The vast roadway network that connects our country may sometimes be taken for granted by motorists who use it every day, but agencies and individuals responsible for the system are acutely aware of its critical role and are vigilant about its care and maintenance.

That’s why Federal Highway Administrator Victor Mendez and key personnel from FHWA and CAIT gathered on a bridge in suburban Virginia to witness the first public run of a truly revolutionary tool that could change the future of how we diagnose and manage the health of U.S. bridges. Literally “on deck” was the new robotic system for condition assessment of concrete bridge decks created at CAIT.

On November 26, 2012, Rutgers’ CAIT and the team from Turner-Fairbank Highway Research Center unveiled the latest and most advanced product to emerge from the FHWA Long-Term Bridge Performance (LTBP) Program. In addition to Mendez and his team, other FHWA dignitaries who came to witness the robot’s public debut included Office of Bridge Technology Director Myint Lwin, Office of Infrastructure Research and Development representatives Director Jorge Pagan, Dr. Hamid Ghasemi, Dr. Firas I. Sheikh Ibrahim, and Ian Friedland, and FHWA New Jersey Assistant Division Administrator Larry Cullari.
Looking back at 2012 and forward to 2013

CAIT had an eventful, productive, and very busy year. Regular readers may notice it’s been a while since the last issue of Transportation Today. We think when you read this issue covering many highlights of the last 12 months you will understand why.

I’ll begin with our newly formed University Transportation Center consortium and winning a Tier I UTC designation for the third time. We formalized many existing partnerships and are proud that some of the top research universities and best and brightest minds across the country are part of the team. (See story on page 5.)

The theme for our UTC is the USDOT strategic area in which we have the most strength and the most to offer—state of good repair. With our partners, we have built a national network of labs and are already working to maintain and preserve infrastructure, one of the central issues the country faces today. The additional—and inextricably related—goals of safety and economic competitiveness will also be a theme in our work going forward.

CAIT research has always been an interdisciplinary and collaborative undertaking. We don’t do our work alone, and this is largely the reason for our success. Another reason is our absolute dedication to solving real-world problems with practical, attainable solutions that can be applied today. CAIT and our partners know that new technologies, methods, and products are the cornerstones of our efforts.

That brings me to one of our latest achievements: the robotic system for automated condition assessment of concrete bridge decks. Just a little more than a year ago, FHWA Administrator Victor Mendez gave the Long-Term Bridge Performance (LTBP) Program team a mission to take bridge health evaluation to the next level. You can read in our cover feature how, with innovation and teamwork, we accomplished that mission. In November 2012, we presented the results to Administrator Mendez: he called the robot a major accomplishment of cooperation, collaboration, and innovation and was excited about its prospects for the future. We can’t wait to take on his next challenge: making it available and affordable for transportation agencies all across America.

On page 8, read about our new Bridge Resource Program, a partnership with NJDOT to support caring for the state’s bridges. The story covers one example of how we already helped do that—on site and at a moment’s notice.

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Anyone who lives in the Northeast was likely impacted by the storm to some extent. Our hearts go out to everyone who suffered loss of property and our partners know that new technologies, methods, and products are the cornerstones of our efforts.

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On page 8, read about our new Bridge Resource Program, a partnership with NJDOT to support caring for the state’s bridges. The story covers one example of how we already helped do that—on site and at a moment’s notice.

Finally, we can’t talk about 2012 without mentioning Hurricane Sandy. Anyone who lives in the Northeast was likely impacted by the storm to some extent. Our hearts go out to everyone who suffered loss of property and especially those who lost loved ones. Many people are still suffering, and the recovery will be long. CAIT stands ready to help assess damage—from weakened pavement to bridge scour—and find solutions to fortify critical infrastructure in the future. We will help any way we can.

Ali Maher, Ph.D., Director
What he was referring to is perhaps the most revolutionary aspect of this robotic system: its enhanced data interpretation and visualization capabilities. Thanks to data integration, fusion, and 3D rendering, the system will soon be able to provide a three-dimensional image of the deck by combining data sets and render an almost instantaneous snapshot of bridge deck condition that is easy to interpret.

Getting this kind of “picture” of deck condition would be invaluable to bridge owners. State DOTs report expenditures for preservation, maintenance, and rehabilitation of bridges and especially bridge decks are disproportionately higher than for other roadway assets. This is not surprising in view of the fact that decks—because they take the brunt of traffic loads, environmental exposure, deicing chemicals, etc.—deteriorate faster than other bridge components.

A significant number of bridges in the United States are more than 40 years old. Having the means to determine bridge condition more quantitatively and quickly, with a high level of consistency and safety—and minimal interruptions to commerce and the public—is needed now more than ever.

**The start of something big**

“What we have in front of us I really and truly believe is at the forefront of a new industry,” Mendez remarked. “Think about how we inspect bridges today. In five years this may be the way we [do it]. How can we make it an everyday occurrence...so every state, county, and city...every owner and operator of a bridge can utilize this equipment, maybe even purchase it?”

“The challenge is how do we deploy this throughout the nation in a cost-effective manner? If you can figure that out, I think you are creating a whole new industry,” said Mendez. Mendez expressed his earnest appreciation and praised the team’s work, saying, “I want to thank our partners at Rutgers. It was about a year ago we had the first discussion about...”

In late 2011, CAIT assembled a consortium of top research institutions from across the country to enter one of the most rigorous grant competitions ever held by USDOT’s Research and Innovative Technology Administration (RITA). By the end of the year, the consortium was informed they had earned one of only 10 Tier 1 University Transportation Center (UTC) slots. It was the third time CAIT competed to maintain this prestigious designation.

The nine-member consortium includes Rutgers and partners Columbia University, New Jersey Institute of Technology, Princeton University, University of Delaware, University of Texas at El Paso, University of Virginia, Utah State University, and Virginia Polytechnic Institute.

The UTC program was established to promote technology and expertise in the many disciplines involved in transportation through education, research, and technology transfer activities at university centers of excellence.

CAIT has been a Tier I UTC since 1998, but for the first time in its bid to maintain that status, Director Ali Maher and Associate Director Patrick Stry formally brought together some of the most esteemed research institutions in the country. Their goal was to build a national network of transportation research laboratories and augment CAIT’s tradition of collaboration, which already has been held up as a model within the UTC program.

CAIT engages many partners within Rutgers as well. In addition to the School of Engineering (which CAIT is part of), the center also works with the Edward J. Bloustein School for Planning and Public Policy and its John J. Heldrich Center for Workforce Development and Voorhees Transportation Institute; the Rutgers School of Business; and the University Center for Disaster Preparedness and Emergency Response.

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Above: Students do load-testing on a concrete cylinder in the Rutgers civil engineering lab. Among the benefits for students at all UTC universities is the opportunity to gain meaningful experience alongside researchers and transportation professionals as they conduct practical research that will help solve today’s transportation challenges.
Through the partners had plenty of communication and virtual meetings throughout the year, the first-in-person consortium meeting was held September 25, 2021. Heads of each consortium institution and some of their key researchers gathered at CAIT for an intensive full-day session to share information and present research results. The group also identified topics for further collaborative research projects that are to start January 2023. So far, 16 projects have been approved and are in progress under the new UTC grant (see table to the right).

Dr. Sohel Nazarian, part- ner lead from the University of Texas at El Paso, summed up one of the key benefits of the UTC program: "The real winners of this collaboration are our students who will be interacting with their peers from our prestigious partner universities to solve very real and complex problems," Nazarian said. "The re- sources provided by this grant will improve our ca- pabilities to bring our civil engineering program to Tier I status."

Approved UTC research projects

ABC Deck Panel Testing
University of Delaware
Accelerated bridge construction (ABC) techniques are a promising way to reduce overall cost of bridge replacement projects. This project hopes to determine viability of a proposed post tensioning system for precast deck panels and to monitor changes in concrete stress across joints.

Better State of Good Repair Indicators for the Transportation Performance Index
University of Delaware
The goal of this project is to revise the Transportation Performance Index to better capture the role of state of good-repair and safety play in transportation infrastructure performance.

Combining Model-Based and Data-Based Techniques in a Robust Bridge Health Monitoring Algorithm
Columbia University
This proposal focuses on the development of a robust methodology for the health monitoring of bridges using measurements of their structural response to ambient, as well as earthquake and wind, excitations.

Development for Transportation Asset Management
University of Tennessee
This project will provide IOTD with tools to actively manage their 90,000+ system assets through the state in the most effective and cost-efficient manner. This will help meet safety goals by provid- ing better roadway signage, which will lessen driver confusion and crashes.

Development of a Bridge Resource Program
University of Kansas
The goal is to establish a program that is intended to become an integral component of IOTD’s bridge research activities. By improving asset management strategies and incorporating nond-estructive evaluation techniques, the Bridge Resource Program will provide advanced tools to manage the state’s structural assets.

Fiber Optic Monitoring Methods for Composite Steel-Concrete Structures Based on Deformation of Neutral Axis
Rutgers University
The objective is to research and develop Structural Health Monitoring (SHM) methods—including structural identification and damage detection—based on strain monitoring using long-gauge fiber optic sensors. The methods will be researched and validated both in the laboratory and on the field.

Forecast: Testing of Precast Concrete Girders After 40 Years of Service
University of Florida
The researchers expect their findings will lead to design recommendations that will help state and federal agencies in the behavior of in-situ bridges. This has direct implications for opera- tion and maintenance practices as well as planning new construction.

Highly Efficient Model Updating for Structural Condition Assessment of Large-Scale Bridges
University of Texas at El Paso
The objective is to propose a high-speed, highly efficient model updating technique for structural condition assessment of large-scale bridges. Reliable condition assessment is important to make decisions on timely maintenance or repair, which ensures the integrity of bridges and improves the safety for the public, and significantly reduces the life-cycle costs of bridges.

Improved Connection Details for Adjacent Prestressed Bridge beams
Virginia Polytechnic Institute
The objective is to develop, model, and test several new connections for adjacent prestressed bridge members, specifically tee beams, vessel slabs, and inset T- beams. The team will aim to develop a high-per- formance connection (HPC) as a material for the connections because tests have shown that reinforcing can develop within a very short time frame using HPC.

Life-Cycle Assessment of Asphalt Pavement Maintenance
Rutgers University
The main research objective is to develop a Life-Cycle Assessment (LCA) methodology to consider the energy and environmental impacts of pavement maintenance at its construction and usage phase, which can be used by state agencies for the appropriate selection of maintenance strategy.

Mathematical Modeling and Experimental Response of Polymer Modified Asphalt
University of Delaware
The purpose of this work is to use tools from mathematical science and pavement engineering to carry out experiments and modeling. To understand and allow modifications of the properties of polymer modified asphalt, and to develop comprehensive theoretical models for polymer modified asphalt under different physical and environmental conditions.

Multi-Resolution Information Mining and a Combined Visual & Acoustic Approach to Pavement Condition Distress
University of Delaware
The primary goals of this research are to develop a robust vision system addressing key challenges of traditional pavement distress detection systems, integrate the vision system into a G2S platform for crack classification and quantification; and establish real-time system implementation through parallel processing on current generation of multi-core CPUs.

Performance Determination of Precast Concrete Girders and the Repair of Rig Rigid Pavements
University of Texas at El Paso
The goal is to provide a better understanding of the mechanical behavior of the precast concrete panels in use and how they perform in field. Research of precast and rigid pavements is important for the safety of users of transportation facilities. Proper characterization and construc- tion of precast panels is in line with the sustainable repair objective identified by the USDOT.

Quantitative Acoustic Emission (AE) Monitoring of Precast Elements in Fluctuating Critical Stress Bridges
Rutgers University
This project will evaluate quantitative AE methods to monitor fatigue crack detection, propagation, and arrest in precast girders. Anticipated outcomes include recommendations on sensor loca- tions, effective analysis methods, and how to interpret the data obtained so bridge owners can use it to make informed decisions.

Railroad Operations Research and Training
Rutgers University
The goal of this research is to explore the possibility for railroad education leading to the imple- mentation of short courses for professionals and ultimately to develop courses for undergraduate civil engineering curricula.

Virginia Bridge Information Systems Laboratory
University of Virginia
The Virginia DOT takes advantage of state-of-the-art tools and methods in data analysis and data mining to help them better understand bridge performance and move toward a more data driven and strategic approach to bridge asset management in the state.

CAIT UTC Consortium partners lead

Dr. Paul Barr, Utah State University, is an associate professor of civil and environmental engineering and the director of the Utah Transportation Center. His research interests focus on nondestructive evaluation of bridges, with an emphasis on the impacts of environmental and traffic stressors. Barr is involved with the FHWA Long-Term Bridge Performance (LTBP) Program—led by CAIT—and the forensic testing of prestressed concrete and steel bridge girders. Barr is a licensed professional engineer in the state of Utah, and a member of the American Society of Civil Engineers (ASCE). He completed his doctorate at the University of Washington, and received the Outstanding Teacher of the year award at USU in 2020 and 2012.

Dr. Raimondo Betti, Columbia University, is a professor and chair of the civil engineering and mechanics department. He specializes in structural dynamics and earthquake engineering, and his research inter- ests include the dynamic response of embedded foundations to earthquake excitation, effects of the spatial vari- ation of ground motion on the seismic response of bridges, and damage detection for bridges using data cor- relation analysis. Betti is a member of the Earthquake Engineering Research Institute (EERI), and also is professor with the Department of Civil and Environ- mental Engineering. His research interests include structural health monitoring and structural analysis. SHM methods and strategies, fiber optic sensors and advanced sensory systems, smart structures and intel- ligent infrastructure, and model-based and model-free data analysis. Glisic is a member of several professional as- sociations, including the International Association for Bridge and Structural Engineering (IABSE), American Society for Testing and Materials (ASTM), American Concrete Institute (ACI), and American Institute for Structural Engineering (AISE). He received his doctorate from the Swiss Federal Institute of Technology, Lausanne, Switzerland.

Dr. Steven B. Chase, University of Virginia, is a research pro- fessor of civil engineering. His research interests include development and application of nondestructive and noninvasive evaluation of civil struc- tures through the use of mechanical, vibration, ultrasonic, acoustic, thermal, electromagnetic, optical, and radio- graphic methods. Chase joined the Center for Transportation Studies at the University of Virginia in August 2008 af- ter a distinguished 30-year career with the Federal Highway Administration, where he made significant contribu- tions in the areas of nondestructive evaluation of highway bridges, bridge management, and bridge engineering research.

Dr. Branko Glisic, Princeton University, is an assistant professor with the Department of Civil and Environ- mental Engineering and the direc- tor of the Center for Transportation Infrastructure Systems. His research interests include theoretical soil and pavement behaviors and nondestructive evaluation techniques. Nazarian is involved in several professional organizations, including the execu- tive committee of the Transportation Research Board (TRB) and the TRB Committee on Asset Management. He completed her doctorate at Carnegie Mellon University in Pittsburgh.

Dr. Sohel Nazarian, University of Texas at El Paso, is a professor of pavement materials and geotechnical engineering and the direc- tor of the Center for Transportation Infrastructure Systems. His research interests include theoretical soil and pavement behaviors and nondestructive evaluation techniques. Nazarian is currently donating to the development of the new category that is expected to happen around 2024.

Dr. Steven B. Chas, University of Delaware, is the director of the University Transportation Center and the Disaster Research Center, and is also professor of civil and environmental engineering and urban affairs and public policy. His research interests focus on transporta- tion infrastructure management with an emphasis on advanced technologies, economic analysis, analytical methods, and computer applications. McNeil is involved in several professional organizations, including the execu- tive committee of the Transportation Research Board (TRB) and the TRB Committee on Asset Management. She completed her doctorate at Carnegie Mellon University in Pittsburgh.

Dr. Carson Roberts, Virginia Polytechnic Institute, is a professor of civil engineering. Her research focuses on structural engineering and materials, specifically reinforced and prestressed concrete structures, and bridge design and construction. Before coming to Tech, Roberts-Wolffmann worked as a bridge design engineer with Parsons Brinckerhoff in New York. She earned her doctorate at the University of Texas at Austin and is a licensed professional engineer in North Carolina.

Dr. Lazar Spasojevic, New Jersey Institute of Technology (NJIT), is the director of the National Cen- ter for Transportation and Industrial Productivity and the International Inter- modal Transportation Center. He also is a professor of civil and environmental engineering. With more than 15 years of corporate and academic transportation experience, Spasojevic is a nationally recog- nized expert in freight transportation, business logistics, and transportation systems analysis. He has conducted pioneering studies in intermodal freight transportation, brownfields redevelopment, and freight related uses, and the cost of congestion. Spasojevic has led congressionally mandated projects under the last three federal transportation bills. He earned his doctorate at the University of Pennsylvania.

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Just after the morning rush hour on October 3, 2012, a dump truck traveling south on the New Jersey Turnpike crashed and caught fire under the bridge that carries I-195 over the Turnpike. It turned out to be the first “field call” for the recently established NJDOT-CAIT Bridge Resource Program (BRP).

The truck crashed into the bridge abutment and started to burn, subjecting steel girders directly above to flames for more than an hour before firefighters could bring the blaze under control. “From 50 feet away you could feel the intense heat,” said Glen Leo Mendonca, a passenger in a car driving just behind the truck before it crashed. Mendonca, who took the photo above, said two wheels from the truck went flying into other lanes of the highway, nearly hitting the car he was in.

Traffic on both the Turnpike and I-195 came to a standstill for more than five hours that day, and the incident wreaked havoc on surrounding roads as drivers tried to elude the snarl. Traffic on both the Turnpike and I-195 came to a standstill for more than five hours that day, and the incident wreaked havoc on surrounding roads as drivers tried to elude the snarl.

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a robotics approach] and here we are, within a year you guys have pulled it all together.

“I really wish more people could see what we’re doing here. I’m going to be testifying before Congress, and I’m certainly going to raise this as an example of the [innovative solutions] that we in transportation engineering are bringing to the table,” he told the crowd.

Mendez’s next request surprised everyone:

“I am so impressed that I want you all to autograph my hard hat because I’m going to put this in my office with your signatures on it to remind me of all the really smart people that are out in the world that we don’t talk about… the innovations and technology—whether it’s software or joysticks—the ideas, the collaboration, and willingness to work day in and day out together to solve these problems. Really, thank you.”

Top: In the past, six or seven highly trained technicians would be needed to do scans with all the different NDE tools the robot deploys. Now, four times faster in a single sweep, the robot gathers the same amount of data.

Middle: (left to right) Hamid Ghasemi, Administrator Victor Mendez, Ali Maher, Firas Ibrahim, and Nenad Gucunski.

Above: Using data integration, fusion, and 3D rendering, the robot combines data sets to provide a “snapshot” of the bridge deck, almost in real time. Hooman Parvardeh (bottom center) shows data to Mendez (left) and Jorge Pagan (top center) in the mobile command center.

Multiple tools for thorough diagnosis of deck condition

- **Electrical Resistivity** diagnoses the corrosive environment within the concrete deck by detecting level of moisture and other contaminants.
- **GPS** records and tags data with exact location coordinates.
- **Ultrasonic Surface Waves** assess the quality, modulus of elasticity, and hence, strength of the concrete deck.
- **High-Definition Imaging** captures high-resolution images of the deck surface and 360-degree images of bridge features.
- **Ground Penetrating Radar** is used to detect suspected or apparent deterioration.
- **Impact Echo** detects and characterizes delamination (horizontal cracking) with respect to depth, spread, and severity.
- **Ultrasonic Surface Waves** assess the quality, modulus of elasticity, and hence, strength of the concrete deck.
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- **Ultrasonic Surface Waves** assess the quality, modulus of elasticity, and hence, strength of the concrete deck.
- **High-Definition Imaging** captures high-resolution images of the deck surface and 360-degree images of bridge features.
If you live in the Northeast, odds are you were affected by Hurricane Sandy to some degree, from minor damage to losing everything. The storm took a major toll on all infrastructure, particularly public transportation and the power grid. Sandy uncovered numerous vulnerabilities and made it blatantly obvious that investment to fortify our infrastructure is crucial, especially as these systems continue to age and we face more severe and more frequent storms in the future.

Photographers play an important role by shining a light on and documenting events that shape our society. Images taken during and in the weeks and months following Hurricane Sandy are readily available on the internet and worth seeking out. They serve as a reminder of exactly how much was lost. They also are a valuable historic record that can be used to study the damage, and inform planning, engineering, and policy decisions moving forward.

Andrew Link, a professional photographer and resident of Staten Island, New York, was in Las Vegas on business during the storm. He flew home as soon as he could, and he has been capturing with his camera the structural and emotional devastation in his hometown from that moment up to now.

Link’s photos after Hurricane Sandy are a distinct departure from his bread-and-butter commercial work. He says he hasn’t done any photo journalism since college, and his photos don’t include people, yet Link’s images of homes and belongings most definitely tell intimate, deeply personal stories. When asked about his approach, Link said, “You don’t need people in a picture to make it personal.”

Link recalls his ride home from JFK Airport in the early morning hours of November 3: “What greeted me was overwhelming darkness. … The Belt Parkway was wrapped in a blanket of black—no streetlights, no traffic lights, no lights in the windows of nearby homes. The Verrazano Bridge—a friendly reminder I was almost home—was only lit on the Brooklyn side. After the halfway point, the bridge went dark, and after cresting the center of the bridge when I was able to see Staten Island, the whole beach area, where I was born and raised, was simply black.”

It wasn’t until the sun came up that the extent of what happened started to sink in. Link hit the streets to check on friends and family. While making his rounds, he ran into his friend Fred Forgione, a small business owner who also grew up on Staten Island. While Link was away, Forgione started the Rebuild Staten Island Foundation, a grassroots group that is now a 501(3)(c) charity and has helped over 1,800 homeowners. Link immediately threw himself into the cause.

Link has been working every day to help his community along with hundreds of volunteers mobilized by Rebuild. Says Link, “There’s no sign of slowing down. People don’t understand it isn’t over … I hope [the photos are] a reminder of what was once here and they gave some hope for the rebuilding process that is already underway.”

More on the web: 
andrewlinkphotography.com
facebook.com/RebuildStatenIsland

Rising out of the rubble
Cultural, historical, and future planning value of photos that document Hurricane Sandy’s destruction

After the first week or so following the storm, he saw media attention start to drift and fewer volunteers showing up on weekends to help with the clean up as people wrongly assumed things were “back to normal.” Part of his motivation for taking the photos and posting them on the Rebuild Staten Island Foundation Facebook page was to keep his neighbors’ needs in the public eye and encourage continued volunteerism. He is also selling prints and donating the proceeds to the foundation. Link has been working every day to help his community along with hundreds of volunteers mobilized by Rebuild. Says Link, “There’s no sign of slowing down. People don’t understand it isn’t over … I hope [the photos are] a reminder of what was once here and they gave some hope for the rebuilding process that is already underway.”

Opposite page: Even without people, Link’s images of homes and belongings most definitely tell intimate stories. He says, “You don’t need people in a picture to make it personal.”

Top right: Link says, “It’s just crazy to see some of these homes that are so stripped they look like they’re being built new, but instead they’ve been there for years.”

Bottom right: A condemned home becomes a canvas to express patriotism. Link says rather than focusing on the worst of the devastation he wants the images to suggest hope for the future, pay tribute to Staten Island’s indomitable spirit, and energize volunteerism and the recovery efforts.

All images Andrew Link Photography, ©2012
Eventful year: 2012 in review

Throughout 2012, CAIT offered dozens of opportunities for the transportation community to come together, learn, and share ideas.

TRB Networking Reception
CAIT hosted its second annual networking reception at the TRB 91st annual meeting in Washington, D.C. Over 300 researchers, industry professionals, high-level decision makers, and graduate students convened for a two-hour celebration of the center’s infrastructure research activities. The event was made possible by our industry sponsors: Advanced Infrastructure Design, IDS International, MALÅ Geosciences, and Pennoni Associates.

Rutgers Paving Conference
The 55th Annual Rutgers Asphalt Paving Conference on March 6–7 drew 350 industry and research professionals. The two-day event, which is one of the longest running statewide asphalt conferences in the country, is an engaging opportunity to learn more about state of practice and future trends in the asphalt industry. This year focused on current and future technologies, the importance of collaboration, and how industry and agencies can partner to create an overall better product.

Below: CAIT hosts an alternate fuel vehicle fair each year at Rutgers Day to showcase options on the road today. South Jersey Gas and the Atlantic County Utilities Authority are regular exhibitors.

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Civil Engineers in Training (CET) Day is a new way for CAIT to introduce CETs recently hired by NJDOT to the programs and research we do that can help them in their new jobs. March 9, the center hosted 32 CETs for the first full-day tour. Hands-on presentations showcased some innovative tools that have been adopted by our research labs, such as CAIT’s crash analysis software, PlanSafe, and the “Sherp” robot that deploys NDE technologies for assessing bridge deck condition. Other activities included a ride-along with NDE expert Carl Rascouc in the ground penetrating radar van and a full-access tour of the Pavement Resource Program’s accredited materials lab, led by program director Dr. Thomas Bennet.

NJDOT Research Showcase
The 14th Annual NJDOT Research Showcase, developed by NJ LTAP with support from the NJDOT Bureau of Research, hosted over 300 researchers and NJDOT stakeholders on October 18, for a full-day demonstration of statewide transportation research efforts. Poster sessions highlighted research in many areas: transportation education, environment, infrastructure, and mobility, and key notes from national experts.

NJ Safety Forum
The Transportation Safety Resource Center (TSRC) hosted its 8th Annual New Jersey Safety Forum on October 24, focusing on intersection and pedestrian safety, covering topics such as statewide educational initiatives, low-cost engineering improvements, and demystifying the red light running automated enforcement pilot program.

TransAction 2012
New Jersey TransAction 2012 annual conference and expo drew more than 1,000 people to Atlantic City on April 11–13. CAIT experts participated as presenters and panelists.

NJ Safety Conference
The 14th Annual Work Zone Safety Conference, hosted by NJ LTAP on April 25, focused on intersection and pedestrian safety, covering topics such as statewide educational initiatives, low-cost engineering improvements, and demystifying the red light running automated enforcement pilot program.

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Above: Dr. Nick Vitillo, senior researcher with CAIT’s pavement program, explains to CETs from NJDOT how pavement profilers are used to ensure ride quality.

Robert Sauber from the New Jersey Asphalt Pavement Association moderated a panel on the future of asphalt in the country, is an engaging opportunity to learn more about state of practice and future trends in the asphalt industry. This year focused on current and future technologies, the importance of collaboration, and how industry and agencies can partner to create an overall better product.

Events that make a difference

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CAIT presents at 2012 CUTC National Transportation Workforce Summit in Washington

The Council of University Transportation Centers (CUTC) and U.S. Department of Labor brought together more than 200 professionals from industry, labor, and education, in Washington, D.C., last April to share ideas on the 21st-century transportation workforce, increase collaboration, and build a national framework to guide policy and development. Best practices for workforce issues and training across all modes of transportation were open for discussion.

The summit was designed to foster a national dialogue and promote careers in transportation, while considering many workforce challenges. One of the highlights of the agenda was U.S. Secretary of Transportation Ray LaHood’s comprehensive perspective on workforce development, which he personalized with a specific example from his own life.

Presentations and roundtable discussions brought together transit and transportation industry reps, labor, academia, government agencies, and even a private airport owner/operator. Among many other participants, CAIT was there to share success stories from its New Jersey Local Techni cal Assistance Program (NJ LTAP)—a long-standing source for local and state agencies to get otherwise hard-to-come-by training and information.

NJ LTAP Director Janet Leli and Engineering Research Project Manager Brian Tohoi delivered presentations on two programs that have been making a difference in New Jersey for years: “Continuing Education for Construction Professionals, Cradle to Rehabilitation” and “New Jersey’s Work Zone Safety Partnership, Bringing All the Stakeholders Together.”

Also participating from Rutgers was Jennifer Cleary from the John J. Heldrich Center for Workforce Development, part of the Edward J. Bloustein School of Planning and Public Policy, who presented “Mapping the Structure of Work in Public Transportation.”

kudos

Maher gives LTBP update at prestigious RITA innovation seminar

On September 19, 2012, CAIT Director Ali Maher was honored to speak to a national audience of researchers and federal officials as part of the ongoing USDOT-RITA Transportation Innovation Series, a monthly event that is webcast to transportation professionals across the country. Maher presented an update on progress of the FHWA Long-Term Bridge Performance (LTBP) Program.

Bridge health is a key factor in economic vitality and quality of life. During his two-hour address, Maher described LTBP research activities, which seek to understand bridge deterioration, preserve structural function, and promote resiliency. He reported on the program’s most recent successes and discussed obstacles, as well, such as funding restrictions, aging structures, and limited decision-support tools.

Webcast series topics in the past included travel time reliability monitoring, transit in rural America, policy and planning, environmental effects of traffic congestion, and maintaining infrastructure in a state of good repair.

A link to archived video of the presentation is available on our website: cait.rutgers.edu/cait/maher-gives-ltbp-update-usdot-innovation-series

PRP Director Bennert appointed to FHWA Superpave expert panel

The FHWA Expert Task Group (ETG) on Supersurface Mixtures and Aggregates Technology recently appointed PRP Director Dr. Thomas Bennert to advise on hot mix asphalt technologies. ETG appointments are an honorable and very exclusive distinction within the pavement industry—only five state engineers, five private sector highway representatives, and two academic researchers from around the nation serve on the committee at any given time.

ETG meets biannually to provide technical comments to the TRB Superpave Committee on Superpave-related topics, including potential mixture and aggregate testing improvements, impact on government and industry, identification of necessary standards upgrades, and updates on FHWA mixture activities. Periodically these comments also are submitted to AASHTO and FHWA for review and presentation.

CAIT newsletter wins communications awards

Transportation Today was selected from more than 9,000 entries in the Graphic Design USA (GDUSA) American Design Awards, a national competition open to ad agencies, design firms, and corporate, nonprofit, and educational organizations in North America. The winning entries were published in the GDUSA November/December 2012 issue. The newsletter also was selected earlier this year for an American Inhouse Design Award, also sponsored by GDUSA to recognize work done by internal design departments.

NJ LTAP director appointed to TRB T2 committee

Janet Leil, New Jersey Local Technical Assistance Program director, was appointed in March 2012 to the Transportation Research Board (TRB) Committee on Transportation Transfer (ABG30) and will serve through 2015.

The technology transfer committee is part of the Transportation Training and Education Section, in the TRB Policy and Organization Group. The committee’s vision is to accelerate innovation implementation using technology transfer strategies. They work to identify, develop, and promote effective means of deploying technologies and processes, quickly moving them from state-of-the-art to state-of-practice. Commit tee members frequently participate in reviewing papers, organizing and moderating sessions at conferences, and initiating new activities for the committee. Membership includes professionals from all modes of transportation and employment sectors.

ITE recognizes CAIT safety and education initiatives

On August 15, 2012, the Institute of Transportation Engineers (ITE) awarded Rutgers’ CAIT with three outstanding achievement awards at the ITE 2012 Annual Meeting in Atlanta:

• Edmund R. Ricker Transportation Safety Award for the Transportation Safety Resource Center
• ITE Transportation Education Council 2012 Innovation in Education Award for CAIT’s K–12 educational programs
• ITE Transportation Achievement Award for Safety for Plan4Safety crash data analysis tool

CAIT joins an elite group of ITE honorees: past award recipients include FHWA, the Port Authority of New York and New Jersey, the University of Maryland, and the Minnesota Department of Transportation.

ITE is an international association of transportation professionals. Regarded as an industry authority since 1930, ITE recognizes merit, inspires research, innovation, professional development, public awareness, and education.

event

CAIT helps supply chain job seekers


Presentations such as “Reinventing and Optimizing Your Job Search;” from Thomas Garrity of New Jersey Manufacturers Insurance Co. and “21st Century Job Seeking for Transitioning Adults;” delivered by Tom Bacola, TDL Sector Expert (Ranitan Valley Community College), gave the attendees insight from the industry side. The event was presided over by CSCMP-New Jersey President Anne Strauss-Wieder.

Laying the groundwork for industry collaborations

CAIT specializes in applied research that leads to products, information, and strategies for real-world issues that companies seek to resolve.

Over the course of 2012, CAIT met with several industry leaders to brief them on the center’s capabilities and discuss future joint ventures. In April, the Louis Berger Group (LBG) and its Beijing affiliate, China Highway Engineers, Louis Berger International (CHELIBI) met to discuss various energy and transportation issues with former Rutgers President Richard McCormick and Rutgers administrators, faculty, and researchers from CAIT; the Bloustein School of Planning and Public Policy, and University Facilities and Capital Planning.

ExxonMobil representatives visited Rutgers in May to exchange information on various energy issues and again in September to discuss asphalt trends, sustainability, and life-cycle analysis. Both visits were full-day meetings that included lab tours and presentations by Rutgers. In late June, CAIT discussed collaborative opportunities with 21 engineers who were visiting America for the FHWA U.S.-Taiwan Bridge Workshop. (See event recap on page 15.) The Taiwan delegation included administrators and researchers from the Taiwan Directorate General of Highways, Taiwan Area National Freeway Bureau, and National Expressway Engineering Bureau, Ministry of Transportation and Communications, as well as several consulting firms and universities.

Presentations and discussions focused on pavement technologies, bridge construction, and bridge condition assessment using nondestructive evaluation technologies.

CAIT plans to pursue additional exchanges that will bring potential collaborations with these and other industries to fruition.

Above: Former Rutgers President Richard McCormick (left) discusses partnering opportunities with representatives from LBG and CHELIBI.
Sharing thoughts and quality information on SGR with partner institutions scattered across the country can be difficult. The solution took the form of a seminar series that could be simulcast to consortium partners and their stakeholders via live webcasts to localized “viewing hubs” where staff, researchers, students, and even state DOT employees and other customers can hear and discuss presentations by respected experts.

Four or more times a year, consortium members host an expert who can address USDOT mission objectives like economic vitality, safety, environment, and workforce development. Seminars topics run the gamut—from infrastructure investment to corporate standardization, McFadden cited "viewing hubs" where staff, researchers, students, and even state DOT employees and other customers can hear and discuss presentations by respected experts.

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