Transportation Innovation

Leading the Way in an Era of Rapid Change

The importance and promise of transportation innovation in this age of rapid change was the spotlight theme at the 96th Transportation Research Board Annual Meeting, January 8–12, 2017, in Washington, D.C. A record 13,377 transportation policy makers, administrators, researchers, and practitioners, from industry, government, and academic institutions gathered at the Walter E. Washington Convention Center and the Marriott Marquis hotel for more than 800 sessions and workshops and more than 200 exhibits, as well as award presentations, committee meetings, crosscutting sessions, and networking events. More than 123 sessions addressed the hot topics of transformational technology, transportation and public health, and resilience; 35 sessions explored the meeting’s theme, “Transportation Innovation: Leading the Way in an Era of Rapid Change.”


Details and highlights appear on the following pages.

(Left:) The Exhibit Hall showcased more than 200 products and services, including innovative technology such as the Robot Assisted Bridge Inspection Control, or RABIT.

(Left:) Former Congressman, Secretary of Commerce, and Secretary of Transportation Norman Y. Mineta received the Frank Turner Medal for Lifetime Achievement in Transportation for his work in transportation technology policy, economic development, and infrastructure projects.

(Below:) A roundtable delivered leadership insights from state DOT women CEOs (left to right): Paula Hammond, Victoria Sheehan, Stephanie Pollack, Jennifer Cohan, Leslie Richards, and Susan Martinovich.

Sessions and workshops engaged attendees with opportunities to gain knowledge and inspiration.
INTERSECTIONS

1 First-time attendees consult the printed program and the mobile app to schedule their itineraries.

2 New and young professionals learn about TRB committee involvement, initiatives, and opportunities at the Welcome and Attendee Orientation.

3 The Technical Activities Council oversees the TRB Annual Meeting Program content and provides leadership and coordination for the 200-plus standing committees.

4 Young Members Council Chair Bevan Kirley (second from left) meets with previous chairs Joung Lee, Alison Conway, and Lucy Priddy at a young members networking reception.

5 The Minority Student Fellows Reception welcomed 21 graduate and undergraduate students, along with their faculty mentors and transportation leaders.

6 At the Riegl exhibit, a representative explains the innovations in unmanned LiDAR scanning systems.

7 The Exhibit Hall showcased many practical demonstrations and applications, including towing technology from U-Haul.

SESSIONS & WORKSHOPS

1. Dan Smith, The Tioga Group, moderates a panel on Megaships: Megasolutions or Megaproblems?

2. Allison Davis, Washington Metropolitan Area Transit Authority, leads a workshop on dynamic planning.

3. Katie Gillies, Bat Conservation International, presents information on regulatory compliance and project delivery and approaches to conserving imperiled species.

4. Mark Dowd, University of California, Berkeley, participates in a panel on the U.S. DOT's Smart City Challenge and the work to advance multimodal mobility.

5. Laura Fay, a research scientist at Western Transportation Institute, Montana, presents doctoral student research in asphalt materials and mixtures.

6. Steve Wood, U.S. DOT, moderates a spotlight panel discussion on automated driving and unmanned aircraft systems.

7. Kelvin Machumu, University of North Florida, shares research on the minimum routing distance for managed lanes with Judith Mwakalonge, South Carolina State University.

8. Tom McMahon, Association for Unmanned Vehicle Systems International, offers insight on unmanned aircraft systems.


10. Mara Campbell, CH2M, takes the lead in a breakout session of a planning workshop.
SESSIONS & WORKSHOPS (continued)

1. Outgoing Secretary of Transportation Anthony Foxx speaks to a large crowd on the spotlight theme of Looking Forward to Innovation in an Era of Rapid Change.

2. Somaye Dovirani, University of Massachusetts, engages attendees in a poster session on geometric design.

3. Duane Callender, U.S. DOT, shares insight on the Build America Bureau, a division responsible for transportation infrastructure projects.


5. Sriram Kalyanaraman, University of Florida, explains how gaming and virtual reality technology offer opportunities for replicating real-world dynamics.

6. A panel session explores diversity and discrimination in transportation planning, design, and implementation.

7. Carlos Braceras, Utah DOT, speaks at the Federal Highway Administration’s spotlight session on leadership in innovation.


9. Waleed Aleadelat, University of Wyoming, explains his research on estimating the pavement serviceability index with smartphone applications to Jose Medina (left) and Roberto Barcena (center).
SESSIONS & WORKSHOPS
(continued)

1. Ranjani Prabhakar discusses her findings on predicting bikeshare trips between stations with Alex Erath.

2. Ruth Byrd-Smith, Allegheny County, and Donald Williams, Witherspoon & Williams, LLC, discuss growth opportunities for minority- and women-owned businesses.

3. At the State DOT CEO Roundtable, Shawn Wilson of Louisiana speaks on the challenges of competing with private-sector engineers.

4. Laura Mason, Washington Metropolitan Area Transportation Authority, participates in the question-and-answer portion of the State DOT CEO Roundtable.


6. Oakley Brooks, National Air Carrier Association, joins a panel discussion with senior military officers and industry representatives on strategic mobility requirements.

7. William Williams, Texas A&M Transportation Institute, uses photographs of accidents to illustrate the impact of barrier design for heavy vehicles.

8. Roger Millar, Washington State DOT, joins in discussion on accommodating multimodal transportation options during the State DOT CEO Roundtable.

9. Winners of the Tenth Annual Competition and Call for Communicating Concepts with Jane and John Q. Public.

Communicating Concepts with Jane and John Q. Public Award winners framed by (left) Terri Parker, Texas A&M Transportation Institute, and (second from right) Claudia Bilotto, Parsons Brinckerhoff, and Ram Pendyala, Arizona State University: (left to right) Grace Kyung, Trailnet; Eileen Barron, Utah DOT; Mathew Kwartin, Northwest Air Quality Communicators; and Wendy Gutschow, Southern California Environmental Health Sciences Center.
SECTIONS & WORKSHOPS (continued)

1. Felipe Dias, University of Texas, Austin, outlines the data, modeling methodology, estimations, and elasticities of ridesourcing and carsharing.

2. Helen Reeves, British Geological Survey, shares her experiences in using geological models as a decision tool for planning and design.

3. Jonathan Upchurch, consultant, addresses the need to change the culture of transportation research.

4. Mary White, South Carolina State University, discusses her research findings on the habits of distracted college pedestrians with Lynn Jacobs, Fehr & Peers, Utah.

5. Bryce Little, Parsons Brinckerhoff, weighs in on federal funding compliance.

6. Ervin Dukatz, Mathy Construction Company, explains the need for obtaining higher-density asphalt to increase performance in pavement.

7. Jennifer Wells, Minnesota DOT, presents a case study of small unmanned aircraft systems applications from her state.

8. David Lattanzi, George Mason University, describes emerging bridge technologies, including the use of unmanned equipment.

9. Darryl Jenkins, American Aviation Institute, describes aviation-related innovations in the freight supply chain.

10. Sadie Smith, University of Arkansas, and Brian Diefenderfer, Virginia DOT, join in a panel on incorporating structural rehabilitation techniques into AASHTOWare Pavement-ME design.

11. Natalia Sanabria, University of New Mexico, welcomes questions after concluding her poster presentation on artificial neural networks and ordered-probit models for forecasting pavement conditions.
COMMITTEES

1. Paul Leiby, Oak Ridge National Laboratory, engages with members of the Transportation Energy Committee.

2. Claudia Zapata, Arizona State University, chairs the Engineering Behavior of Unsaturated Geomaterials Committee.

3. William James leads committee discourse on eminent domain and land use.

4. Sreenivas Alampalli, New York State DOT, guides the work of the Testing and Evaluation of Transportation Structures Committee.

5. Members of the Urban Transportation Data and Information Systems Committee review their meeting agenda.

6. Norbert Delatte, Oklahoma State University, heads the meeting of the Properties of Concrete Committee.

7. Yu Zhang, University of South Florida, confers with fellow members of the Airfield and Airspace Capacity and Delay Committee.


9. The Urban Freight Transportation Committee is joined by conference attendees as they focus on emerging research. With a few exceptions, most committee meetings are open to the public.
[A veteran standing committee of the Transportation Research Board’s Technical Activities Division guides a newly formed standing committee on a one-day tour of the Annual Meeting.]

Hey kid, welcome to the TRB family of almost 220 standing committees and task forces! It’s great that you, a new committee, can shadow me today. You will learn a lot about a day in the life of a TRB committee. Let’s get started!

I’ve been around for almost 40 years, but there are many committees that are even older than I am. You have probably heard that the standing committees are called the lifeblood of TRB—we take our responsibilities absolutely seriously.

Monday is a good day to show you around the Annual Meeting, but many of us began our work over the weekend, with workshops, meetings, and the orientation session for new attendees—I saw you there at one of the briefing tables.

My planning activities actually began shortly after last year’s Annual Meeting—which is always in January and always in Washington, D.C. I issued a call for papers and posters in an emerging area of research. I also worked with two other committees to develop and submit a proposal for a crosscutting session and a nomination for a Blue Ribbon award to the Technical Activities Council (TAC).

My active committee members and friends reviewed 40 papers and 20 poster abstracts that arrived on August 1. For me, that number is fairly typical, but some of our fellow committees received more than 100 papers. Following the review process, I developed two podium sessions featuring papers, a crosscutting session, and a poster session. Working with three other committees, I also cosponsored a hot topic session.

I know it’s only 7 a.m., but my research subcommittee has a breakfast meeting. Oh, that’s right—you came in from the West Coast, so it’s superearly for you. Better have a second cup of coffee!

[A few hours later...]

The morning went by quickly. The first podium session was great, and it was inspiring to see the younger members actively involved. The speakers in the crosscutting session did an excellent job of addressing a timely topic in ways that will benefit researchers and practitioners alike.

Our section meeting over lunch provides an opportunity to hear about topics and priorities discussed by the TAC and to share experiences with our peers. Our TRB senior program officer is knowledgeable and capable—she will answer all your questions and will help with all your activities, as she does with mine.
My four-hour committee meeting kept a big agenda moving along. The discussion of key activities and initiatives was informative, including the planning for a 12th international conference later this year. Hearing from a few speakers on recent federal, state, and local legislation and programs was also enlightening. Even with four hours, I never have enough time to address all the hot topics.

We still have some time to visit the poster session before we head to the annual Thomas B. Deen Distinguished Lecture. We work hard every year to reach out to diverse groups interested in the featured topic, with the goal of generating new problem-solving ideas, and the work pays off.

The Deen Lecture recognizes the career contributions and achievements of an individual in one of the areas covered by the Technical Activities Division. The major award is named for TRB’s eighth Executive Director—he’s sitting over there, with several other leaders and colleagues. The TAC also presents awards for best papers and for committee achievements at this session—it usually draws a full house.

Look up at the screen—how exciting to see my own name up in lights as the winner of the Blue Ribbon Committee Award for Community Building and Mentoring! The award recognizes my successful efforts with two other committees in reaching out to younger members and involving them in key leadership positions to plan our joint midyear meeting. It’s now a model for our peers. Being selected a blue ribbon committee is a gratifying honor!

I hope you didn’t mind our quick dinner. It did give me opportunity to introduce you to more of our committee peers. Soon you’ll find your own favorite meeting places, and you’ll quickly get to know the big family of TRB committees.

Our last stop on today’s rounds is an evening session I cosponsored with three other committees to present multiple perspectives on an emerging issue. What a great day it has been—but I’m exhausted and ready to head back to my room. But you feel like you’re just getting started? Have a great evening—and welcome to the TRB family!
COMMITTEES
(continued)

1. Maureen Jensen receives a certificate honoring her leadership of the Subsurface Drainage Committee from Nancy Whiting, TRB, and Anand Puppala, Geotechnical Engineering section chair.

2. Peter Mandle of InterVISTAS Consulting delivers remarks to the Aviation Group after receiving the Francis X. McKelvey Award for contributions to airport planning and design.

COMMITTEE LEADERSHIP AWARDS

3. Eleni Christofa, University of Massachusetts, Amherst, receives the Outstanding Young Member Award for TRB committee service from Rod Schebesch of Stantec, Inc.

4. Jane Lappin and Steven Shladover (center) accept the Blue Ribbon Award for their committee’s contributions to road vehicle automation research, presented by Operations Section Chair Robert Bertini (right).

5. Emeritus member Bhagwant Persaud shares insights with the Safety, Data, Analysis, and Evaluation Committee, chaired by Kimberly Eccles (center).

Blue Ribbon Awards

The Technical Activities Council presented Blue Ribbon Awards recognizing committees for exemplary best practices:

- Community Building and Mentoring: Construction Management Committee, chaired by Paul Goodrum;
- Advancing Research: Highway Capacity and Quality of Service Committee, chaired by Tom Creasey;
- Contributing to TRB and the Transportation Community: Vehicle–Highway Automation Committee, chaired by Steve Shladover, and the Intelligent Transportation Systems Committee, chaired by Jane Lappin; with an honorable mention to the Performance Management Committee, chaired by Mara Campbell; and
- Communications: Rail Transit Systems Committee, chaired by Wendy Jia.

TRB Honors Committee Mainstays

The Transportation Research Board has established an emeritus membership category to recognize the significant, long-term contributions of individuals who have provided outstanding service through participation on the Board’s standing committees. The individuals selected for recognition in this year’s group of honorees are listed below:

- Barbara J. Arens, Transportation Planning Applications Committee;
- William D. Dye, Maintenance and Operations Management Committee;
- Mark E. Hallenbeck, Highway Traffic Monitoring Committee;
- John M. Kulicki, Steel Bridges Committee;
- Peter B. Mandle, Airport Terminals and Ground Access Committee;
- Timothy J. McGrath, Culverts and Hydraulic Structures Committee;
- Patricia V. McLaughlin, Public Transportation Group;
- Roger C. Olson, Pavement Maintenance Committee;
- Bhagwant Persaud, Safety Data, Analysis, and Evaluation Committee;
- Sandra Rosenbloom, Women’s Issues in Transportation Committee;
- Jerry Wachtel, Vehicle User Characteristics Committee; and
- Kathryn A. Zimmerman, Transportation Asset Management Committee.
PAPER AWARDS

1. The Thomas B. Deen Distinguished Lecture Award was given to Bruce Smith for his career contributions and achievements. (Left to right) Mrs. Smith, Bruce Smith, Thomas B. Deen, and TRB 2016 Executive Committee Chair James Crites.


3. The Pyke Johnson Award for best paper in planning and environment was presented to Harry J. P. Timmermans, Eindhoven University of Technology, Netherlands (coauthors Ifigenia Psarra and Theo A. Artenze were unable to attend).

4. Mickle Award recipients (see caption at left).

5. The William W. Millar Award honors the best paper in the field of public transportation.

6. Eric Morris (left) and Brian Taylor received the Charley V. Wooten Award for best paper on policy and organization; coauthor Jeffrey Brown was not present.

7. Dan Turner, Technical Activities Council chair, presents the K. B. Woods Award for best paper in design and construction to Scott A. Anderson, FHWA Resource Center. Two Fred Burggraf Awards were presented for outstanding papers by authors under age 35:

8. For aviation, to Megan Smirti Ryerson, University of Pennsylvania; and

9. For planning and environment, to David Z. W. Wang and Bo Du (who was unable to attend), both of Technological University, Singapore.
MAJOR AWARDS

1. Norman Y. Mineta receives the Frank Turner Medal for Lifetime Achievement in Transportation; Malcolm Dougherty makes the presentation.

2. The W. N. Carey, Jr., Distinguished Service Award honored longtime leader and Executive Committee member H. G. (Gerry) Schwartz, Jr.

3. The research achievements of Sandra Q. Larson of Iowa DOT earned the Roy W. Crum Distinguished Service Award, presented by Neil Pedersen.

4. Accolades continued for Past TRB Executive Director Robert E. Skinner, Jr. (left), with the George S. Bartlett Award for contributions to highway progress, presented by C. Michael Walton, University of Texas, Austin.

5. Jaiwon Shin of NASA delivered the Chairman’s Luncheon address on “A New Era in Aviation.”

6. TRB 2016 Executive Committee Chair James M. Crites starts the awards ceremony.

EXECUTIVE SESSIONS

7. Panelists (left to right:) Bryan Grote of Mercator Advisors, Jack L. Schenendorf of Covington and Burling, LLP, and Jeff Davis of the Eno Center for Transportation discuss infrastructure funding under the new administration.

8. Lauren Alexander Augustin of the National Academies of Sciences, Engineering, and Medicine describes studies on risk, resilience, and extreme events.

9. Alan C. McKinnon, Kuehne Logistics University, contributes to a panel on transportation and climate change.

10. (Below, center) Caroline Alméras and Mark Robinson, General Secretary and President, respectively, of the European Conference of Transport Research Institutes, explore the prospects of programs with TRB.

11. (Below, right) Patrick Malléjacq, Secretary General of the World Road Association, and TRB Executive Director Neil Pedersen display an agreement for joint efforts and initiatives.
New Leaders Guide Executive Committee

Malcolm Dougherty, Director of the California Department of Transportation (Caltrans) is the 2017 Chair of the TRB Executive Committee. He succeeds James Crites, Executive Vice President, Operations Division, Dallas–Fort Worth International Airport. Katherine Turnbull, Texas A&M Transportation Institute, is the 2017 Vice Chair.

At Caltrans, Dougherty oversees the building, maintaining, and operating of California’s 50,000 lane miles of transportation, along with its $11 billion budget and 20,000 employees. In his 21 years at Caltrans, he has served as Chief Deputy, Chief Engineer, and District Director in the Fresno Area, as well as holding management positions in Design Project Management and Maintenance and Traffic Operations. He currently serves on the Board of Directors for the Intelligent Transportation Society, the American Association of State Highway and Transportation Officials, and the Western Road Usage Charge Consortium. Dougherty received a bachelor’s degree in Civil Engineering from Rutgers University.

Turnbull is Associate Director, Texas A&M Transportation Institute, and heads the System Planning, Policy, and Environmental Research Group. She received a bachelor’s degree in Political Science and History from the University of Minnesota, a master’s degree in Urban Affairs from the University of Wisconsin, and a Ph.D. in Urban and Regional Science from Texas A&M. An internationally known expert on high-occupancy vehicle facilities, travel demand management, managed lanes, and intelligent transportation systems, Turnbull is a sought-after speaker for industry conferences and has served on numerous TRB committees and task forces. She is the recipient of the Ethel Birchland Lifetime Achievement Award and of the TRB W. N. Carey Distinguished Service Award.

New members of the Executive Committee include Charles Zelle, Commissioner, Minnesota Department of Transportation; Mary Brooks, Professor Emerita, Dalhousie University, and Chair of the TRB Marine Board; Alberto Ayala, Deputy Executive Officer, California Air Resources Board; Bevan Kirley, University of North Carolina Highway Safety Research Center, and Chair of the TRB Young Members Council; Patrick McKenna, Director, Missouri Department of Transportation; and James Tien, Distinguished Professor and Dean Emeritus, College of Engineering, University of Miami. A. Stewart Fotheringham, Professor, School of Geographical Sciences and Urban Planning, Arizona State University, was reappointed to the committee.

Todd Semonite, U.S. Army Corp of Engineers, and Karl Simon, United States Environmental Protection Agency, join U.S. Department of Transportation representatives Marie Therese Dominguez, Pipeline and Hazardous Materials Safety Administration; Jack Danielson, National Highway Traffic Safety Administration; Patrick Warren, Federal Railroad Administration; Joel Szabat, Maritime Administration; and Audrey Farley, Office of the Assistant Secretary for Research and Technology, as ex officio Executive Committee members.

(Left) Longtime volunteer leader and frequent conference rapporteur Katherine M. Turnbull presents her insights during the Executive Committee business meeting; she holds the post of Executive Committee Vice Chair for 2017.

(Right) Malcolm Dougherty presents outgoing Executive Committee Chair James Crites with a plaque honoring his leadership, commitment, and service in TRB.
EXECUTIVE COMMITTEE

Focused discussions with wide-ranging participation from transportation leaders characterize TRB Executive Committee sessions; participants included the following:

1. Victoria A. Arroyo, Georgetown University;
2. S. Jack Hu, University of Michigan;
3. Melinda McGrath, Mississippi DOT;
4. Steven Cliff, California Air Resources Board;
5. Geraldine Knatz, University of Southern California;
6. Robert Shea, Pennsylvania DOT;
7. Scott E. Bennett, Arkansas State Highway and Transportation Department;
8. Pat Thomas, United Parcel Service;
9. Nathaniel P. Ford, Sr., Jacksonville Transportation Authority;
10. Walter C. Waidelich, Jr., Federal Highway Administration;
12. Richard A. White, American Public Transportation Association;
13. Mary R. Brooks, Dalhousie University, and Chair, TRB Marine Board; and
14. Roger B. Huff, HGLC, LLC.