducted at the request of federal agencies or of Congress, focus on a variety of complex, often controversial, topics. All current and selected out-of-print special reports are posted on the Board's website.²
- *Conference Proceedings* assemble formal papers, presentations, and summaries of

¹ http://www4.trb.org/trb/onlinepubs.nsf/web/tr_news

² http://www4.trb.org/trb/onlinepubs.nsf/web/trb_special_reports



The TRB Publications Office produces titles in 16 broad categories, spanning the range of transportation functions and modes.

discussions from TRB conferences and workshops.³

- *Transportation Research Circulars* collect research problem statements, reports, and technical information from the work of TRB technical activities committees. Circulars are posted on the TRB website.⁴
- *Miscellaneous Reports* include special publications like the *Highway Capacity Manual 2000* and the *Access Management Manual*.

In addition, the Cooperative Research Programs Division produces an array of titles in several publications series (for a list of all TRB publications, see pages 51–54).

COMMUNICATIONS

TRB is committed to improving the communication and public awareness of transportation issues and to enhancing the dissemination of research findings worldwide. Under the direction of the Board’s Senior Communications Officer, TRB has been developing and implementing a variety of initiatives intended to improve communications and outreach.

One of the Board’s most successful communications initiatives is the weekly *Transportation Research E-Newsletter*,⁵ which reports on transportation research and research-related events within TRB and beyond. Circulation of the free newsletter is currently more than 15,000 and growing. About one-fifth of the readership is from countries outside the United States.

Other communications activities include enhancements to the Board’s website; outreach to local government groups, other organizations, and individuals beyond traditional TRB constituencies; and targeting new audiences for specific reports and activities. In one of these

efforts, TRB and the National Conference of State Legislatures have developed a series of informal initiatives to increase the ease and speed with which state lawmakers and their staffs can find transportation-related research information.

STAFF NEWS

- **Phyllis Barber**, Publishing Administrator, received an Individual Distinguished Service Award from the National Academies in October, and **Jewelene Richardson**, Appointments and Personnel Officer, shared in a Group Distinguished Service Award as a member of the National Academies’ Compensation Redesign Team.
- In the Executive Office, **Pliney Davies** was promoted to Report Review Associate and **Robert Summersgill** was promoted to Committee Appointments Associate.
- **Javy Awan**, formerly Assistant Director of Publications and Managing Editor, was appointed Director of Publications in January, succeeding **Nancy A. Ackerman**, who retired after 24 years of service to TRB. Joining the Publications Office staff were **Ann E. Petty**, Managing Editor; **Joseph E. Gawel**, Associate Editor; and **David Altstadt**, Assistant Editor.



Lester Hoel, University of Virginia, retired from the Subcommittee for NRC Oversight after an unprecedented 9 years as chair.



Robert Skinner, Jr., and Suzanne Schneider at a March reception honoring Publications Director Nancy Ackerman (*center*), who retired after 24 years of service.

³ <http://www4.trb.org/trb/onlinepubs.nsf/web/conferences>

⁴ <http://www4.trb.org/trb/onlinepubs.nsf/web/circular?OpenDocument>

⁵ <http://gulliver.trb.org/news/>. To subscribe, send an e-mail to RHouston@nas.edu with “Subscribe TRB E-Newsletter” in the subject field.



TECHNICAL ACTIVITIES

The TRB Technical Activities Division provides a forum for transportation professionals to identify research needs and to share information on research and issues of interest. The Division's staff of specialists in each mode and discipline work with a network of volunteers to carry out activities on behalf of TRB sponsors and the transportation community. This network includes members and friends of more than 200 standing committees, supplemented by TRB representatives in each state, in more than 150 universities, and in 35 transit agencies.

During 2004, these activities included

- Applying the new organizational structure of TRB standing committees to address more effectively the strategic and crosscutting issues facing the transportation community;
- Conducting the TRB 83rd Annual Meeting, which attracted a record 9,300 transportation professionals and students from around the world, January 11–15, 2004;
- Sponsoring 28 specialty conferences, cosponsoring 17 others, and conducting more than 60 workshops on topics of interest;
- Peer-reviewing more than 2,500 papers and publishing 691 papers in 39 volumes of the 2004 series of the *Transportation Research Record: Journal of the Transportation Research Board*, as well as conference proceedings and web circulars (see pages 51–52 for a complete list of titles published in 2004);
- Visiting every state department of transportation (DOT), as well as selected universities, transit and other modal agencies, and industry organizations, to determine the issues they are facing and how TRB can help in addressing the issues;
- Initiating strategic reviews to ensure that TRB will continue to meet the growing and diverse needs of its customers, including space and venues for the Annual Meeting, the peer review process, the *Transportation Research Record* series, and TRB-sponsored conferences; and
- Taking steps to increase participation by young people, minorities, and women in TRB committees and activities.

CROSSCUTTING ISSUES

The Technical Activities Council identified strategic and crosscutting issues for the restructured committees to address, including the following:

- Future capacity—or congestion—of the transportation system;
- Integrating modes and institutions into a more seamless transportation system;
- Matching transportation systems to communities, with attention to such considerations as context sensitivity, land use and sprawl, demographics, environmental justice, and economic impacts;
- The shortage of transportation personnel—experiences, the outlook, the implications, and remedial actions;
- The art and science of making transportation investment decisions;
- Transportation energy options for the long term;
- Balancing environmental and transportation goals;
- Moving the goods—giving due attention to freight;
- Meeting transportation’s long-term funding needs;
- Safety options that could make a difference;
- Security directions; and
- Renewing the aging transportation infrastructure.

Many sessions, meetings, and reports have addressed these issues. Security is a prime example. TRB conducted the Transportation Security Research Workshop: Expanding Opportunities for Collaboration and Coordination, in Washington, D.C., June 14–15. The workshop followed up on themes and topics raised at the TRB Executive Committee’s June 2003 policy discussion on transportation security.

Participants included representatives from 25 TRB technical activities committees, U.S. DOT, the U.S. Department of Homeland Security’s Transportation Security Administration (DHS–TSA), and other interested partners. Lillian Borrone, past Chair of the TRB Executive Committee and retired Assistant Executive Director of the Port Authority of New York and New Jersey, served as program moderator.



Anne P. Canby
Council Chair
Technical Activities



Katherine F. Turnbull
Chair
Policy and Organization
Group



Neil J. Pedersen
Chair
Planning and
Environment Group



Gale C. Page
Chair
Design and
Construction Group



Jonathan Upchurch
Chair
Operations and
Maintenance Group



Brelend C. Gowan
Chair
Legal Resources
Group



Barry M. Sweedler
Chair
System Users Group



Patricia V. McLaughlin
Chair
Public Transportation
Group



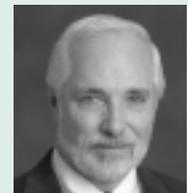
Christopher P. L. Barkan
Chair
Rail Group



Christina S. Casgar
Chair
Freight Systems Group



Agam N. Sinha
Chair
Aviation Group



Larry L. Daggett
Chair
Marine Group



Robert C. Johns
Chair
Management and
Leadership Section



Mark R. Norman
Director
Technical Activities



Jeffrey Shane (*center*), Under Secretary of Transportation for Policy, leads administrators of the U.S. Department of Transportation in a panel discussion on the future role of the federal government in technology, transportation infrastructure renewal, financing, intermodal connectivity, freight movement, increasing productivity, aviation management, water transport, energy, and environmental programs, during the 2004 Annual Meeting.

Workshop participants identified several ways to increase coordination and collaboration on transportation security research:

- Adopt a systems approach to developing and carrying out a transportation security research agenda;
- Develop and maintain a communications portfolio on transportation security research through TRB;
- Improve understanding among developers and users of products and solutions;
- Facilitate coordination and collaboration among U.S. DOT, DHS–TSA, TRB, and other partners in transportation security research; and
- Strengthen international links in transportation security research.

A password-protected summary of the workshop discussions is posted on the TRB website.¹ In addition, TRB has published an electronic circular, *Transportation Security Education and Training*, which summarizes presentations from an Annual Meeting session. The summaries emphasize the pivotal security roles of transportation professionals in protecting against and reacting to breaches of security.²

POLICY AND ORGANIZATION

Two sets of proceedings and recommendations from conferences proposed by technical

¹ For access to the document, send an e-mail to JCambridge@nas.edu.

² Circular E-C065, <http://gulliver.trb.org/publications/circulars/ec065.pdf>

activities committees entered the publications process at the end of 2004: the Third National Transportation Finance Conference and the International Symposium on Road Pricing. The conclusions and recommendations from these conferences will be published and posted on the TRB website.

A conference on Integrating Sustainability into the Transportation Policy Process was held in Baltimore, Maryland, July 11–13, 2004. Information generated in the interactive sessions provided key input to the conference committee in developing recommendations for research necessary to integrate sustainable principles into transportation decision making. The committee report and proceedings will be available in 2005.

Two committees convened for separate midyear meetings. The Committee on Native American Transportation Issues met June 23–25 in Coeur d’Alene, Idaho. The Management and Productivity Committee gathered in Woods Hole, Massachusetts, July 18–20, and hosted a miniconference, *Organizational Effectiveness: Maintaining Higher Productivity in a Changing Environment*. Information from the sessions proved valuable in the committee’s strategic planning. Also in the Policy and Organization Group, the Transportation Asset Management Task Force was converted to a standing committee.

The new Research and Education Section, cochaired by Wes Lum and Bill Carr, held its first conference at the Beckman Center in Irvine, California, August 25–27, with customer service as the theme. The section includes the following committees: Conduct of Research, Transportation Education and Training, Technology Transfer, Library and Information Science for Transportation, and Transportation History.

The Transportation History Committee held an additional meeting, August 31, near Dulles International Airport outside of Washington, D.C. Members and guests enjoyed a special tour of the Smithsonian Air and Space Museum’s new facility adjacent to the airport.

Data and Information Systems

The new Data and Information Systems Section consolidates most of the committees con-

cerned with data systems. The committees identified the following critical, crosscutting issues: data stewardship, security for protecting data systems resources, and the use of data systems to augment security planning and response.

Several conferences and workshops focused on transportation data. The International Trade Data for Transportation Workshop, May 3, sponsored by the Bureau of Transportation Statistics, examined international trade data available for transportation users and defined transportation needs from evolving trade data systems.

The North American Travel Monitoring Exposition and Conference, June 27–30, brought approximately 450 people to San Diego, California, to advance the state of the practice of travel monitoring. The conference also served as a forum for improving the interaction between system operators, data collection program managers, and the staff that collect, process, and use the data.

The National Household Travel Survey conference, Understanding Our Nation's Travel, November 1–2, provided a forum for users of the data set to learn about and discuss methodological issues, analysis and estimation applications, and findings related to transportation policy, planning, and modeling. The conference was held approximately 1 year after the release of the final data for 2001 and coincided with the planning of the future U.S. DOT surveys of household travel behavior.

Several publications were released in 2004. An electronic circular summarized the November 2003 workshop, *Reauthorization: A Meeting on Data-Related Provisions*.³ The workshop identified and refined the data issues associated with the legislative proposals for reauthorizing surface transportation programs.

The first title in TRB's new Conference Proceedings on the Web series was *Environmental Spatial Information for Transportation: A Peer Exchange on Partnerships*.⁴ The electronic publication presents the lessons learned by early adopters of innovative practices for sharing environmental data. In addition to a summary



The Workshop on Transportation Security Research in June focused on key initiatives for increasing coordination and collaboration among research projects.

of state team presentations and discussions about the development of environmental databases, the report includes a list of follow-on activities, as well as responses to questions about important dimensions of data sharing.

Conference Proceedings 31, *Geospatial Infrastructure for Transportation Organizations: Toward a Foundation for Improved Decision Making*,⁵ presents a series of findings to strengthen the use of these technologies by the transportation community.

PLANNING AND ENVIRONMENT

Transportation System Planning

The Task Force on Transportation Needs for National Parks and Public Lands met at Glacier National Park in Montana, July 21–22. The midyear meeting discussed research under way by the many organizations represented. Participants also heard presentations on a range of topics, including

- The Transportation Scholars and Transportation Interpreter programs,
- The Glacier National Park transportation and visitor experience,
- Transportation issues in Yellowstone National Park, and
- Partnership challenges with gateway and tribal communities.

The task force assembled the July–August theme issue of *TR News* on Transportation

³ Circular E-C064, <http://gulliver.trb.org/publications/circulars/ec064.pdf>

⁴ Conference Proceedings on the Web 1, www.TRB.org/publications/conf/reports/cpw_1.pdf

⁵ Conference Proceedings 31, www.TRB.org/publications/conf/CP31spatialinfo.pdf

The Task Force on Transportation Needs for National Parks and Public Lands considered innovations in shuttle and tour bus services at Glacier and Yellowstone, during its midyear meeting, July 21–22.



Innovations in the Parks: Serving Visitors, Preserving Sites.⁶

The 2nd National Conference on Performance Measures to Improve Transportation Systems was held August 22–24 in Irvine, California, with a focus on the state of the practice for transportation systems. The first session explored internal and external organizational approaches and issues in applying performance measurement to decision making. Subsequent sessions examined

- The link between developing and tracking the delivery of a performance-based program;
- Tools, techniques, data, and technologies for targeting and tracking system performance measures; and
- The common ground for performance measurement in difficult areas, such as quality of life, environment, land use, freight, and congestion.

The Access Management Committee held the 6th National Access Management Conference, August 29–September 1, in Kansas City, Missouri. Topics included access management planning at the state, regional, and urban levels; dispute resolution; valuation of access; and corridor management.

The Transportation Planning for Small and Medium-Sized Communities Committee sponsored the 9th National Conference on Transportation Planning for Small and Medium-Sized Communities: Tools of the Trade, in Colorado Springs, Colorado, September 22–24. The conference provided a forum for the exchange of useful information, practical techniques, and

low-cost methodologies tailored to the needs of small and medium-sized communities.

Four peer exchanges convened in 2004, bringing together practitioners from around the country to discuss emerging topics. The Federal Highway Administration (FHWA) provided support for the peer exchanges through the Professional Capacity Improvement Program for Planning. The discussions reviewed techniques developed by state DOTs, transit operators, metropolitan planning organizations, and local agencies. Summary reports of the peer exchanges will be posted as electronic circulars on the TRB website. This year peer exchanges covered the following topics:

- Performance measures,
- Safety in planning and cost estimating,
- Asset management, and
- Statewide travel demand forecasting.

Social, Economic, and Environmental Concerns

The Waste Management in Transportation Committee, which focuses on environmental management, sustainability, pollution prevention, the reuse of recycled materials, and the assessment of contaminated property, held a midyear meeting and workshop in New York City, June 6–9. The Metropolitan Transit Authority–New York City Transit hosted the 2½-day workshop, Environmental Management and the Greening of Transportation, which showcased the benefits of implementing environmental management systems, as well as sustainable initiatives for improving an organization's environmental performance. Presentations covered

- Management systems to improve environmental performance;
- Green building designs;
- Recycled material research, products, and procurement; and
- Waste minimization and management.

The Transportation-Related Noise and Vibration Committee met for the first time in conjunction with the Institute of Noise Control Engineering, during Noise-Con 2004 in Baltimore, Maryland, July 11–14. A special 1-day

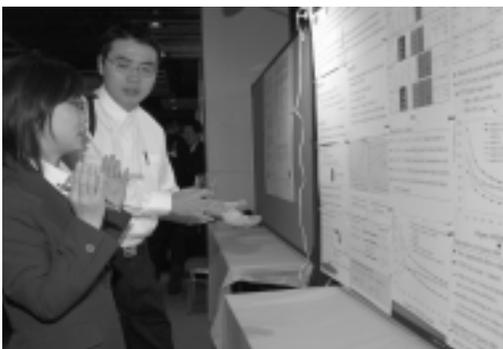
⁶ TR News 233, <http://gulliver.trb.org/publications/trnews/trnews233.pdf>

seminar before the conference was targeted at junior and midlevel professionals interested in gaining a basic understanding of practices and issues in controlling transportation noise.

The Historic and Archeological Preservation in Transportation Committee held a summer meeting and conference in Providence, Rhode Island, August 8–11. The conference, *Fitting Transportation to Our Heritage Landscape: Advancing the Practice of Context-Sensitive Solutions*, was cosponsored by the Landscape and Environmental Design Committee. Sessions included reports on landscaping, historic preservation, and archeological projects from across the country.

The Environmental Analysis in Transportation Committee held its annual midyear meeting jointly with the new Ecology and Transportation Task Force and the Environmental Issues Related to Guided Intercity Passenger Transportation Subcommittee. The conference, *Collaboration: Improving Mobility and the Environment*, was held in San Diego, California, August 16–19.

The Research on Women's Issues in Transportation Conference, November 18–20 in Chicago, reviewed the state of the art in various topics related to women's travel patterns, needs, and behavior. The conference was designed to identify additional research and data to inform public and private policies that directly or indirectly address women's mobility, security, and safety. The conference focused on data-driven comparative analyses of men and women's travel patterns and safety or security risks; different subgroups of women; and women internationally.



Meilan Jiang (*left*), Nagoya University, Japan, discusses her paper with Chao Yang, Utah State University, during the Planning Mega Poster Session at the 2004 Annual Meeting.



Cliff Winston (*center*), Brookings Institution, presents research on how government highway spending affects road users' congestion costs, during the Joint Summer Meeting of the Planning, Economics, Environmental, Finance, Freight, and Management Committees, July 25–27 in Park City, Utah.

DESIGN AND CONSTRUCTION

Design

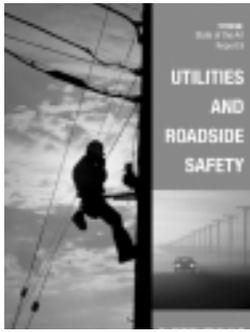
Two special committee publications were released in 2004. The Geometric Design Committee's electronic circular, *Context-Sensitive Design Around the Country: Some Examples*, was posted on the TRB website in July.⁷ The Utilities Committee successfully completed a long-term project with the publication of State-of-the-Art Report 9, *Utilities and Roadside Safety*.⁸

The Geometric Design Committee held a joint summer meeting and research needs workshop in Williamsburg, Virginia, in July with the TRB Operational Effects of Geometrics Committee and the American Association of State Highway and Transportation Officials (AASHTO) Technical Committee on Geometric Design. The workshop developed 22 preliminary statements of research needs.

The Full-Scale and Accelerated Pavement Testing Committee contributed to the planning of the 2nd International Conference on Accelerated Pavement Testing, held in Minneapolis, Minnesota, September 26–29. The Dynamics and Field Testing of Bridges Committee and the Nondestructive Evaluation of Structures Subcommittee were active in the planning of the conference, *Structural Materials Technology: Nondestructive Evaluation–Nondestructive Testing for Highways and Bridges 2004*, in Buffalo, New York, September 14–17.

⁷ Circular E-C067, www.TRB.org/publications/circulars/ec067.pdf

⁸ State-of-the-Art Report 9, www.TRB.org/publications/sar/sar_9.pdf



The Utilities Committee completed a long-term project with the publication of State-of-the-Art Report 9, *Utilities and Roadside Safety*.

The Pavement Management Systems Committee participated in the planning of the 6th International Conference on Managing Pavements, in Brisbane, Queensland, Australia, October 19–24. The Structures Section also was active in planning and developing the 6th International Bridge Engineering Conference, to be held in Boston, Massachusetts, July 17–20, 2005.

Construction and Materials

Before the 2004 Annual Meeting, the standing committees of the Design and Construction Group continued a 7-year practice of posting on the TRB website a catalog of papers of interest to practitioners. The catalog was linked to the interactive Annual Meeting program, so that participants could locate quickly the technical session in which the paper would be presented.

The construction and materials committees sponsored four Sunday workshops at the 2004 Annual Meeting. A workshop sponsored by the General Issues in Asphalt Technology Committee examined the value of the performance warranty process for asphalt pavements.

Supplemental cementitious materials were the topic of a workshop sponsored by the Basic Research and Emerging Technologies Related to Concrete Committee. The state-of-the-practice and emerging issues in design–build were covered in a workshop by the Design–Build Task Force, in conjunction with the Construction Management and Construction of Bridges and Structures Committees. The techniques



The Accelerating Innovation in the Highway Industry Task Force developed a multidisciplinary approach—the Accelerated Construction Technology Transfer team concept—to explore issues associated with accelerating the construction process, such as the application of long-life pavements.

and practices of heat-straightened repair of damaged steel bridges were the subjects of a workshop sponsored by the Fabrication and Inspection of Metal Structures Committee.

The Accelerating Innovation in the Highway Industry Task Force focused on two major barriers to innovation. The first is the so-called “standpipe” organizational culture, which impedes the adoption of innovations that affect several disciplines or several units within a large organization. The task force already has demonstrated through trial projects that this barrier can be mitigated when management applies new and creative approaches through the accelerating construction technology transfer (ACTT) team concept.

A summary of the workshops exploring the ACTT concept was published as an electronic circular.⁹ FHWA and AASHTO have adopted the ACTT approach and are conducting workshops for state transportation agencies.

A second major barrier to the advancement and adoption of emerging technology is the lack of executive knowledge and understanding within large organizations. To address this impediment, the task force sponsored a workshop, *Controlling Project Cost Estimates: Managing the Risks*, on February 24.

An electronic circular, *New Simple Performance Tests for Asphalt Mixes*, sponsored by the General Issues in Asphalt Technology Committee, is available on the TRB website.¹⁰ The document contains authored papers that identify and describe performance tests not included in research projects sponsored by the National Cooperative Highway Research Program (NCHRP).

Soils, Geology, and Foundations

FHWA published the presentations from the TRB 2003 Annual Meeting workshop on Innovative Technology for Accelerated Construction of Bridge and Embankment Foundations, on a CD-ROM.¹¹ The workshop presenters were par-

⁹ Circular E-C059, www.trb.org/publications/circulars/ec059.pdf

¹⁰ Circular E-C068, <http://gulliver.trb.org/publications/circulars/ec068.pdf>

¹¹ CD-ROM is available from Chris Dumas, FHWA, chris.dumas@fhwa.dot.gov.



Doctoral Student Research in Transportation Geotechnics Workshop at the 2004 Annual Meeting provided geotechnical PhD students the opportunity to showcase their research.

ticipants in the 2002 AASHTO–FHWA European scan trip.

The committees in geotechnical engineering sponsored four workshops at the 2004 Annual Meeting:

- Deep Mixing Technology for Embankment Support,
- Doctoral Student Research in Transportation Geotechnics,
- Practices and Experience in Blending Aggregate Materials to Meet Mechanical and Physical Requirements, and
- Stabilization of Sulfate-Bearing Soils: Experiences, Problems, and Solutions.

The National Deep Mixing Research Program, sponsored by 10 states, FHWA, and the private sector, coordinated the deep mixing workshop, which covered the latest developments in the technology for highway and railway embankments. The stabilization workshop offered historical views of sulfate-caused heave, from European and U.S. experience and practice, and reviewed the how-tos of testing soils for sulfate-related problems.

In September, the Engineering Geology and the Exploration and Classification of Earth Materials Committees sponsored a symposium, *Geotechnical Methods Revisited*, immediately preceding the 55th Highway Geology Symposium in Kansas City, Missouri, September 7–10. The primary purpose of the symposium was to disseminate information about educating young professionals in the methods of geotechnical investigation.

OPERATIONS AND MAINTENANCE

Operations

The Vehicle–Highway Automation and the Intelligent Transportation Systems Committees conducted a 2-day workshop in July to explore the potential for cooperative vehicle–highway systems, a regular topic of discussion and reports. The workshop included presentations on the potential role and value of cooperative systems, along with breakout discussions to identify the research needed to support the development and deployment of cooperative vehicle–infrastructure systems. Texts of the presentations and preliminary breakout group discussions are posted on the web.¹²

The High-Occupancy Vehicle Systems Committee is developing an electronic circular to document results of a 2-day workshop in November 2003 on potential program and research initiatives for managed and priced lanes. The workshop identified and prioritized potential research and technology transfer activities.

A workshop on research needs for geometric design developed a framework for a long-range program. The workshop was conducted at the joint summer meeting of the Operational Effects of Geometrics and the Geometric Design Committees, with the AASHTO Technical Committee on Geometric Design, in Williamsburg, Virginia, July 14–17. An electronic circular will report the workshop results.

Maintenance

The Maintenance Section committees sponsored a variety of sessions at the 2004 Annual Meeting. In addition, the pavement maintenance committees have collaborated with other standing committees to establish a Roadway Pavement Preservation Task Force.

The Sixth International Symposium on Snow Removal and Ice Control Technology, in Spokane, Washington, June 7–9, provided a forum for the exchange of information about the state of the art and the state of the practice. Sponsored by the Winter Maintenance Committee in cooperation with Washington State DOT,

¹² <http://webboard.trb.org/~AHB30>

Robert Venezia (*far right*), NASA, makes a presentation on weather-related earth science applications in winter maintenance, during the Winter Maintenance Committee meeting at the 2004 Annual Meeting.



AASHTO, and FHWA, the symposium included papers and presentations on winter weather information systems, models, and data quality; winter maintenance policy, management, and performance; customer perspectives on winter operations; environmental stewardship; winter maintenance vehicle advancements; bridge support systems; winter pavement temperatures and road conditions; material distribution, performance, and residual effects; and large-volume snow control. Papers were published in the electronic circular series and are available on the TRB website.¹³

The 14th Equipment Management Workshop was sponsored by the Maintenance Equipment Committee in cooperation with Minnesota DOT and the Focus Group on Equipment of the AASHTO Highway Subcommittee on Highway Maintenance, October 24–27, in Minneapolis, Minnesota. The annual workshop facilitates the exchange of ideas and developments in the maintenance and management of equipment fleets. Issues addressed include administration, fleet finance, the impacts of technology and environment, management systems, material management, and solutions for work zone safety.



Richard Jones (*right*), retired Federal Highway Administration Regional Counsel, addressed tort liability in context-sensitive design, as the 13th recipient of the Distinguished Lectureship, renamed in honor of former Executive Director Thomas Deen (*left*).

LEGAL RESOURCES

The 43rd Annual Workshop on Transportation Law, July 18–21, in Savannah, Georgia, brought together approximately 160 participants. Key issues included preventing fraud in construction contracts; implementing context-sensitive design; protecting transportation safety records under federal regulations (23 U.S.C. §409) and state open-records laws; maintaining ethical

relations between attorneys and engineers during transactions; and counseling on reauthorization funding and innovative financing.

The Legal Resources Group was instrumental in the selection of Richard O. Jones, of Lakewood, Colorado, for the Thomas B. Deen Distinguished Lectureship, presented at the 2004 Annual Meeting. Retired FHWA Regional Counsel for Denver, Colorado, and currently a legal and transportation consultant, Jones addressed the topic, Context-Sensitive Design: Will the Vision Overcome Liability Concerns? The lecture was well attended and well received.

Committees within the Legal Group reexamined scope statements; worked with the continuing cooperative research projects, Legal Problems Arising from Highway Programs and Legal Aspects of Transit and Intermodal Transportation Law; and developed sessions for the Annual Meeting and for transportation law workshops. Committees also focused on cooperating with and supporting other technical activities committees on special projects.

The Transportation Law and Tort Liability and Risk Management Committees met with a representative of the group revising the *Manual on Uniform Traffic Control Devices*. The Tort Committee assisted in a study on preserving the safety records protection in federal regulations (23 U.S.C. §409), and members of the Transit and Intermodal Transportation Law Committee are assisting in a special study on permissible security measures for transit.

SYSTEM USERS AND SAFETY

Safety was a topic represented across all modes at the 2004 Annual Meeting, in 75 technical sessions and 20 committee meetings. The 37th Human Factors in Transportation Workshop, with nine concurrent day-long sessions, attracted record attendance from a diversity of disciplines. The workshop planning group has become an entryway for younger professionals into TRB activities.

Through the Safety-Conscious Planning (SCP) Subcommittee of the Transportation Safety Management Committee, TRB participates in implementing the mandate in the Transportation Equity Act for the 21st Century to include safety considerations in transportation planning. The 3rd SCP Leadership Confer-

¹³ Circular E-C063, www.TRB.org/publications/circulars/ec063.pdf

ence drew more than 60 planning and safety professionals, including representatives from the 25 states that have held or are planning to hold SCP forums, to discuss experiences implementing SCP. NCHRP and FHWA research project contractors reported on tools to assist states in SCP. The research team presented previews of draft guidelines and mechanisms for feedback from planners representing state and metropolitan planning organizations and regional councils.

Development of the Highway Safety Manual (HSM) is progressing. The task force reviewed the first set of crash prediction models, developed by FHWA for two-lane rural roadways, which will constitute one chapter of the manual, and heard progress reports on two NCHRP model development projects. The AASHTO Standing Committee on Research (SCOR) accepted task force ideas for research to develop additional quantitative safety prediction models, making funds available for completion of the research for the first edition of the manual. SCOR also has funded projects for the preparation of additional chapters.

The Occupant Protection Committee was formed this year. The new committee's scope is multimodal, to promote an evolving research agenda that addresses such issues as restraint systems performance and efficiency, biomechanics, economic impact on society, and behavioral measures to increase restraint use.

In the past 2 to 3 years, the expansion of the scope and issues in safety has been reflected in the number of subcommittees formed, often jointly with other committees to address cross-cutting topics. Recently added subcommittees in safety include Roundabouts, Safety-Conscious Planning, Senior Transportation Options, Emerging Technologies in Nonmotorized Transportation, Animal-Vehicle Collisions, Emergency Evacuation, Railroad Operational Safety, Human Factors Roadway Design Guide, and Accident Reconstruction.

PUBLIC TRANSPORTATION

The committees of the Public Transportation Group conducted 33 transit sessions, the Transit Caucus, and 25 committee meetings at the 2004 Annual Meeting. Two conferences and one workshop also convened during the year.



The Bus Transit Systems and the High-Occupancy Vehicles Committees sponsored the Bus Rapid Transit Conference, May 5–6, 2004, attracting an attendance of more than 300. The American Public Transportation Association (APTA), the Federal Transit Administration (FTA), the Center for Urban Transportation Research of the University of South Florida, and the National Transit Institute of Rutgers University were cosponsors of the conference, held in conjunction with the APTA Bus and Paratransit Conference, Denver, Colorado, May 1–5.

The Workshop on Transit Capacity and Quality of Service, August 12, 2004, was sponsored by the Transit Capacity and Quality of Service Committee and cosponsored by APTA. The session was coordinated with the APTA Intermodal Workshop in Vancouver, Canada, and attended by 25 transit managers.

The 16th National Rural Public and Intercity Bus Transportation Conference drew more than 400 experts to Roanoke, Virginia, October 24–27, 2004. The event was sponsored by the Rural Public and Intercity Bus Transportation Committee and cosponsored by the National Rural Technical Assistance Program–American Public Works Association, FTA, the Virginia Department of Rail and Public Transportation, and the Community Transportation Association of Virginia.

The Public Transportation Group also published three volumes in the 2004 *Transportation Research Record* series, as well as two web newsletters: one issue of *LRT News*¹⁴; and one issue of *Bus Transit Systems*.¹⁵

¹⁴ http://www4.trb.org/trb/onlinepubs.nsf/web/LRT_News

¹⁵ <http://www4.trb.org/trb/onlinepubs.nsf/web/bts?OpenDocument>

More than 60 planning and safety professionals exchanged ideas and learned about techniques and tools for incorporating safety into their planning processes, during the Safety-Conscious Planning Leadership Conference, August 31–September 1. George Ostensen (left), FHWA, delivered a luncheon speech.



The Workshop on Transit Capacity and Quality of Service (TCQS) introduced participants to concepts and real-world applications in the *Transit Capacity and Quality of Service Manual*. Workshop instructors included Victoria Perk (standing), University of South Florida; Paul Ryus, Kittelson and Associates, Inc.; and TCQS Committee Chair Steve Andrie, Iowa State University.

RAIL

Capacity to meet traffic demand is a critical issue for the rail freight industry. Facilities are primarily privately owned, and railroads are among the most capital-intensive industries. To contain infrastructure-related costs, railroads are seeking improvements in design, construction, and maintenance. At a day-long Annual Meeting workshop, *Advances in Railway Design, Construction, and Maintenance*, a panel of railroad industry engineering leaders explored improvements in track design, materials for more cost-effective structures, construction methods, and maintenance efficiency.

Capacity constraints in the rail system also affect commuter and intercity rail passenger services. Many states are planning and supporting improved or new intercity passenger services on freight-owned lines.

Two Annual Meeting sessions examined the complex issues involving public investments by states or commuter authorities in private rail infrastructure, to increase the capacity or the quality of rail lines for joint operation of passenger and freight trains in the same corridor. Several states also are making public investments to maintain freight services on lower-density lines. At the sessions, railroad and state officials reviewed the lessons learned from programs and from completed projects and identified opportunities for cooperative efforts.

FREIGHT SYSTEMS

Public agencies recognize the need for coordinating planning, operations, construction, and

maintenance of public transportation infrastructure with private carriers and shippers. Coordination requires an understanding of freight transportation demand, which derives from the demand for moving goods at various stages in the supply chain, including delivery of finished products to the final customer.

At the 2004 Annual Meeting, a day-long program, *Focus on Freight Systems*, included a public-private dialogue on the growth and changes in freight demand; responses of carriers to changes in demand; methods for modeling freight demand; and funding mechanisms for public-private freight projects. The sessions brought together shippers, truck and rail carriers, modelers, decision makers, and financial experts. The response to the sessions demonstrates the need to improve understanding of public and private viewpoints on these critical issues.

At the request of the Technical Activities Council, Freight Systems Group committees are working with committees in the Planning and Environment Group to examine the cross-cutting issue of developing guidance for public agencies on incorporating freight into traditional transportation planning. In the past few years, crosscutting freight issues have gained prominence on the program of the Joint Summer Meeting of the Planning, Economics, Environmental, Finance, Freight, and Management Committees. At the July 2004 meeting in Park City, Utah, session topics included public- and private-sector views of strategic planning for freight transportation; financing highway and rail freight improvements; and capacity issues at the Ontario-U.S. border.



D. J. Mitchell (left), Burlington Northern and Santa Fe Railway Company, and Robert Martinez, Norfolk Southern Corp., shared the railroad perspective in a 2004 Annual Meeting session on involving public investments in private railroad infrastructure.



Professionals from the aviation user, operations, manufacturing, and research fields participated in a 3-day workshop to provide input on the development of a new Federal Aviation Administration tool to assess the noise, energy, and emissions impacts of aviation infrastructure development.

The global supply chain was a focus of the 2004 midyear meetings of the Marine Group and selected Freight Systems Group committees in Houston, Texas, May 23–26. This focus complemented a TRB Executive Committee session in June on freight globalization. On September 8, TRB cosponsored a workshop on Creating Rural Freight Transport Opportunities in the Global Market, examining the financing of rural multimodal transportation and access to international markets.

The Military Transportation Committee assembled feature articles for the March–April *TR News* with the theme, *Moving Today's Military*, covering military deployment, weigh-in-motion technology for military operations, and military use of high-speed vessels.¹⁶

AVIATION

The Environmental Impacts of Aviation Committee published its first annual summary of critical issues, to identify research that can yield benefits in several years or in one or more decades.¹⁷ The summary offers a cross-disciplinary review of topics of interest to airports and other elements of the aviation community, with a focus on the state of science instead of policy.

The summary consists of six sections. Three address the major environmental media affected by aviation activities—noise, air quality, and water. The other three address key processes that link aviation and the environ-

¹⁶ TR News 231, <http://gulliver.trb.org/publications/trnews/trnews231.pdf>

¹⁷ Circular E-C069, <http://gulliver.trb.org/publications/circulars/ec069.pdf>

ment—analytical tools, environmental review, and technology deployment.

At the request of the Federal Aviation Administration (FAA), a specially appointed TRB committee is gathering input from the aviation user, operations, manufacturing, and research communities about the development of tools for an integrated assessment of the noise, energy, and emissions impacts of aviation. At an initial workshop, held in Washington, D.C., March 31–April 2, participants defined the characteristics of these tools and discussed the process for developing them.

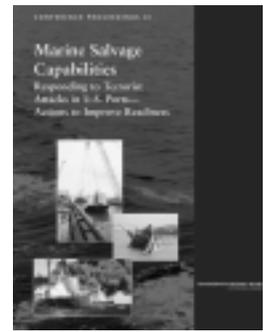
In response to earlier comments, FAA has expanded the project to incorporate analytical tools for an integrated economic assessment of the noise and emissions impacts of aviation. Technical issues include creating an integrated architecture of design and portfolio management tools that is robust enough to address complex problems and flexible enough to meet the needs of a variety of users.

MARINE

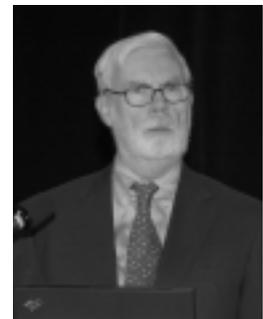
Sessions and workshops on marine transportation at the 2004 Annual Meeting were well-attended. The role of ports in regional economic development, trends in green ports and green ships, efficiency measures at marine intermodal terminals, and structural changes in liner shipping were a few of the session topics. The Marine Group committees held midyear meetings with several Freight System Group committees, in conjunction with the Ports 2004 Conference of the American Society of Civil Engineers in Houston, Texas, May 23–26, a triennial event that focused on port development.

The chairs of the Marine Group committees also participated in the spring meeting of the Marine Board in San Diego, California, May 5–7. Two major areas of discussion were the applications of autonomous underwater vehicles and the compliance of high-speed naval and commercial craft with safety and environmental standards.

Marine Group committees and the Marine Board also cosponsored the 7th Marine Transportation System (MTS) Research and Technology Coordination Conference, in conjunction with the Interagency Committee of the MTS,



Conference Proceedings 30 addresses the economic, legal, forensic, environmental, and human casualty issues related to marine salvage.



Mortimer Downey, PB Consult, Inc., gives the keynote speech at the 7th Marine Transportation System (MTS) Research and Technology Coordination Conference, which focused on securing the vitality of the MTS through cooperative research.

November 16–17, in Washington, D.C. The conference focused on securing the vitality of the MTS through cooperative research. Mortimer L. Downey, who chaired the TRB study committee that examined the federal role in the MTS, was the keynote speaker.

The Ferry Transportation Committee was instrumental in developing and supporting Transit Cooperative Research Program Project J-10H, Security Measures for Ferry Systems. A Marine Board committee completed a workshop report, *Marine Salvage Capabilities: Responding to Terrorist Attacks in U.S. Ports—Actions to Improve Readiness*.¹⁸ Other marine activities focused on short sea shipping, the integrated ocean observing system, liquified

¹⁸ Conference Proceedings 31, http://gulliver.trb.org/publications/conf/reports/cp_30.pdf

natural gas safety, ballast water and the introduction of nonindigenous species, and security.

STAFF NEWS

- **Aaron Grogg** and **Brie Schwartz** were promoted to Web and Software Specialists.
- **Michael A. DeCarmine** rejoined the TRB staff as Senior Program Associate after working in another unit of the National Academies. **Brian A. Canepa** also was hired as a Senior Program Associate.
- **Joanice L. Cole**, Senior Program Assistant, shared in a Group Distinguished Service Award as a member of the National Academies Notary Public Team.



TRB Awards 2004

TRB's most prestigious awards were presented at the 2004 Annual Meeting Chairman's Luncheon to Alan Altshuler (*left*), Harvard University, who received the Roy W. Crum Distinguished Service Award for his significant contributions to research on transportation planning and policy; E. Dean Carlson (*center*), Carlson Associates, who accepted the W. N. Carey, Jr., Distinguished Service Award for his outstanding leadership and service to transportation research and to TRB; and Shirley McCall (*right*), Cardozo Senior High School, who was honored with the Sharon D. Banks Award for Innovative Leadership in Transportation for her outstanding accomplishments in transportation education. Robert Skinner, Jr., presented the Banks award.

STUDIES AND INFORMATION SERVICES

The Studies and Information Services Division conducts policy studies at the request of the U.S. Congress, executive branch agencies, states, and other sponsors; operates a bibliographic database of completed research and provides library reference services; and produces syntheses of current practices in highway and transit operations.

POLICY STUDIES

With guidance from committees drawn from the nation's leading experts, the Policy Studies group produces reports examining complex and controversial transportation issues. Studies cover all modes of transportation and a variety of safety, economic, environmental, and research policy issues.

The Subcommittee on Planning and Policy Review provides oversight for TRB's policy work, under the leadership of former TRB Executive Committee Chair Genevieve Giuliano, Professor in the School of Policy, Planning, and Development, and Director of the Metrans Transportation Center, University of Southern California. Since 1998, all completed policy study reports are posted on the TRB website.¹ *Informing Transportation Policy Choices*, a publication that provides an overview of all TRB policy studies from 1983 through 2002, also is posted on the Policy Studies page of the website.²

Completed Studies

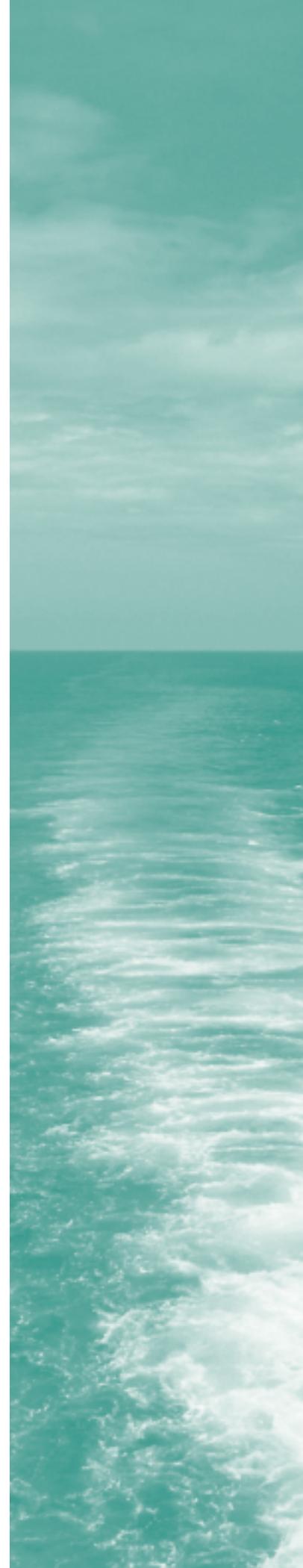
Special Report 279, *The Marine Transportation System and the Federal Role: Measuring Performance, Targeting Improvement*

The study committee recommends that the U.S. Department of Transportation (DOT) take the lead in assessing and improving the performance of the nation's marine transportation system.³ In particular, U.S. DOT should begin immediately to

¹ www.TRB.org or TRB.org/news/blurb_browse.asp?id=12

² www4.trb.org/trb/homepage.nsf/web/policy_studies or gulliver.trb.org/publications/policy/itpc.pdf

³ www.TRB.org/publications/sr/sr279.pdf





Genevieve Giuliano
Chair
 Subcommittee on
 Planning and Policy
 Review

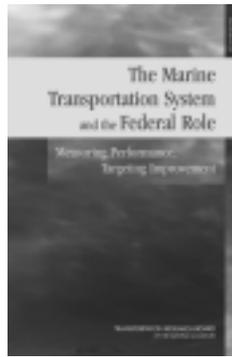


Stephen R. Godwin
Director
 Studies and Information
 Services

develop reports on the condition, performance, and use of the marine transportation system and should seek a mandate from Congress to report regularly, as required for highways and transit.

The lack of centralized information about the marine transportation system could lead to the neglect of problems and to missed opportunities for solutions. Problems include insufficient capacity to handle container traffic on the highways and railroads that connect to major ports; delays in modernizing the infrastructure of inland waterways; and the absence of comprehensive efforts to strengthen the safety and security of ports and transportation operations.

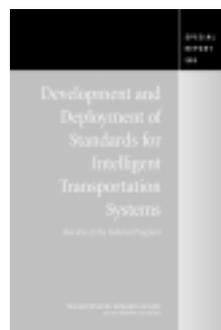
The reports should describe current physical conditions and assess performance in terms of economic and environmental outcomes. The reports also should estimate the investments necessary to meet traffic demand from the growth in international trade, to improve homeland security, and to protect the marine environment. Mortimer L. Downey, President of PB Consult, chaired the committee for the study, which was sponsored by the U.S. Coast Guard, the National Oceanic and Atmospheric Administration, U.S. DOT, the U.S. Department of Agriculture, and the U.S. Army Corps of Engineers.



direction of the program.⁴ The report committee notes substantial progress since the start of the program but also observes that the development and deployment of standards are at an early stage.

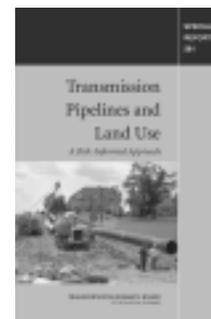
The committee agrees that the program objectives have been appropriate, the strategy reasonable, and the progress credible in achieving the goals set forth in the Transportation Equity Act for the 21st Century. The committee recommends defining the program's goals, developing measures of progress, and testing proposed standards before adoption.

In addition, U.S. DOT should support independent verification and validation, training for standards users, and the maintenance and updating of standards developed with federal support. Jonathan L. Gifford, George Mason University, and A. Ray Chamberlain, Parsons Brinckerhoff, chaired the committee. The ITS Joint Program Office of U.S. DOT requested the study and provided the funding.



Special Report 280,
*Development and
 Deployment of
 Standards for
 Intelligent
 Transportation
 Systems: Review of
 the Federal Program*

This review of the U.S. DOT Intelligent Transportation Systems (ITS) standards program assesses the progress in adopting standards and offers recommendations for the scope and



Special Report 281,
*Transmission Pipelines
 and Land Use: A Risk-
 Informed Approach*

The Office of Pipeline Safety (OPS), a unit of the U.S. DOT Research and Special Programs Administration (RSPA), together with the Federal Energy Regulatory Commission, requested a study of safety and land use issues related to energy transmission pipelines. The pipelines transport virtually all of the nation's natural gas and two-thirds of its petroleum each year.

The committee finds that transmission pipelines have a better safety record than other modes, but that the risks are increasing because of population encroachment near pipelines.⁵ The committee recommends that the federal government develop technical guidance for state and local land use decisions that would minimize or mitigate risks to the public and to

⁴ www.TRB.org/publications/sr/sr280.pdf

⁵ www.TRB.org/publications/sr/sr281.pdf

the environment from pipelines at acceptable costs. The committee was chaired by Don E. Kash, George Mason University; OPS provided the funding.

Letter Reports

Freight Analysis Framework (February 2004)

A letter report from the Committee on the Future of the Federal Highway Administration's (FHWA) Freight Analysis Framework (FAF) summarizes the outcomes of an October 2003 workshop.⁶ The committee finds that the FAF has helped elevate awareness of the importance of freight transportation among federal, state, and local-level policy makers.

Because of the FAF design and the limits on the data in developing the framework, however, the committee is not optimistic about refinements to inform state and local investment decisions. The committee recommends instead that U.S. DOT focus on developing a national freight data program that builds on lessons from the FAF project.

In support of efforts to inform decisions about reauthorizing surface transportation programs, further work on the FAF should be limited to short-term documentation, clarification, and updating. Arnim Meyburg, Cornell University, chaired the committee that produced the report, which was requested and funded by the FHWA Freight Office.

Review of the Federal Railroad Administration Research, Development, and Demonstration Programs (May 2004)

The Committee for Review of Federal Railroad Administration (FRA) Research, Development, and Demonstration Programs conducts periodic peer reviews of the Railroad Research and Development (R&D) Program, the Next-Generation High-Speed Rail (NGHSR) Technology Demonstration Program, and the Magnetic Levitation (Maglev) Technology Deployment Program. In previous letter reports, the committee had commented on specific FRA staff research proposals for the following year; in this letter report, however, the committee comments on



The April 2004 meeting of the Committee for Review of the Federal Railroad Administration Research, Development, and Demonstration Programs finalized advice for a May letter report.

ideas and suggestions that FRA staff is considering in the longer term.⁷

The committee urges FRA to identify the customers for various research, development, and demonstration programs and to develop closer working relationships with the customers through periodic and systematic outreach. The committee endorses the concept of developing a "close call" safety reporting system and suggests including this project in FRA's FY 2006 budget.

The committee also encourages FRA to undertake appropriate research on energy, alternative fuels, emissions, and fuel efficiency to satisfy safety concerns and public interest. The committee also endorses the NGHSR program's plan to support states in developing passenger rail services that travel in the 90- to 100-mph range.

To enhance FRA's understanding of how railroad industry trends may affect priorities for safety research, the committee recommends analyzing trends in intermodal freight to complement work already done in the areas of coal and grain. The committee is chaired by Louis S. Thompson of Thompson, Galenson, and Associates, LLC. FRA requested and funded the report.

Review of Travel Demand Modeling by the Metropolitan Washington Council of Governments (May 2004)

This study is part of the National Capital Region Transportation Planning Board's (TPB) program to upgrade travel forecasting methods and to follow federal guidance on air quality models in nonattainment areas. TPB is a unit

⁶ www.TRB.org/publications/reports/fafltrfeb2004.pdf

⁷ <http://gulliver.trb.org/publications/reports/frardd5.pdf>



Robert Gallamore (*center*), Northwestern University, chairs the Committee for a Study of the Feasibility of a Hazardous Materials Transportation Cooperative Research Program.

of the Metropolitan Washington Council of Governments.

The committee's second and final letter addresses TPB's proposed upgrades to the travel demand model, focusing on changes made as a result of the committee's first letter report.⁸ The committee also examines updates to the TPB travel survey and other items. The committee endorses the steps proposed to improve the calibration and validation of the model; urges TPB to proceed with data collection for the commercial vehicle model; endorses plans to improve the recording of bus speeds; and agrees that TPB should explore alternative methods to represent the effects of congestion on mode choice.

Reiterating concern about reliance on adjustments, or "K factors," the committee advises TPB to document the logical bases for the adjustments. The committee carefully analyzes the "post-processing" adjustments that are necessary to make travel model outputs suitable as inputs to the Environmental Protection Agency's (EPA) required model for conformity analysis. The committee suggests that TPB examine potential sources of bias in these adjustments and develop adjustment procedures consistent with EPA's demand modeling procedures. David S. Forkenbrock, University of Iowa, chaired the committee. TPB requested and funded the study.

Ongoing Studies

Feasibility of a Hazardous Materials Cooperation Research Program

This study is assessing the feasibility of bringing together the diverse elements of the hazardous materials transportation industry to oversee and fund a cooperative research program. RSPA, the U.S. Coast Guard, FRA, and the Federal Motor Carrier Safety Administra-

tion are funding the project. The final report is expected in early 2005.

Determination of the State of Practice in Metropolitan Area Travel Forecasting

Funded by FHWA and TRB, this new project is assembling a synthesis of travel demand forecasting and modeling practice by metropolitan planning organizations (MPOs) and states. A consultant will gather extensive information about practice from a sample of MPOs and states.

Long-Term Viability of Fuel Taxes for Transportation Finance

This self-initiated study, funded with assistance from FHWA and the American Association of State Highway and Transportation Officials (AASHTO), is considering the policy framework of transportation finance, particularly the prospects for continued reliance on the gas tax, and is evaluating options for a long-term transition to other sources of funding.

National Tire Efficiency Study

In appropriations legislation for FY 2004, Congress requested an assessment of the fuel economy, safety, and wear characteristics of tires with low rolling resistance. NHTSA is funding the project.

Physical Activity, Public Health, Transportation, and Land Use

In collaboration with the Institute of Medicine of the National Academies, TRB convened a committee to assess the links established in research between physical activity, public health, transportation, and land use. The committee is summarizing what is known about the relationships and what the relationships suggest for policy decisions at the local, state, and federal levels; the committee also is identifying research priorities. The final report is expected in early 2005. The Robert Wood Johnson Foundation and the Centers for Disease Control and Prevention have provided the funding.

Research and Technology Coordinating Committee

The Research and Technology Coordinating Committee (RTCC) reviews and offers guid-

⁸ www.TRB.org/publications/reports/mwccogapril04.pdf

ance to U.S highway research programs at the federal and state levels. The committee meets three times annually and communicates advice to FHWA primarily via letter reports.

This year the RTCC completed activities on the theme of stakeholder involvement in highway research programs; articles were published in the September–October issue of TR News. The committee also established a task force to review highly successful road safety programs in other nations for potential application in the United States. Funding is provided by FHWA.

Review of the Federal Railroad Administration Research, Development, and Demonstration Programs

This committee provides ongoing peer review of FRA's research and development programs. The review analyzes research budget proposals, project updates on research and development, NCHSR programs, and management of the FRA maglev demonstration program. The committee meets semiannually and provides guidance through letter reports (see page 25). Funding is provided by FRA.

Review of the Oregon Department of Transportation Study on Bridge Shear

This project is peer-reviewing a study by Oregon State University commissioned by Oregon DOT. The study has developed a method to determine the carrying capacity of concrete bridge beams with shear cracking and to pre-



dict the beams' remaining useful life. Oregon DOT has provided funding for the review.

(Left to right) Michael MacCracken, Climate Institute; Virginia Burkett, U.S. Geological Survey; George Eads, Charles River Associates, Inc.; and Lee Schipper, the World Resources Institute, discuss the interrelationship between global climate change and transportation during the Executive Committee policy session, January 2004.

St. Lawrence Seaway: Options to Eliminate Introduction of Nonindigenous Species into the Great Lakes—Phase I

The first phase of this study is to develop a detailed plan for a design competition to identify transportation options and concepts for the Great Lakes region. The goal is to promote global commerce and to prevent the introduction of additional nonindigenous species into the Great Lakes from oceangoing vessels that transit the St. Lawrence Seaway.

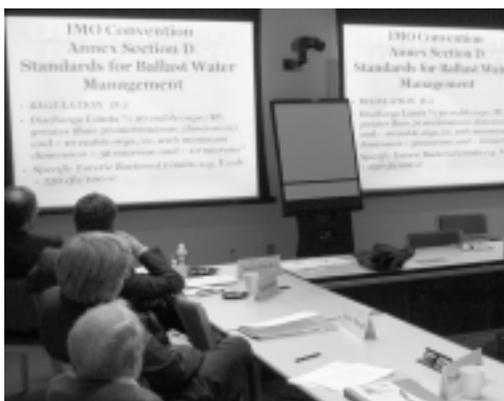
The committee is assembling statistics on the economy, trade, transportation, and environment of the Great Lakes region; determining criteria for a design competition as part of Phase II of the study; and planning a high-profile event at which competing designs will be presented and discussed, and prizes awarded. Phase II is expected to begin in early 2005. Funding is provided by the Great Lakes Protection Fund and the International Joint Commission, American Section.

Transportation and Climate Change

The TRB Executive Committee has initiated a study to examine the ways that U.S. transportation contributes to climate change, as well as the ways that climate change affects the U.S. transportation infrastructure. The project began in late 2004. Funding is provided by U.S. DOT, the U.S. Army Corps of Engineers, EPA, AASHTO, the Transit Cooperative Research Program, and TRB.

Transportation Information Management: A Strategic Plan

This study will provide strategic advice to the federal government and the states on a sustain-



The Committee on the St. Lawrence Seaway is conducting a two-phase, 27-month study to identify options to eliminate the introduction of additional species and pathogens into the Great Lakes by oceangoing vessels transiting the St. Lawrence Seaway. (In photo) Committee members listen to a presentation on standards for ballast water management.

able administrative structure and funding mechanism for meeting the information services needs of the transportation sector, particularly the state DOTs. The committee will define the core services, identify ways to provide the services, and suggest options for funding. AASHTO's Standing Committee on Research requested the study and is providing funding through the National Cooperative Highway Research Program (NCHRP).

Transit Research Analysis Committee

The Federal Transit Administration (FTA) requested TRB to form a committee for an independent review and assessment of public transportation industry needs that could be met through a national research and technology program. The committee is advising FTA on a strategic plan for research, the appropriate federal role in transit research, and stakeholder involvement in the federal research program. Funding is provided by FTA.

Other Studies

TRB is assisting other units of the National Research Council of the National Academies on studies such as the Transportation of Radioactive Waste, Review of the U.S. Army Corps of Engineers Restructured Upper Mississippi River-Illinois Waterway, and Assessing Vulnerabilities Related to the Nation's Chemical Infrastructure.

INFORMATION SERVICES

Transportation Research Information Services

The Transportation Research Information Services (TRIS) database is the world's largest online bibliographic database of transportation information. TRIS contains more than 600,000 records of published and ongoing research in all modes and disciplines of transportation. Approximately 25,000 new records were added in 2004.

The database is available on the Internet as TRIS Online through the Bureau of Transportation Statistics' (BTS) National Transportation Library website.⁹ TRB produces and maintains

⁹ ntl.bts.gov/



TRB maintains a small specialized library, searchable through several online catalogs.

TRIS, and BTS makes TRIS accessible on the web without charge.

TRIS Online links records to the full text of electronic documents or to information about ordering from suppliers. Almost 17,000 TRIS records are linked to the full text, and an additional 100,000 are linked for ordering from the publishers.

Approximately 9,000 users access TRIS Online each month. TRIS is also available on the Internet for a fee through Dialog, Inc., and as part of the TRANSPORT database, a cooperative effort between TRB and the International Transport Research Documentation database of the Organization for Economic Cooperation and Development (OECD). A CD-ROM of TRANSPORT is produced and distributed by Ovid-SilverPlatter.

TRB is completing the development and implementation of a new production system for TRIS. The system will increase flexibility, improve productivity, and add services.

Research in Progress

The Research in Progress (RiP) website¹⁰ is a searchable database of more than 7,600 records of active or recently completed research projects. Most of the RiP records are for projects funded by U.S. DOT and state DOTs, but also include university transportation research.

State DOTs can add, modify, or delete records of research through a web-based data entry system. A current awareness service is available to notify users automatically about new project records in specified subject areas. In 2004 RiP added international project records from OECD's International Transport

¹⁰ rip.trb.org

Research Documentation's Transportation Research in Progress Database.

TRB Library

The TRB Library is a small specialized library that provides reference and information services to TRB sponsors and staff. The library contains a complete collection of TRB, Highway Research Board, Strategic Highway Research Program (SHRP), and Marine Board publications.

The TRB Library is included in the Transportation Library Catalog through the National Transportation Library and the Online Computer Library Center's WorldCat. The library maintains three searchable databases on the TRB website: the PATH Database,¹¹ the RiP database, and the TRB Publications Index.¹²

The TRB Publications Index contains 22,000 records of all authored papers, articles, and reports published by TRB and SHRP since 1974. The index allows browsing or searching the fields and links from individual records to TRB's Online Bookstore,¹³ an out-of-print order form, or the full-text electronic publication.

SYNTHESIS OF INFORMATION REPORTS

Under the sponsorship of the Cooperative Research Programs administered by TRB, the Synthesis unit prepares reports on current practice and knowledge for a range of key highway and transit topics. Practitioners and researchers make extensive use of the reports.

A highway committee and a transit committee of the Cooperative Research Programs select the study topics each year. In 2004, 12 new highway and 5 new transit studies were selected. A consultant experienced in the topic area researches and writes each Synthesis report, with guidance from an expert panel.

A list of reports published in the past 12 months appears on pages 52–53. Approximately 3,500 copies of each report are published in hard copy, and 3,000 of these are distributed to state DOTs, transit agencies, and TRB topic-area subscribers. The reports also are posted on

¹¹ www.dcddata.com/path/path.htm

¹² www4.trb.org/trb/onlinepubs.nsf/web/index

¹³ www.TRB.org/bookstore/

MOST-READ SYNTHESIS REPORTS, 2001–2004

Synthesis of Transit Practice

21 *Improving Transit Security* (1997)

27 *Emergency Preparedness for Transit Terrorism* (1997)

46 *Diversity Training Initiatives* (2003)

Synthesis of Highway Practice

249 *Methods of Improving Live-Load Capacities of Bridges* (1997)

264 *Modern Roundabout Practice in the United States* (1998)

289 *Corridor Management* (2000)

321 *Roadway Safety Tools for Local Agencies* (2003)

the TRB website.¹⁴ In the 11-month period from October 2003 to September 2004, visitors to the TRB website viewed NCHRP Synthesis reports 47,000 times and Transit Cooperative Research Program Synthesis reports 12,000 times.

TRB maintains an inventory of hard-copy Synthesis reports for sale. Top-selling highway and transit titles in the past 3 years are listed in the box on this page. Synthesis reports may be ordered from the TRB Online Bookstore or by calling 202-334-3213.

STAFF NEWS

- **Thomas R. Menzies, Jr.**, Senior Program Officer, received an Individual Distinguished Service Award from the National Academies in October.
- **Brittney Williams** joined the division as a Library Clerk.

¹⁴ Highway syntheses: www.TRB.org/news/blurb_browse.asp?id=5; transit syntheses: www.TRB.org/news/blurb_browse.asp?id=6

More than 40 professionals from congressional staffs, universities, public agencies, transportation providers, and private-sector suppliers participated in a daylong meeting in October to discuss the growing trends and potential impacts of earmarking in transportation research programs.



COOPERATIVE RESEARCH PROGRAMS

TRB administers four contract research programs:

- The National Cooperative Highway Research Program (NCHRP), sponsored by the American Association of State Highway and Transportation Officials (AASHTO) in cooperation with the Federal Highway Administration (FHWA);
- The Transit Cooperative Research Program (TCRP), sponsored by the Federal Transit Administration (FTA);
- The Airport Cooperative Research Program (ACRP), sponsored by the Federal Aviation Administration (FAA); and
- The Commercial Truck and Bus Safety Synthesis Program (CTBSSP), sponsored by the Federal Motor Carrier Safety Administration (FMCSA).

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

NCHRP is an applied research program that solves pressing operational problems identified by state highway and transportation departments. Although NCHRP accounts for a small percentage of the nation's annual investment in highway research, its close association with AASHTO and its position within the National Academies have enabled the program to carry out important research resulting in practical products.

Since 1962, NCHRP has administered 1,127 research projects. A total of 886 publications have appeared in the *NCHRP Report* and *NCHRP Synthesis of Highway Practice* series, in addition to 294 volumes of *Research Results Digest* and 48 of *Legal Research Digest*, as well as 103 other documents published electronically.

NCHRP projects for federal fiscal year 2004 were placed under contract as funds became available during the year. Proposal solicitations for 40 research projects in federal fiscal year 2005 (October 1, 2004, through September 30, 2005) were released starting in June 2004; depending on the availability of the funding to be appropriated in pending federal legislation, contracts should be executed in the first 3 months of 2005.

State planning and research funds have increased under recent authorizations, and NCHRP funding has increased proportionally. Funding available for NCHRP in fiscal



The American Association of State Highway and Transportation Officials Standing Committee on Research (SCOR) allocated funding for FY 2005 for new, continuing, and contingent NCHRP projects. 2004 SCOR Vice Chair Wesley Lum (*right*) addresses committee members and 2004 Chair Kam Movassaghi (*foreground*).

year 2004 totaled \$35.4 million. The amount available for fiscal year 2005 is not yet known.

AASHTO considered 168 problem statements, submitted by states and by AASHTO committees, for the fiscal year 2005 program. The quantity and quality of the requests ensure optimal use of the authorized funds. In September 2004, AASHTO began to formulate the fiscal year 2006 program and will determine the program content in March 2005.

NCHRP reports published in the past 12 months are listed on pages 52–54. A total of 265 projects were under contract as of September 1, 2004, with 84 additional projects under development or awaiting contract.

Each NCHRP study follows an approved research plan under the guidance of a panel of technical specialists and experienced practitioners. The panel ensures the credibility of the research findings, facilitating adoption by AASHTO, state departments of transportation (DOTs), and other organizations.

NCHRP panels convened for approximately 150 project meetings in 2004; panel members contributed more than 2,000 days of volunteer time attending meetings, plus a comparable amount of time reviewing materials. NCHRP benefits from the work of more than 1,700 volunteers who expend time and energy primarily for the challenges and the satisfaction of making significant contributions to the field.

Many NCHRP research projects have had a direct impact on practice through products such as specifications, manuals, and guidelines. NCHRP emphasizes working with the practitioners who will use the research results.

The program's close relationship with AASHTO committees is important in carrying out this goal—approximately 44 percent of the research funds for fiscal year 2005 is allocated for 17 projects requested by 14 AASHTO committees.

Experience has shown that AASHTO committees are more likely to use NCHRP research results when (a) the committee identifies and requests the research, (b) committee members serve on the advisory panel guiding the study, and (c) findings and recommendations are presented to the committee at the conclusion of the study. NCHRP projects frequently incorporate these three steps.

Many NCHRP projects are developing revisions to AASHTO publications at the request of committees. When AASHTO adopts an NCHRP project's recommendations as a guide or specification, practitioners who may not be able to stay abreast of research results benefit from having the best information available through the AASHTO documents.

Details on the program from 1962 through 1988 can be found in *NCHRP Summary of Progress Through 1988*. Details on work since 1988 are available in *NCHRP Summary of Progress, December 31, 2004* and on the web.¹

NCHRP studies of particular importance to AASHTO that were completed during the past year are summarized in the following sections. All reports are available on the web.²

Management Systems

Through the years, research projects have supported a variety of management systems—for example, for pavements and bridges; a recent project produced a guide, adopted by AASHTO, on asset management, an approach that optimizes use of all the resources available to an agency. Two reports published this year have contributed to the knowledge base for management systems.

NCHRP Report 506, *Quality and Accuracy of Positional Data in Transportation*, offers guidance to practitioners on the use of positional or spatial data in geographic information systems (GIS) for transportation applications. GIS serves as the foundation, or basic reference system, for today's digitally based management systems.

¹ www.TRB.org/nchrp

² www.TRB.org/news/blurb/browse.asp?id=2



Victor M. Mendez
Chair
AASHTO Standing
Committee on
Research



Sharon Greene
Chair
TCRP Oversight and
Project Selection
Committee



Robert J. Reilly
Director
Cooperative Research
Programs

The Cooperative Research Programs held more than 200 panel meetings in 2004. NCHRP Program Officer Timothy Hess (third from left) conducts an October 2004 meeting for NCHRP Project 10-68, Guidelines for the Use of Highway Pavement Warranties.



NCHRP Report 522, *A Review of DOT Compliance with GASB 34 Requirements*, compiles the experiences of state DOTs that have complied voluntarily with the Governmental Accounting Standards Board's (GASB) new standard, Statement No. 34. The standard requires that the comprehensive financial statements of state and local governments report general infrastructure assets showing the related costs of depreciation or preservation.

Security of Transportation Infrastructure

Security remains a high priority for NCHRP and TCRP. The two programs have funded a total of nearly \$7.4 million in security-related projects; NCHRP has contributed more than \$4.6 million. NCHRP publishes results in the NCHRP Report 525 series, *Surface Transportation Security*. Two volumes have been published, and eight are scheduled for release in 2005. Now available are Volume 1, *Responding to Threats: A Field Personnel Manual*; and Volume 2, *Information Sharing and Analysis Centers: Overview and Supporting Software Features*.

Performance Measures and Benchmarking

All levels of management within state DOTs are emphasizing performance measures and benchmarking. Several ongoing projects deal with the subject, mostly in the context of asset management at the strategic level. Two projects recently were completed.

The concepts in NCHRP Report 511, *Guide for Customer-Driven Benchmarking of Maintenance Activities*, are presented in the context of maintenance activities but can apply to other areas. The report details a collaborative process

for defining benchmarks among peer organizations, to identify, evaluate, and implement best practices and improve organizational performance.

Another NCHRP product, *Strategic Performance Measures for State Departments of Transportation: A Handbook for CEOs and Executives*, has been published by AASHTO. The report is available on the website of the AASHTO Standing Committee on Quality.³

Transportation and Environmental Planning

The AASHTO Standing Committee on Planning and the Standing Committee on the Environment maintain direct involvement in NCHRP Projects 8-36 and 25-25, respectively, which are specifically designed to support the committees' work. Part of the NCHRP budget is set aside for each committee and then sub-allocated for studies. As studies are completed, the committees post the reports on the web.⁴

NCHRP also conducts other research projects on planning and the environment. Two recently completed projects were published:

- NCHRP Report 532, *Effective Methods for Environmental Justice Assessment*, is a guidebook to enhance understanding and facilitate consideration and incorporation of environmental justice into all elements of the transportation planning process. The volume provides practitioners with an analytical framework to assess the impacts of a proposed transportation project on local populations and communities.
- NCHRP Project 2-23 produced *A Manual of User Benefit Analysis for Highways*, published by AASHTO. An update of the 1977 AASHTO "Redbook," the document helps state and local transportation planning and policy officials evaluate the user benefits of highway improvements.

Highway Safety

Safety is another high priority throughout the transportation industry. NCHRP devotes sig-

³ <http://quality.transportation.org/?siteid=38>

⁴ <http://planning.transportation.org/?siteid=30>; and <http://cms.transportation.org/?siteid=36>

nificant resources to the subject. Several projects were completed, with results published this year.

NCHRP Report 500, *Guidelines for Implementation of the AASHTO Strategic Highway Safety Plan*, will comprise an expected 22 guides; 13 have been published as individual volumes. The guides present good practices and describe strategies for reducing collisions involving heavy trucks, pedestrians, older drivers, utility poles and trees, horizontal curves, unsignalized and signalized intersections, unlicensed drivers or drivers with suspended licenses, and aggressive driving. The published guides also address run-off-road accidents, head-on collisions, and seatbelt use.

NCHRP Report 518, *Safety Evaluation of Permanent Raised Pavement Markers*, examines the safety performance of snowplowable, permanent raised pavement markers on two-lane roadways and four-lane freeways.

NCHRP Report 520, *Sharing Information Between Public Safety and Transportation Agencies for Traffic Incident Management*, presents lessons from around the country on how public safety and transportation agencies share information for managing traffic incidents.

Bridges and Structures

The AASHTO Highway Subcommittee on Bridges and Structures has a long-standing association with NCHRP projects, particularly in the continuing refinement and expansion of the load and resistance factor design (LRFD) procedures. AASHTO specifications have incorporated most of the research findings.

Recent publications on bridge- and structure-related subjects include the following:

- NCHRP Report 507, *Load and Resistance Factor Design (LRFD) for Deep Foundations*, presents resistance factors for driven-pile and drilled-shaft foundations. The factors are recommended for incorporation into Section 10 of the AASHTO LRFD Bridge Design Specifications.
- NCHRP Report 514, *Bonded Repair and Retrofit of Concrete Structures Using FRP Composites*, recommends construction specifications and includes a construction process control manual for bonded fiber-reinforced poly-



mer (FRP) repair and retrofit of concrete structures.

- NCHRP Report 515, *Portable Scour Monitoring Equipment*, provides guidance for the fabrication and operation of a portable scour monitoring device.
- NCHRP Report 516, *Pier and Contraction Scour in Cohesive Soils*, recommends a method for predicting the extent of complex bridge pier and contraction scour in cohesive soils.
- NCHRP Report 517, *Extending Span Ranges of Precast Prestressed Concrete Girders*, recommends LRFD procedures for achieving longer spans with precast, prestressed concrete bridge girders.
- NCHRP Report 519, *Connection of Simple-Span Precast Concrete Girders for Continuity*, recommends details and specifications for the design of continuity connections for precast concrete girders.
- NCHRP Report 527, *Integrated Steel Box-Beam Pier Caps*, recommends details, design methodologies, and specifications for integral connections between steel superstructures and concrete substructures.
- NCHRP Report 528, *Thermally Sprayed Metal Coatings to Protect Steel Piling*, contains the findings of the research, along with a guide for applying the coatings to prevent corrosion in steel pilings.
- NCHRP Report 534, *Guidelines for Inspection and Strength Evaluation of Suspension Bridge Parallel-Wire Cables*, presents recommenda-

NCHRP Report 500 series, *Guidelines for Implementation of the AASHTO Strategic Highway Safety Plan*, presents practices and strategies for reducing collisions.

Load and resistance factor design procedures for achieving longer spans with precast, prestressed concrete bridge girders are covered in NCHRP Report 517.



tions for inspecting and evaluating the strength of parallel-wire cables on suspension bridges.

Pavements

NCHRP has released final versions of the recommended Mechanistic-Empirical Pavement Design Guide and companion software. The guide and software are available on the web so that potential users can evaluate the versions in typical applications or in specially tailored situations.⁵ A follow-on NCHRP project will conduct an additional review and will incorporate enhancements.

Other reports published this year for pavement and materials engineers include the following:

- NCHRP Report 508, *Accelerated Laboratory Rutting Tests: Evaluation of the Asphalt Pavement Analyzer*, addresses the suitability of the asphalt pavement analyzer—a loaded-wheel tester—for predicting rutting potential and for field quality control and quality acceptance.
- NCHRP Report 512, *Accelerated Pavement Testing: Data Guidelines*, promotes compatibility of data from accelerated pavement testing (APT) at different facilities and provides an effective, economical means to address issues of common concern, reduce duplication of research efforts, and enhance the benefits of APT.
- NCHRP Report 513, *Simple Performance Tester for Superpave Mix Design: First-Article Development and Evaluation*, presents findings for use of a simple performance tester

Recommendations for inspecting and evaluating the strength of parallel-wire cables on suspension bridges are presented in NCHRP Report 534.



in routine Superpave® mix design and for possible use in characterizing hot-mix asphalt materials in the structural design of pavement.

Traffic and Operations

Many state DOTs are focusing on traffic and operations to improve the use of facilities or to develop new facilities that are efficient and effective. NCHRP has provided accurate, relevant information for this focus. For example, NCHRP Report 509, *Equipment for Collecting Traffic Load Data*, identifies the major issues that state and other highway operating agencies should consider in selecting equipment to collect the truck volume data and load spectra for the analysis and design of pavements.

Design, Construction, and Maintenance

The design, construction, and maintenance of highway facilities remain major business concerns at state DOTs. Research is supporting improvements in these areas, as documented in the following reports:

- NCHRP Report 505, *Review of Truck Characteristics as Factors in Roadway Design*, guides roadway geometric designers in accommodating large trucks on the U.S. highway system.
- NCHRP Report 504, *Design Speed, Operating Speed, and Posted Speed Practices*, examines the relationship between design speed and operating speed through a survey of the practice and an analysis of geometric, traffic, and speed conditions. The report also supports recent changes in speed definitions in AASHTO's *A Policy on Geometric Design of Highways and Streets* (the Green Book) and FHWA's *Manual on Uniform Traffic Control Devices*.
- NCHRP Report 529, *Guideline and Recommended Standard for Geofoam Applications in Highway Embankments*, describes the design of lightweight fills that incorporate expanded polystyrene-block geofoam and proposes a combined material, product, and construction standard.
- NCHRP Report 498, *Illumination Guidelines for Nighttime Highway Work*, considers the

⁵ www.TRB.org/mepdg/

illumination of highway projects at night, the design of illumination for work zones, and temporary lighting for construction and maintenance.

- NCHRP Report 526, *Snow and Ice Control: Guidelines for Materials and Methods*, presents strategies and tactics for a range of winter maintenance operating conditions. Highway agencies in the United States and Canada are using the findings, which AASHTO will introduce in training material developed under its Snow and Ice Cooperative Program.

Selected Studies in Transportation Law

An update of the four-volume compendium, *Selected Studies in Highway Law*, is nearing completion. With the addition of two volumes on transit law, the updated compendium has a new title, *Selected Studies in Transportation Law* (CRP-CD-20). Volume 1, *Highway Construction Contracting*, was published this year, joining the already completed and available highway topics in Volume 3, *Environmental Law and Transportation*, and Volume 4, *Tort Liability*.

Continuing Projects

NCHRP supports several continuing projects with studies both completed and under way:

- Project 20-5, *Synthesis of Information Related to Highway Problems*, produces state-of-the-practice reports.
- Project 20-6, *Legal Problems Arising out of Highway Programs*, conducts reviews of case law and publishes results in the *NCHRP Legal Research Digest* series.
- Project 20-30, NCHRP-IDEA (Innovations Deserving Exploratory Analysis), funds projects to demonstrate innovative concepts or products (see Special Programs Division section, page 41).
- Project 20-36, *Highway Research and Technology—International Information Sharing*, provides financial support for state DOT representatives to participate in foreign meetings and to host foreign experts in the United States. The project also shares expenses with FHWA for foreign scanning tours.

TRANSIT COOPERATIVE RESEARCH PROGRAM

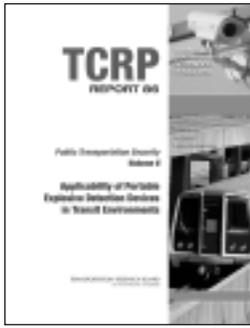
Authorized by the Intermodal Surface Transportation Efficiency Act (ISTEA) and initiated under TRB management in July 1992, TCRP was reauthorized in 1998 under the Transportation Equity Act for the 21st Century and is supported by annual grants from FTA. The TCRP Oversight and Project Selection (TOPS) Committee chooses research for the program; the committee also serves as the board of directors of the Transit Development Corporation (TDC), a nonprofit educational and research affiliate of the American Public Transportation Association (APTA). A three-way memorandum of agreement by FIA, TDC, and TRB outlines the program's operating procedures. In its first 12 years, TCRP has undertaken 406 studies; of these, 339 have been completed and 67 are in progress.

TCRP receives submissions of research problem statements throughout the year and has considered approximately 1,920 since 1992. The first 138 research projects advertised by TCRP attracted a total of 1,016 proposals from 499 different proposers—an average of 7.3 proposals per project. In late 2003, TCRP issued a call for fiscal year 2005 problem statements to more than 4,000 individuals and organizations in the transit community, emphasizing research consistent with FIA's Strategic Initiatives and the TCRP Strategic Plan. TCRP received and processed 119 problem statements for fiscal year 2005.

TRB submits quarterly progress reports on TCRP to FTA, describing the work accomplished during the quarter and anticipated for the next



The TCRP Oversight and Project Selection (TOPS) Committee allocated \$5.37 million to 18 transit research projects for FY 2005. TOPS Committee Chair Sharon Greene (*center*) provides input during the October 2004 meeting.



TCRP Report 86 series covers research on public transportation security.

period. Details of the program's progress since 1992 can be found in the December 2004 TCRP Annual Report.⁶

TCRP panels held 59 meetings during calendar year 2004, involving approximately 550 professionals and representing more than 800 days of volunteer time. Among these were 26 panel meetings to prepare research problem statements and to select research agencies; 25 interim project meetings to review project status at midcourse; and 8 meetings on special projects. The TOPS Committee also met twice in the year.

TCRP published 29 project reports in 2004,⁷ bringing the total to 340 publications: 124 Reports, 57 Syntheses of Transit Practice, 67 Research Results Digests, 20 Legal Research Digests, 28 IDEA reports, 24 web documents, and 20 CD-ROMS.

Research Dissemination

Dissemination of TCRP research results is a concerted activity. APTA administers TCRP Project J-1, Dissemination and Implementation of Research Findings, to target and distribute TCRP research materials to the transit industry and interested individuals. The outreach includes a variety of media for promotion, such as the Internet and *Passenger Transport*, the industry's weekly newspaper, as well as announcements, press releases, and news reports.

In addition, APTA solicits research problem statements; conducts surveys; arranges for workshops, field visits, and training; and oversees other activities to ensure that public transportation industry practitioners receive and implement TCRP research results. The Conference of Minority Transportation Officials also plays a key role in the distribution of TCRP materials through the TCRP Ambassador Program, which maintains a roster of transit professionals who promote TCRP to practitioners.

In addition to current and ongoing activities for the J-1 Program, past initiatives have included the development of the TCRP dissemination website, maintained by APTA;⁸ distribution of general and rural transit publications catalogs; industry mailings, industry surveys on

the level of use and awareness of the program; and informational CDs. TCRP reports are available online through the TCRP dissemination website and through the TCRP web page.⁹

The following TCRP activities were in progress or were completed during the year.

Public Transportation Security

Public transportation security continues to be a major focus for TCRP. In October 2003, the TOPS Committee allocated an additional \$350,000 for public transportation security research, bringing the total funding through TCRP to \$2.75 million since September 11, 2001.

Two new projects were selected with this additional funding: Project J-10G, Making Transportation Tunnels Safe and Secure (jointly funded with NCHRP), and Project J-10H, Evaluation of Appropriate Security Measures for Ferry Transit Systems. Technical panels were formed in 2004, and work is under way.

TCRP Report 86 comprises a series of volumes on security-related research. Seven volumes have been published, covering communication of threats; K-9 units; robotic devices; intrusion detection; security-related customer communications; portable explosive detection devices; emergency mobilization; public transportation security resources; and security program planning. Subsequent volumes will examine emergency training drills; updating of security plans; comprehensive security resources; and continuity of operations planning.

Four security-related projects are under way through the Transit IDEA Program: bioterrorism detection technology; counterterrorism chemical detector; detection of radioactivity; and chemical and biological decontamination systems. These IDEA projects involve transit agencies in testing experimental technologies.

Public Transportation Governing Boards

TCRP Report 104, *Public Transportation Board Effectiveness: A Self-Assessment Handbook*, pro-

⁶ www4.trb.org/trb/crp.nsf

⁷ www.TRB.org/news/blurb_browse.asp?id=1

⁸ www.tcrponline.org

⁹ www.TRB.org/tcrp

vides a self-assessment and other tools to measure the effectiveness of public transportation boards. The handbook also provides guidance on changing board characteristics to improve effectiveness. The report supplements TCRP Report 85, *Public Transit Board Governance Guidebook*, a reference tool for transit agencies.

Transit Vehicles and Maintenance

TCRP Project C-14, Technical Support for Development of Transit Bus Standards, established a transit industry-driven process for producing bus standards and recommended practices in several technical areas. Administered by APTA, the process is guided by the APTA Bus Standards Policy and Planning Committee. In 2004, standards and recommended practices were developed for bus brakes, engine cooling systems, and heating, ventilation, and air conditioning.

Additional standards and recommended practices are in development. Work continues on a recommended practice for transit operator training, a standard for transit vehicle data recorders, technical specifications for hybrid-electric transit buses, and standards and recommended practices for bus fire prevention, including equipment specifications.

TCRP Project E-5, *Guidebook for Developing and Sharing Transit Bus Maintenance Practices*, will present a methodology and include case studies applying the methodology to six maintenance problem areas. Scheduled for completion in mid-2005, the project also will recommend improvements in the methods for developing and sharing bus maintenance practices.

TCRP Project E-6, *Transit Bus Mechanics: Building for Success*, is expected to develop a series of tests for the Institute for Automotive Service Excellence (ASE) to certify transit bus mechanics. The tests will be similar to those for the automotive, medium- and heavy-duty truck, and school bus industries. The project panel has identified 11 subject areas for testing.

The goal is for ASE to offer the first tests in spring 2006. The test development involves coordination with organized labor, to ensure the availability of relevant training. In combination with the ASE tests, the training will serve as a major opportunity for developing the bus maintenance workforce.



TCRP Synthesis 54, *Maintenance Productivity Practices*, describes the experiences of transit operators with bus maintenance productivity programs. The report summarizes findings for different programs involving transit agencies of various sizes, including union affiliations and operating conditions. Successful maintenance productivity practices and creative modifications to programs are presented.

Rural Public Transportation

TCRP Report 99, *Embracing Change in a Changing World: Case Studies Applying New Paradigms for Rural and Small Urban Transit Service Delivery*, targets providers of public transportation in rural and small urban areas; local, regional, state, and federal planners and funders of the services; and the program administrators at state DOTs. Presented as case studies, the findings constitute a resource for professionals interested in implementing new concepts to improve public transportation in rural and small urban communities.

TCRP Report 101, *Toolkit for Rural Community Coordinated Transportation Services*, presents strategies and practices for coordinating rural transportation services and identifies models for coordination efforts in rural communities. The report includes ways to improve ongoing coordination and documents the elements critical to success or failure in establishing sustainable rural public transportation services.

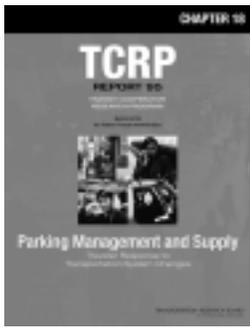
Workforce Development

TCRP Report 103, *Public Transportation Operating Agencies as Employers of Choice*, describes principles, techniques, and strategies for workforce recruitment, development, and retention. The report includes a companion document,

Case studies in improving public transportation in rural and small urban communities are the subject of TCRP Report 99.



TCRP Report 103 focuses on strategies for positioning public transportation operating agencies as employers of choice.



TCRP Reports 95 and 102 are among the transit planning titles published in 2004.

Communications Strategy and Implementation Plan: Positioning the Public Transportation Operating Agency as an Employer of Choice. The toolkit assists policymakers and practitioners in implementing more effective business plans for human resources.

TCRP Synthesis 52, *Transit Operator Health and Wellness Programs*, documents information on prevention and intervention strategies and resources that transit agencies can use to enhance operator health and wellness. The book assembles information from managers of health and wellness programs.

Planning

TCRP Report 95, *Traveler Response to Transportation System Changes: Third Edition*, is an up-to-date and expanded sourcebook on how transportation system changes and built environment options affect travel demand; the report will comprise 19 volumes. The first four volumes, published in 2003, address transit information and promotion, road value pricing, land use and site design, and parking management and supply. Six additional volumes were released in 2004, focusing on park-and-ride pools; demand-responsive services including Americans with Disabilities Act (ADA) complementary paratransit services; transit scheduling and frequency; bus routing and coverage; transit pricing and fares; and pricing and fees for parking. The remaining chapters will be published in 2005.

TCRP Report 98, *Resource Requirements for Demand-Responsive Transportation Services*, introduces a methodology for determining the resources—the vehicles and vehicle-service hours—to provide demand-responsive transportation (DRT) for different levels of demand and different levels of service. The report is accompanied by a software tool on CD-ROM for calculating a preliminary estimate of the number of vehicles required for a new or modified DRT service. An instruction manual for the software also is included on the CD-ROM. Transportation planners and human services transportation providers can apply the methodology.

TCRP Report 102, *Transit-Oriented Development in the United States: Experiences, Challenges, and Prospects*, offers a comprehensive assess-

ment of the state of the practice and the benefits of transit-oriented development (TOD) and joint development throughout the United States. The report is intended for transit agencies, the development community, and local decision makers. A companion publication, TCRP Research Results Digest 52, *Transit-Oriented Development and Joint Development in the United States: A Literature Review*, presents pertinent literature and research findings on TOD and joint development, along with an annotated subject area bibliography.

TCRP Synthesis 53, *Operational Experiences with Flexible Transit Services*, documents and summarizes transit agency experiences with flexible services, which fall between demand-responsive—such as dial-a-ride and ADA paratransit—and fixed-route services. The report covers six types of flexible transit service: request stops, flexible route segments, route deviation, point deviation, zone routes, and demand-responsive connector service. Findings derive from a literature review and an analysis of survey responses from 24 transit systems.

TCRP Synthesis 55, *Geographic Information Systems Applications in Transit*, provides information on the experiences of a variety of transit agencies in applying GIS in planning and operations. The report documents current practices, effective applications, and challenges, illustrating the value of GIS in providing service and realizing cost savings.

Coordination of Transportation Services

Like TCRP Report 101, *Toolkit for Rural Community Coordinated Transportation Services*, TCRP Report 105, *Strategies to Increase Coordination of Transportation Services for the Transportation Disadvantaged*, addresses transportation service coordination. The report describes strategies for initiating or improving coordination of publicly funded local and regional services for the transportation-disadvantaged, such as persons with disabilities and those who are clients of human service agencies.

Multimodal Decision Making

TCRP Report 106, *Practitioner's Handbook—From Handshake to Compact: Guidance to Foster Collab-*

orative, *Multimodal Decision Making*, outlines the characteristics of successful collaboration in decisions about multimodal transportation, along with steps to enhance the probability of success. Included is a method for assessing the health of a collaborative effort by identifying areas of weakness, so that improvements can be made.

A related document, TCRP Research Results Digest 65, *A New Vision of Mobility: Guidance to Foster Collaborative Multimodal Decision Making*, summarizes Phase I of the project. The digest identifies six environments for collaboration, discusses factors that motivate agencies to enter into and sustain collaborative partnerships for multimodal programs, offers examples of successful collaborations, and identifies challenges to collaboration.

TCRP and NCHRP jointly funded the project that led to the development of these two publications.

Legal Issues in Transit

TCRP Project J-5, *Legal Aspects of Transit and Intermodal Transportation Programs*, reports on issues associated with transit and intermodal law. Each document provides transit attorneys with authoritative, well-researched, specific information on legal issues and problems of national significance to the transit industry.

TCRP CD-ROM 20, Volume 5, *Selected Studies in Transportation Law: Transit Law*, compiles statutes, regulations, guidance, case law, and analysis relating to transit law. The 11 topic areas cover transit boards; open meetings and freedom of information; funding; labor and employment; procurement requirements and procedures; real estate acquisitions; environment; tort liability; safety; civil rights; and special operations requirements. The comprehensive compilation will be a valuable resource for attorneys involved in transit-related work.

Transit Lessons from Abroad

Since 1994, TCRP Project J-3, International Transit Studies Program, has sponsored 21 leadership development missions. Approximately 275 transit professionals have partici-

pated in missions to Europe, Asia, Canada, South America, New Zealand, and Australia in the past 10 years. The purpose of the program is to expand the horizons of U.S. transit managers. The findings and observations of the participants are published in TCRP Research Results Digests.¹⁰

AIRPORT COOPERATIVE RESEARCH PROGRAM

ACRP was authorized in December 2003 as part of the Vision 100–Century of Aviation Reauthorization Act. ACRP will be sponsored by FAA and managed by TRB, with program oversight and governance by representatives of airport operating agencies.

ACRP will carry out applied research on problems shared by airport operating agencies but not addressed adequately in federal research programs. A 2003 TRB study sponsored by FAA identified the need for ACRP,¹¹ which will undertake research and other technical activities in a variety of airport subject areas, including design, construction, maintenance, operations, safety, security, policy, planning, human resources, and administration.

The Vision 100 Act authorized \$10 million per year for ACRP in fiscal years 2004 through

¹⁰ TCRP Research Results Digests 20, 22, 27, 31, 33, 36, 42, 47, 49, 53, 54, 58, 62, 64, and 66; www.TRB.org/news/blurb_browse.asp?id=7

¹¹ TRB Special Report 272, *Airport Research Needs: Cooperative Solutions*; www.TRB.org/publications/sr/sr272.pdf





CTBSSP published two syntheses in 2004, including Report 4, *Individual Differences and the "High-Risk" Commercial Driver*.

2007. The timing of the approval, however, precluded appropriation of funds for the program in fiscal year 2004. The annual federal appropriation process will determine ACRP funding in fiscal year 2005 and beyond. FAA made sufficient funding available in 2004 to enable organization and preparation for ACRP to carry out research in fiscal year 2005 as funds are appropriated.

A Memorandum of Agreement between FAA, TRB, and representatives of the airport industry is in development. The ACRP governing board, established according to the terms of the memorandum, is expected to meet in early 2005 to establish operating procedures and to prioritize research needs for the program.

COMMERCIAL TRUCK AND BUS SAFETY SYNTHESIS PROGRAM

CTBSSP is a cooperative research program sponsored by FMCSA and administered by TRB. The program was authorized in late 2001 to support FMCSA's safety research programs.

The annual level of funding provided by FMCSA—typically \$100,000 to \$400,000—determines the number of synthesis studies the program will initiate. The reports summarize current practice in a specific technical area in commercial truck and bus safety, usually through a literature search and a survey of organizations such as state DOTs, enforcement agencies, commercial truck and bus companies, or other appropriate groups. The program is modeled after the successful synthesis programs of NCHRP and TCRP. The primary users of the syntheses are practitioners who are facing the issues or problems with diverse approaches in a variety of settings.

A program oversight panel monitors CTBSSP and program procedures; selects synthesis topics after periodic industrywide solicitations; refines synthesis scopes; selects researchers to prepare each synthesis; reviews products; and makes publication recommendations.

The program oversight panel has authorized 11 synthesis topics. The first three were pub-

lished in 2003, and two additional syntheses were published this year:

- CTBSSP Synthesis 4, *Individual Differences and the "High-Risk" Commercial Driver*; and
- CTBSSP Synthesis 5, *Training of Commercial Motor Vehicle Drivers*.

Six synthesis studies are in progress and are scheduled for publication in 2005:

- CTBSSP Synthesis 6, *Operational Differences/Similarities Among the Motorcoach, School Bus, and Trucking Industries*;
- CTBSSP Synthesis 7, *Effective Motorcoach Industry Hours of Service and Fatigue Management Techniques*;
- CTBSSP 8, *Commercial Motor Vehicle Driver Safety Belt Usage*;
- CTBSSP 9, *Alternative Commercial Truck and Bus Inspection Strategies*;
- CTBSSP 10, *Technology Utilization in Commercial Truck and Bus Safety Strategies*; and
- CTBSSP 11, *Health and Fatigue Issues Associated with Commercial Motor Vehicle Driver Hours of Work*.

STAFF NEWS

- **Martine A. Micozzi** joined the NCHRP staff in January as Senior Program Officer. She previously was with the Organization for Economic Cooperation and Development in Paris and with FHWA in Washington, D.C.
- **Roy Mesler** transferred from the National Academies Office of Contracts and Grants to take on responsibilities as Information Technology Specialist for NCHRP.
- **Joseph Snell**, formerly TRB Library Clerk, joined the TCRP staff as Senior Program Assistant.
- **Monique T. Peters** is the current intern from Cardozo Senior High School's Transportation and Technology Academy.

SPECIAL PROGRAMS

The TRB Special Programs Division administers short-term investigations of innovative concepts and advises the federal government on the conduct of long-term research studies.

The Division's Innovations Deserving Exploratory Analysis (IDEA) programs foster new and unconventional approaches to advancing practice in transit, highways, high-speed rail, intelligent transportation systems, and transportation safety.

Supported by the Division, committees of experts in various aspects of highway technology monitor and advise the Federal Highway Administration (FHWA) of the U.S. Department of Transportation on the Long-Term Pavement Performance (LTPP) studies and on the development and deployment of the Superpave® system of hot-mix asphalt materials mixture design. The Division also supports a committee of analysts from the United States and abroad that convenes twice annually for informal, critical discussion of analytical research involving LTPP and other pavement performance data.

IDEA PROGRAMS

IDEA programs fund initial investigations of concepts that may lead to breakthroughs in transportation technology. Small, researcher-initiated projects investigate the feasibility of innovative concepts in general areas of interest to the transportation community. IDEA programs sponsor high-risk research removed from the immediate mission concerns of public agencies and from the short-term financial imperatives of the private sector.

- The Safety IDEA program, established in 2001 under the sponsorship of the Federal Motor Carrier Safety Administration (FMCSA), has expanded its support and scope. With the addition of the Federal Railroad Administration (FRA) as a sponsor in 2002, the Safety IDEA program funds projects to improve the safety of truck, intercity bus, and rail operations. As of September 2004, the Safety IDEA program committee has selected 10 research projects for funding, and 7 investigations are under way.





Victor M. Mendez
Chair
 Long-Term Pavement
 Performance
 Committee



Joseph A. Mickes
Chair
 TRB Superpave
 Committee



Joseph T. Deneault
Chair
 Committee for
 Research on Improved
 Concrete Pavement for
 Federal-Aid Highways



Ray D. Pethtel
Chair
 Transportation Safety
 Technology IDEA
 Committee



Richard L. Stewart
Chair
 NCHRP Highway
 IDEA Panel



Fred Gilliam
Chair
 Transit IDEA Panel



Mike Franke
Chair
 Committee for the
 High-Speed Rail IDEA
 Program



Neil F. Hawks
Director
 Special Programs

- Via the National Cooperative Highway Research Program (NCHRP), state departments of transportation collectively fund innovative highway-related research through the NCHRP IDEA program.
- Research on innovations applicable to transit practice is carried out under the Transit IDEA program, funded by the Federal Transit Administration through the Transit Cooperative Research Program.
- FRA also sponsors the High-Speed Rail IDEA program, which focuses on upgrading technology to support the Next-Generation High-Speed Rail Technology Demonstration Program.

The IDEA programs have the same general administrative structure, with adaptations for sponsorship arrangements and target audiences. Each program operates through a committee or panel of volunteer transportation experts who solicit, review, and select proposals that merit research contracts.

Because IDEA projects are high-risk investigations of unproved concepts, the funds awarded for any one project are usually less than \$100,000. Frequently, however, the IDEA funds are augmented through cost-share arrangements, nearly doubling the amount of research that can be supported. The projects active in 2003 received \$3.3 million in cost-share funds to augment the \$4.4 million awarded by the program committees.

A 2003 survey of IDEA investigators revealed that research and development continued on nearly half of the 206 projects with completed contracts, through \$20 million in follow-on funding from other sources. Products from 29 projects are now available to the transportation community, and another 51 proven concepts are in various stages of development.

An annual summary of completed and current projects is published for each of the IDEA programs and distributed at the TRB Annual Meeting. These summaries also are available on the IDEA page of the TRB website,¹ along with the IDEA Program Announcement, which contains forms and guidelines for submitting proposals. A quarterly publication, *Ignition*, features interviews with IDEA investigators and

¹ www.TRB.org/idea

transportation leaders and highlights promising projects. Issues of *Ignition* are archived on the IDEA website.

RESEARCH PROGRAM COMMITTEES

The Transportation Equity Act for the 21st Century (TEA-21) led directly to the creation of two continuing research program committees in the Special Programs Division and to an expanded role for the LTPP Committee. All three committees monitor, review, and advise on the conduct of pavement research and technology programs.

Without the reauthorization of the surface transportation legislation, the programs curtailed activities in 2004. In some cases, meetings were canceled, and planned work was deferred. FHWA funds for the advisory committees were depleted as of January 1, 2004, but supplemental funds became available to restart the LTPP program in March and to resume minimal Superpave activity between August and the end of the year.

Nevertheless, the Governing Board of the National Research Council has approved a request by FHWA for two new research and technology review committees—one on asphalt pavement and one on concrete pavement. Both committees are scheduled to begin work in 2005.

Long-Term Pavement Performance

The goal of LTPP is to discover the physical relationships that determine the long-term performance of highway pavements, through a series of rigorous field experiments on in-service highways. Assisted by specialized expert task groups, the LTPP Committee provides guidance on planning and operations and technical oversight throughout the 20-year span of the studies.

The committee and the expert task groups counsel FHWA and the American Association of State Highway and Transportation Officials (AASHTO) on the collection of pavement performance data, analyses of the data, and the development of engineering products from the findings. The Expert Task Group on LTPP Data Analysis, for example, provides peer review of analytical research. The committee then uses



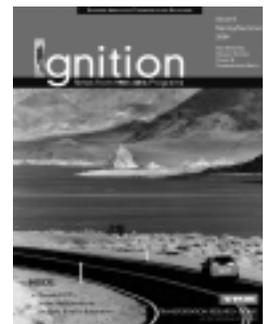
Transit IDEA program supervised the testing of an audio-enhanced ticket machine for transit riders with impaired vision.

the task group findings to craft recommendations directing the analytical research toward practical products, in accordance with a long-term plan that prioritizes discrete LTPP research projects.²

Other expert task groups monitor LTPP operations, which collect traffic, distress and profile, and materials data. Expert task groups are formed as technical issues arise in LTPP studies.

Another Special Programs Division group employs a less formal approach to encourage and facilitate applications of pavement performance data—including data from LTPP—to develop insights into the type, rate, and extent of pavement deterioration over time and as a result of vehicle loads and environment. The Data Analysis Working Group—affectionately called “the DAWG” by participants—is an international forum for researchers to discuss pavement performance data analysis projects and to exchange new techniques of analysis.

At the DAWG forums, researchers report on experiences with active analytical projects. At the conclusion of a presentation, the speaker answers questions from the audience and asks for suggestions on overcoming barriers or for alternative approaches.³



Ignition is the quarterly news magazine of the Special Programs division.

² www.trb.org/news/blurp_detail.asp?id=3792

³ http://www4.trb.org/trb/dive.nsf/web/dawg_meetings



The “animated eyes” pedestrian safety device, which received funding through the IDEA programs in 1999, was included in FHWA’s new *Manual on Uniform Traffic Control Devices*. The IDEA project found significantly fewer conflicts between people and vehicles at intersections with the signals, which remind pedestrians to glance in the direction of the moving eyes before entering the crosswalk.

In 2003, the DAWG met in January as part of the TRB Annual Meeting, and in July in Guimarães, Portugal, in association with the 3rd International Symposium on Maintenance and Rehabilitation of Pavements and Technological Control. In 2004, the DAWG again met at the TRB Annual Meeting in January, but the meeting scheduled for May in Limoges, France, in association with the 5th International Conference on Cracking in Pavements, Risk, Assessment, and Prevention, was canceled because of the delay in reauthorization.

Superpave

FHWA and AASHTO jointly fund and manage the Superpave deployment program through NCHRP. The Superpave Committee, organized at the request of AASHTO and FHWA, monitors implementation, recommends annual work programs, and provides a forum for industry and academia to participate in the deployment and development of the Superpave system.

Assisted by expert task groups on mixtures, aggregates and binders, and communications, the committee advised the AASHTO Standing Committee on Research about potential Superpave-related research and development projects to be funded through NCHRP and monitored the progress of the Superpave research and development conducted by FHWA.

Since its first meeting in March 1999, the committee has issued 10 advisory letter reports⁴ and has developed a long-range plan

⁴ www4.TRB.org/trb/dive.nsf/web/Superpave_Final_Letter_Reports

to bring Superpave development and deployment to a logical conclusion. In 2004, most of these activities went into hiatus as Congress delayed passage of a transportation bill and funding. Nevertheless, the committee expects to release final recommendations and findings in early 2005.

Improved Concrete Pavements

TEA-21 authorized a research program to improve the use of portland cement concrete pavements for federal-aid highways. FHWA managed the research but requested that TRB organize a committee to coordinate and review the program and to serve as a forum for balanced input from the states, academia, and industry.

The committee met in March and October 2003 and advised FHWA on a long-range plan for concrete pavement research and on communication strategies to make findings accessible to the transportation community. The committee issued its ninth and final letter report with recommendations in January. The nine letter reports are available on the TRB website.⁵

STAFF NEWS

David Jones, Technical Specialist in Infrastructure Engineering with CSIR Transportek, Pretoria, South Africa, returned home in June 2004 after a year as a visiting researcher with the Special Programs Division. Jones worked with the LTPP studies to research the benefits and risks of accelerated pavement loading techniques to supplement or to complement the full-scale field studies in progress.

Visiting researchers, on sabbatical or secondment from governmental or academic institutions, lend short-term, expert assistance on specific issues to Special Programs Division committees. Jones is the sixth visiting researcher in 10 years.

⁵ www4.nas.edu/trb/dive.nsf/web/reports_of_the_ricp_committee?OpenDocument



In May, William Harris retired from the High-Speed Rail IDEA program, which he had chaired for 6 years.

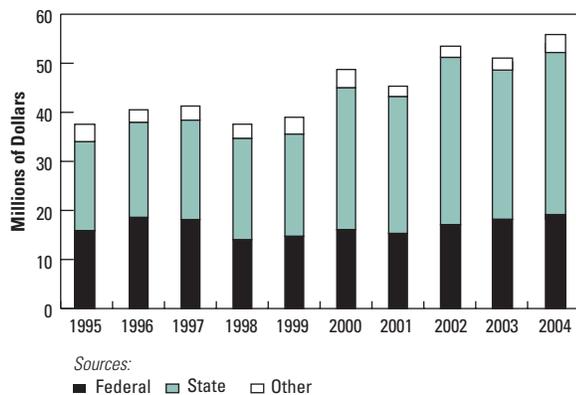
ADMINISTRATION AND FINANCE

The TRB Administration and Finance Division provides financial, technology, and administrative support for TRB staff; financial oversight of the contracts and grants that support the work of TRB; expenditure controls; administration of the sales and distribution of publications; maintenance of the benefits and services for sponsor and affiliate organizations; and liaison to the administrative and financial offices of the National Academies.

FINANCIAL MANAGEMENT

The Administration and Finance Division is charged with the management of contracts and grants that support TRB's research work; the preparation of budgets for continuing operations and individual projects; and the control of expenditures. TRB's total income and expenditures have increased consistently over the years to more than \$50 million (see figure, below). A statement of income and expenditures appears on pages 48–49.

TRB Expenditures per Year





Michael P. LaPlante
Director
Administration
and Finance

AFFILIATE AND SPONSOR SERVICES

TRB's core technical activities have five levels of support: student affiliates, individual affiliates, organizational affiliates, sustaining affiliates, and sponsors. All affiliates and sponsors contribute to TRB activities through annual fees.

Individual and student affiliate benefits include reduced registration fees for the TRB Annual Meeting, a complimentary subscription to *TR News*, discounts on most TRB books and reports, use of the TRB library, and assistance with TRB's computer-based information services. Individual and student affiliates also may subscribe to publications at a substantially reduced cost through a selective distribution program.

Organizational affiliates include government agencies, academic organizations, private organizations, and consultants committed to the advancement of knowledge about the nature and performance of transportation systems and system components. In addition to the benefits received by individuals, organizational affiliates receive most publications at no cost, as well as complimentary registrations for the TRB Annual Meeting. Contributions for organizational affiliates range from \$2,000 to \$6,000, depending on the level of benefits elected.

Sustaining affiliates are agencies and organizations, including individual corporations and businesses, that support TRB at a level considerably higher than the direct cost of the services and publications received. The minimum annual contribution is \$15,000.

Sponsors are the major source of financial support for TRB's core technical activities. Federal, state, and local government agencies and professional societies and organizations that represent industry groups are eligible to be TRB sponsors. Fees and services are negotiated to serve the sponsor's needs and to provide fundamental support for the Board's programs and activities of interest to the entire transportation community. The minimum annual sponsor fee is \$60,000. Sponsors are also represented on the TRB Executive Committee. (See pages 55–56 for a list of TRB sponsors and sustaining affiliates.)

WEB AND STRATEGIC APPLICATIONS

The TRB web homepage, www.TRB.org, and its associated resources have been upgraded to support two major initiatives: the reorganization of the Technical Activities Division committees and the implementation of an online submittal and review system for Annual Meeting papers. In conjunction with both projects, a new security system was implemented, to ensure that only authorized users have access to certain features of the website or to protected data.

Paper Submittal and Review System

More than 2,500 papers are submitted for presentation at the TRB Annual Meeting, and about 700 of these papers are published in the *Transportation Research Record: Journal of the Transportation Research Board*. To improve the way that authors submit papers for review and publication and the way that TRB staff and committee chairs assign, track, and monitor peer reviews of papers, a web-based application was installed, replacing the previously used vendor product.

The Annual Meeting Program Planning Tool also was integrated into the new submittal and review system, so that TRB staff can prepare more easily for the Annual Meeting.

Secure Applications

A secure log-in application was designed, developed, and implemented for the TRB website. Each authorized user receives a unique log-in password that permits access to the applications and databases according to the user's level of clearance. The model is being applied incrementally to other applications and resources within TRB.

When security flaws were detected in the previous system for paper submittal and review, the strategy was revised and a secure web application was installed at TRB for enhanced protection. Visitors who log in to the site now have assurance that data—such as member information or a paper—can be viewed only by authorized users, because each

user must register, and each user's action is tracked and recorded.

Online Directory

The TRB Online Directory displays a variety of information about TRB committees and panels and their memberships. To assist with the transition to the reorganization of the Technical Activities Division standing committees as of January 2004, the Online Directory has allowed users to search and view committees by both the old and the new structures.

Public users can view only general-level data, but the enhanced security model gives authorized users access to detailed contact information about committee or panel members. In this way, authorized users receive online the same level of information that was previously available in the printed TRB Directory, but with regular updating by the Membership Office. Authorized users, such as sponsors, affiliates, and committee members, soon will be able to submit updates to the Membership Office via an online form.

PUBLICATION SALES AND DISTRIBUTION

TRB's timely distribution of publications disseminates transportation research and technology results worldwide. TRB also releases selected publications in electronic format, some exclusively.

TRB distributes and maintains an inventory of publications and videotapes that report on the results of research supported by the Strategic Highway Research Program (SHRP). The full collection of SHRP reports is available in electronic format on the TRB website, www.TRB.org.

A list of TRB publications issued from January 1 through December 31, 2004, appears on pages 51–54.



The TRB website offers enhanced user security and expanded applications, adding online submittal and review of Annual Meeting papers to online meeting registration, a searchable preliminary Annual Meeting program, and more.

STAFF NEWS

- **Gordon C. Franke**, previously Information Specialist in the Technical Activities Division, moved to the Administration and Finance Division as Programmer Analyst.
- **Laurence Woltman** also joined the Information Technology staff as Senior Programmer Analyst.
- **Makeeya Hazelton** was hired as Customer Service Representative in the Publication Sales Department in October 2004.

STATEMENT OF INCOME AND EXPENDITURES

Calendar Years 2003 and 2004

	CY 2003 (actuals)	CY 2004 (projected) ^a
Sources of Income		
Core Technical Activities, Special Continuing Programs, and Studies/Conferences/Workshops		
State Transportation Departments	6,154,340	6,300,000
Federal Highway Administration	4,869,321	5,100,000
Bureau of Transportation Statistics	642,259	650,000
Federal Motor Carrier Safety Administration	623,715	650,000
Research and Special Programs Administration	466,410	500,000
National Highway Traffic Safety Administration	442,307	450,000
U.S. Coast Guard	330,579	350,000
Federal Railroad Administration	293,921	325,000
Robert Wood Johnson Foundation	285,906	300,000
Federal Aviation Administration	172,972	200,000
Federal Transit Administration	170,119	200,000
National Oceanic and Atmospheric Administration	110,027	25,000
U.S. Army Corps of Engineers	105,964	110,000
Metropolitan Washington Council of Governments	99,709	0
U.S. Department of Energy	86,789	90,000
U.S. Navy	66,128	30,000
National Aeronautics and Space Administration	60,000	60,000
U.S. Environmental Protection Agency	60,000	60,000
Association of American Railroads	60,000	60,000
American Transportation Research Institute	60,000	60,000
American Public Transportation Association	60,000	60,000
U.S. Department of Transportation Office of the Secretary	52,352	50,000
U.S. Customs and Border Patrol	50,754	50,000
U.S. Forest Service	30,489	30,000
U.S. Department of Agriculture	24,436	25,000
Maritime Administration	20,000	20,000
Bureau of Indian Affairs	0	20,000
Government Accountability Office	0	50,000
Minerals Management Service	0	15,000
The National Academies	68,428	70,000
Miscellaneous	122,245	150,000
Affiliate, Registration, Royalties, and Publication Sales	2,251,627	2,900,000
Subtotal	\$17,840,797	\$18,960,000
Cooperative Research Programs		
State Transportation Departments	\$24,451,255	\$26,850,000
Federal Highway Administration	2,057,303	2,700,000
Federal Transit Administration	7,367,932	7,500,000
Publication Sales	58,292	65,000
Subtotal	\$33,934,782	\$37,115,000
Total TRB Income		
State	\$30,705,304	\$33,150,000
Federal	18,103,777	19,175,000
Other	2,966,497	3,665,000
Total	\$51,775,578	\$55,990,000
Sources of Expenditures		
Expenditures by Major Cost Category		
Salaries (including fringe benefits)	\$9,247,921	\$10,047,000
Travel and Meetings	3,912,193	\$4,250,000
Consultants and Contracts	22,292,233	\$24,219,000
Abstracting, Indexing, and Publishing	2,722,070	\$2,957,000
Other Direct Costs	1,339,471	\$1,455,000
Indirect Costs	12,027,607	\$13,067,000
Subtotal	\$51,541,495	\$55,995,000

	CY 2003 (actuals)	CY 2004 (projected) ^a
Expenditures by Major Activity		
Core Technical Activities		
Committee Activities and Field Visits	\$5,416,915	\$5,990,000
Annual Meeting	1,123,851	\$1,243,000
Library and Transportation Research Information Services (TRIS)	1,382,417	\$1,529,000
Publications	2,711,958	\$2,998,000
Subtotal	\$10,635,141	\$11,760,000
Special Continuing Programs		
Pavement Program Review Committees and Activities	\$1,201,881	\$550,000
Innovations Deserving Exploratory Analysis (IDEA)	1,842,973	3,110,000
Synthesis Studies	1,864,318	1,810,000
Legal Studies	344,645	235,000
Research and Technology Coordinating Committee	399,875	440,000
Marine Board Core Program	224,505	285,000
Subtotal	\$5,878,197	\$6,430,000
Studies/Conferences/Workshops	\$4,612,207	\$4,180,000
Cooperative Research Programs		
National Cooperative Research Program		
Technical Direction, Reports, and Panels	\$5,520,790	\$6,136,000
Research	18,412,890	20,464,000
Subtotal	\$23,933,680	\$26,600,000
Transit Cooperative Research Program		
Technical Direction, Reports, and Panels	\$1,847,109	\$2,014,000
Research	4,594,245	5,011,000
Subtotal	\$6,441,354	\$7,025,000
Subtotal^b	\$30,375,034	\$33,625,000
Total TRB Expenditures		
State	\$30,705,304	\$33,150,000
Federal	\$18,103,777	\$19,175,000
Other	\$2,691,497	\$3,670,000
Total	\$51,500,578	\$55,995,000

SPECIAL FUND

Fund balance, end of previous fiscal year	\$5,740,150	\$6,015,150
Plus (minus) current fiscal year income over (under) expenditures	275,000	-5,000
Balance, current fiscal year	\$6,015,150	\$6,010,150

In 1965 the TRB Executive Committee approved a reserve fund to provide for orderly adjustments in the event of a temporary shortfall in anticipated revenues for TRB Technical Activities. This fund, built up over the years from surplus income in excess of expenditures from non-federal sources for any one fiscal year, is reserved for expenditures in excess of income for any later fiscal year under a fixed budget approved triennially by the TRB Executive Committee.

^a CY 2004 data use actual income and expenditures for the first 3 quarters, and an estimate for the 4th quarter.

^b The total expenditure shown for the Cooperative Research Programs (CRP) is lower than the total revenue shown for the CRP because some expenditures are included in CRP-supported activities under TRB's Special Continuing Activities and Studies, Conferences, and Workshops.

TRB CONFERENCES AND WORKSHOPS

January 1, 2004–December 31, 2004

JANUARY

10 Data Analysis Working Group Forum
11–15 TRB 83rd Annual Meeting

MARCH

31–April 2 Aviation Environmental Design Tool Workshop

APRIL

13–17 5th International Conference on Case Histories in Geotechnical Engineering*
14–16 8th International Level Highway–Rail Crossing Symposium*
21–23 Workshop on Abandoned Underground Mines*

MAY

3 International Trade Data Workshop
5–6 2nd National TRB–APTA Bus Rapid Transit Conference
5–8 5th International Conference on Cracking in Pavements: Risk, Assessment, and Prevention*
23–26 Ports 2004: Port Development in the Changing World*
23–26 10th International Conference on Mobility and Transport for Elderly and Disabled People*
26–28 8th International Conference on Applications of Advanced Technologies in Transportation*

JUNE

6–9 Environmental Management and the Greening of Transportation Workshop
7–9 6th International Symposium on Snow Removal and Ice Control Technology
14–15 Transportation Security Research Workshop
27–30 North American Travel Monitoring Exposition and Conference 2004

JULY

11–13 Integrating Sustainability Meeting
18–20 Management and Productivity Summer 2004 Conference
18–21 43rd Annual Workshop on Transportation Law
20–21 Workshop on Research Needed to Support Vehicle–Infrastructure Cooperation
21–24 Highway Capacity and Quality of Service Conference
25–27 Joint Summer Meeting of the Planning, Economics, Environmental, Finance, Freight, and Management Committees

AUGUST

2–4 Removing Water from Within Pavement Structures*
12 Workshop on Transit Capacity and Quality of Service
16–19 Collaboration: Improving Mobility and the Environment
21–26 National Community Impact Assessment Conference*
22–24 Performance Measures to Improve Transportation Systems: Second National Conference
25–27 Research and Education Section Midyear Meeting
29–Sept. 1 6th National Meeting on Access Management
31–Sept. 1 3rd Safety-Conscious Planning Leadership Conference

SEPTEMBER

7 Geotechnical Methods Revisited
7–10 Pro Walk–Pro Bike*
8 Creating Rural Freight Transport Opportunities in a Global Market*
12–15 North American Conference on Elderly Mobility: Best Practices from Around the World*
14–17 Structural Materials Technology: Nondestructive Evaluation–Nondestructive Testing for Highways and Bridges*
22–24 9th National Conference on Transportation Planning for Small and Medium–Sized Communities
26–29 2nd International Conference on Accelerated Pavement Testing*

OCTOBER

19–22 2nd International Conference on Bridge Maintenance, Safety, and Management*
19–24 6th International Conference on Managing Pavements*
24–27 14th Equipment Management Workshop
24–27 16th National Conference on Rural Public and Intercity Bus Transportation

NOVEMBER

1–2 National Household Travel Survey Conference: Understanding Our Nation's Travel
16–17 7th Marine Transportation System Research and Technology Coordination Conference
18–20 Conference for Research on Women's Transportation Issues

DECEMBER

1–3 Conference on Managing Travel for Planned Special Events*

*TRB is cosponsor of the meeting.

TRB PUBLICATIONS

Transportation Research Record

- 1862 Traffic Control Devices, Visibility, and Rail–Highway Grade Crossings 2004
- 1863 Railroads: High-Speed Passenger Rail, Railway Bridges, and Track Design and Maintenance
- 1864 Transportation Finance, Economics, and Economic Development 2004
- 1865 Highway Safety: Older Persons; Traffic Law Enforcement; Management and Trucking
- 1866 Maintenance and Management of Pavement and Structures
- 1867 Freeway Operations and Traffic Signal Systems 2004
- 1868 Soil Mechanics 2004
- 1869 Pavement Rehabilitation, Strength and Deformation Characteristics, and Surface Properties 2004
- 1870 Data and Information Technology
- 1871 Water Transport
- 1872 Transit: Intermodal Transfer Facilities, Rail Transit, Commuter Rail, Light Rail, Ferry, and Major Activity Center Circulation Systems
- 1873 Intermodal Freight Transportation; Freight Transportation Planning
- 1874 Geology and Properties of Earth Materials 2004
- 1875 Bituminous Binders 2004
- 1876 Calibration Validation of Simulation Models 2004
- 1877 Maintenance Management and Services
- 1878 Pedestrians and Bicycles; Developing Countries
- 1879 Information Systems and Technology
- 1880 Energy and Environmental Concerns 2004
- 1881 Geometric Design and the Effects on Traffic Operations 2004
- 1882 Transportation Network Modeling 2004
- 1883 Traffic Flow Theory and Highway Capacity and Quality of Service 2004
- 1884 Transit: Bus, Rural Public Transportation, and Paratransit
- 1885 Transportation Management and Public Policy 2004
- 1886 Intelligent Transportation Systems and Vehicle–Highway Automation 2004
- 1887 Transit: Planning and Development, Management and Performance, Marketing and Fare Policy, and Capacity and Quality of Service
- 1888 Safety, Economy, and Efficiency Issues in Airport and Airspace Management Operation
- 1889 Pavement Management, Monitoring, Evaluation, and Data Storage 2004
- 1890 Highway Facility Design 2004
- 1891 Bituminous Paving Mixtures 2004
- 1892 Design of Structures 2004
- 1893 Concrete 2004
- 1894 Travel Behavior and Values 2004
- 1895 Transportation Planning and Analysis 2004
- 1896 Pavement Design and Accelerated Testing 2004
- 1897 Statistical Methods and Safety Data Analysis and Evaluation
- 1898 Travel Demand and Land Use 2004
- 1899 Driver and Vehicle Simulation, Human Performance, and Information Systems for Highways; Railroad Safety; and Visualization in Transportation
- 1900 Construction 2004

Special Reports¹

- 279 The Marine Transportation System and the Federal Role: Measuring Performance, Targeting Improvement
- 280 Development and Deployment of Standards for Intelligent Transportation Systems: Review of the Federal Program
- 281 Transmission Pipelines and Land Use: A Risk-Informed Approach

State of the Art Report

- 9 Utilities and Roadside Safety¹

Conference Proceedings¹

- 27 Transportation in an Aging Society: A Decade of Experience
- 30 Marine Salvage Capabilities: Responding to Terrorist Attacks in U.S. Ports—Actions to Improve Readiness
- 31 Geospatial Information Infrastructure for Transportation Organizations: Toward a Foundation for Improved Decision Making

Conference Proceedings on the Web (online)

- 1 Environmental Spatial Information for Transportation: A Peer Exchange on Partnerships

Transportation Research E-Circulars (online)

- 62 Addressing Fiscal Constraint and Congestion Issues in State Transportation Planning
- 63 Sixth International Symposium on Snow Removal and Ice Control Technology
- 64 Data Requirements in Transportation Reauthorization Legislation
- 65 Transportation Security Education and Training: Summaries of Presentations at TRB's 83rd Annual Meeting

- 66 National Metropolitan Planning Organization Peer Exchange Proceedings
- 67 Context-Sensitive Design Around the Country: Some Examples
- 68 New Simple Performance Tests for Asphalt Mixes
- 69 Critical Issues in Aviation and the Environment
- 70 Optimizing the Dissemination and Implementation of Research Results

TR News

Nos. 230–235

Online Newsletters

LRT News, Vol. 19, No. 1
 Intercity Rail Passenger Systems, No. 10
 TRB Transportation Research Electronic Newsletter

National Cooperative Highway Research Program (NCHRP) Reports²

- 500 Guidelines for Implementation of the AASHTO Strategic Highway Safety Plan
 - Volume 7: A Guide for Reducing Collisions on Horizontal Curves
 - Volume 8: A Guide for Reducing Collisions Involving Utility Poles
 - Volume 9: A Guide for Reducing Collisions Involving Older Drivers
 - Volume 10: A Guide for Reducing Collisions Involving Pedestrians
 - Volume 11: A Guide for Increasing Seatbelt Use
 - Volume 12: A Guide for Reducing Collisions at Signalized Intersections
 - Volume 13: A Guide for Reducing Collisions Involving Heavy Trucks
- 507 Load and Resistance Factor Design (LRFD) for Deep Foundations (with CD-39)
- 509 Equipment for Collecting Traffic Load Data
- 511 Guide for Customer-Driven Benchmarking of Maintenance Activities (with Primer)
- 512 Accelerated Pavement Testing: Data Guidelines
- 514 Bonded Repair and Retrofit of Concrete Structures Using FRP Composites
- 515 Portable Scour Monitoring Equipment
- 516 Pier and Contraction Scour in Cohesive Soils
- 517 Extending Span Ranges of Precast Prestressed Concrete Girders
- 518 Safety Evaluation of Permanent Raised Pavement Markers
- 519 Connection of Simple-Span Precast Concrete Girders for Continuity
- 520 Sharing Information between Public Safety and Transportation Agencies for Traffic Incident Management
- 521 Identification of Research Needs Related to Highway Runoff Management
- 522 A Review of DOT Compliance With GASB 34 Requirements

- 523 Optimal Timing of Pavement Preventive Maintenance Treatment Applications
- 524 Safety of U-Turns at Unsignalized Median Openings
- 525 Surface Transportation Security
 - Volume 1: Responding to Threats: A Field Personnel Manual
 - Volume 2: Information Sharing and Analysis Centers: Overview and Supporting Software Features
- 526 Snow and Ice Control: Guidelines for Materials and Methods
- 527 Integral Steel Box-Beam Pier Caps
- 528 Thermally Sprayed Metal Coatings to Protect Steel Pilings: Final Report and Guide
- 529 Guideline and Recommended Standard for Geofoam Applications in Highway Embankments
- 530 Evaluation of Indirect Tensile Test (IDT) Procedures for Low-Temperature Performance of Hot Mix Asphalt
- 531 Relationships of Air Voids, Lift Thickness, and Permeability in Hot Mix Asphalt Pavements
- 532 Effective Methods for Environmental Justice Assessment
- 533 Handbook for Predicting Stream Meander Migration (with CD-48, Web Doc 67 and CD-49)
- 534 Guidelines for Inspection and Strength Evaluation of Suspension Bridge Parallel-Wire Cables (with CD-54)

NCHRP Synthesis of Highway Practice²

- 325 Significant Findings from Full-Scale Accelerated Pavement Testing
- 326 Strategic Planning and Decision Making in State Departments of Transportation
- 327 Cost-Effective Practices for Off-System and Local Interest Bridges
- 328 State Product Evaluation Programs
- 329 Integrating Tourism and Recreation Travel with Transportation Planning and Project Delivery
- 330 Public Benefits of Highway System Preservation and Maintenance
- 331 State Highway Letting Program Management
- 332 Access Management on Crossroads in the Vicinity of Interchanges
- 333 Concrete Bridge Deck Performance
- 334 Automated Pavement Distress Collection Techniques
- 335 Pavement Management Applications Using Geographic Information Systems
- 336 Road Safety Audits
- 337 Cooperative Agreements for Corridor Management
- 338 Thin and Ultra-Thin Whitetopping
- 340 Convertible Roadways and Lanes

NCHRP Research Results Digests²

- 285 Laboratory Determination of Resilient Modulus for Flexible Pavement Design

- 286 Development of a Highway Safety Manual
- 287 Highway Capacity Manual Applications Guidebook
- 288 A New Vision of Mobility: Guidance to Foster Collaborative Multimodal Decision Making (jointly with TCRP RRD 65)
- 289 Measuring and Communicating the Effects of Traffic Incident Management Improvements
- 290 Recommended Mechanistic-Empirical Pavement Design Guide and Software: Available for Evaluation
- 291 Quality Characteristics for Use with Performance-Related Specifications for Hot Mix Asphalt
- 292 Continuing Projects to Synthesize Information on Highway Problems
- 293 Training Program for Night Road Work to Improve Safety and Operations

NCHRP Web Documents (online)

- 61 Improving the Compatibility of Vehicles and Roadside Safety Hardware
- 62 Development of a Highway Safety Manual
- 63 A Review of DOT Compliance with GASB 34 Requirements: Final Report Appendices A–G
- 64 Appendices to NCHRP Research Results Digest 289: Measuring and Communicating the Effects of Incident Management Improvements
- 65 Geofoam Applications in the Design and Construction of Highway Embankments
- 66 An Investigation of the Cause of Variation in HMA Bulk Specific Gravity Test Results Using Non-Absorptive Aggregates
- 67 Methodology for Predicting Channel Migration
- 68 Relationships of HMA In-Place Air Voids, Lift Thickness, and Permeability (Volumes 1–4)
- 69 Performance Measures for Context-Sensitive Solutions: A Guidebook for State DOTs

Transit Cooperative Research Program (TCRP) Reports³

- 71 Track-Related Research, Volume 3: Exothermic Welding of Heavy Electrical Cables to Rail—Applicability of AREMA Track Recommended Practices for Transit Agencies
- 84 e-Transit: Electronic Business Strategies for Public Transportation, Volume 5: Concept for an e-Transit Reference Enterprise Architecture
- 86 Public Transportation Security
 - Volume 5: Security-Related Customer Communications and Training for Public Transportation Providers
 - Volume 6: Applicability of Portable Explosive Detection Devices in Transit Environments
- 95 Traveler Response to Transportation System Changes

- Chapter 3: Park-and-Ride and Park-and-Pool
- Chapter 6: Demand Responsive/ADA
- Chapter 9: Transit Scheduling and Frequency
- Chapter 10: Bus Routing and Coverage
- Chapter 12: Transit Pricing and Fares
- 99 Embracing Change in a Changing World: Case Studies Applying New Paradigms for Rural and Small Urban Transit Service Delivery
- 101 Toolkit for Rural Community Coordinated Transportation Services
- 102 Transit-Oriented Development in the United States: Experiences, Challenges, and Prospects
- 103 Public Transportation Operating Agencies as Employers of Choice (with CD-45)
- 104 Public Transportation Board Effectiveness: A Self-Assessment Handbook
- 105 Strategies to Increase Coordination of Transportation Services for the Transportation Disadvantaged (with CD-51)

TCRP Synthesis of Transit Practice³

- 51 Transit Advertising Sales Agreements
- 52 Transit Operator Health and Wellness Programs
- 53 Operational Experiences with Flexible Transit Services
- 54 Maintenance Productivity Practices
- 55 Geographic Information Systems Applications in Transit
- 56 Performance-Based Measures in Transit Fund Allocation
- 57 Computer-Aided Scheduling and Dispatch in Demand-Responsive Transit Service

TCRP Research Results Digest³

- 65 A New Vision of Mobility: Guidance to Foster Collaborative Multimodal Decision Making (jointly with NCHRP RRD 288)
- 66 International Transit Study Program, Fall 2003 Mission: Transit Design, Construction, and Operations in the Mediterranean Region
- 67 Synthesis of Information Related to Transit Problems
- 68 International Transit Study Program, Spring 2004 Mission: Vehicle Design Standards and Procurement Practices in Europe

TCRP Web Documents (online)

- 24 The Public Transportation Board Effectiveness

Cooperative Research Programs CD-ROMs

- CRP-CD-20 Selected Studies in Transportation Law:
 - Volume 1: Construction Contract Law
 - Volume 5: Transit Law

- CRP-CD-39 NCHRP Report 507 Appendix material
- CRP-CD-43 TCRP Report 86: Public Transportation Security, Volume 5: Security-Related Customer Communications and Training for Public Transportation Providers
- CRP-CD-44 Recommended Use of Reclaimed Asphalt in the Superpave Mix Design Method, DVD movie converted to CD format
- CRP-CD-45 TCRP Report 103 Supplementary Material: Toolkit
- CRP-CD-46 Simple Performance Tests and Advanced Materials Characterization Models: Archive Materials
- CRP-CD-47 NCHRP Report 527: Appendices A–H
- CRP-CD-48 NCHRP Report 533 Supporting Software: ArcView-Based Data Logger and Channel Migration Predictor
- CRP-CD-49 Archive River Meander Bend Database, 4-CD set part of NCHRP Web Document 67
- CRP-CD-50 Training Program for Night Road Work to Improve Safety and Operations, 4-CD set for NCHRP Project 17-17(2)
- CRP-CD-51 TCRP Report 105 Appendix material
- CRP-CD-54 Structural Safety Evaluation of Suspension Bridge Parallel-Wire Cables

Commercial Truck and Bus Safety Synthesis Program (CTBSSP) Synthesis Reports³

- 4 Individual Differences and the “High-Risk” Commercial Driver
- 5 Training of Commercial Motor Vehicle Drivers: A Research Synthesis

CTBSSP Research Results Digests

- 3 Commercial Truck and Bus Safety Synthesis Program: A Status Report

Ignition

Nos. 5–7

Cooperative Research Program Miscellaneous Publications

Executive Summary to TCRP Report 101
Optimal Preventive Maintenance Timing Analytical Tool (OPTIME)—Companion to NCHRP Report 523

TRB PUBLICATIONS

January 1–December 31, 2004

- 39 Transportation Research Records: Journal of the Transportation Research Board
- 3 Special Reports
- 1 State of the Art Report
- 3 Conference Proceedings
- 1 Conference Proceedings on the Web
- 9 Transportation Research Circulars (online)
- 6 issues of *TR News*
- 1 issue of *LRT News* (online)
- 1 issue of *Intercity Rail Passenger Systems Update* (online)
- 33 NCHRP Reports
- 15 NCHRP Syntheses
- 9 NCHRP Research Results Digests
- 9 NCHRP Web Documents (online)
- 15 TCRP Reports
- 7 TCRP Syntheses
- 4 TCRP Research Results Digests
- 1 TCRP Web Document (online)
- 12 CRP CD-ROMs
- 2 CTBSSP Synthesis Reports
- 1 CTBSSP Research Results Digest
- 2 CRP Miscellaneous Publications
- 3 issues of *Ignition*

Weekly issues of TRB Transportation Research electronic newsletter

¹ Available in print and online.

² Publications released since 2001 are available in print and online.

³ Entire series available in print and online.

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Federal Railroad Administration

Federal Transit Administration

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