The Center for Transportation and the Environment is a university transportation center that seeks to mitigate the impacts of surface transportation development on the environment.

Minnesota Workshop Advances National Dialog on CSS

The fifth regional Context Sensitve Solutions (CSS) National Dialog workshop was held April 22, 2010, at the University of Minnesota in St. Paul. The workshop drew nearly ninety participants from the Twin Cities region, with another fifty tuning in from across the country via live webcast.

Co-sponsored by CTE and the Federal Highway Administration, and funded by the FHWA’s Surface Transportation Environment and Planning Cooperative Research Program (STEP), the workshops are an important component in FHWA’s efforts to deliver CSS concepts to practitioners, managers and stakeholders in the transportation field.

Participants on-site and via webcast were presented with four case studies demonstrating successful application of CSS principles to planning, project development, design and day-to-day transportation agency practices. Representatives from transportation agencies and advocacy organizations concluded the workshop with a panel discussion, debating the application of CSS with regards to transportation decision-making and project implementation.

The Illinois Department of Transportation (IDOT), the Michigan Department of Transportation (MDOT) and representatives from the I-65 project, a 12-mile reconstruction project in Indianapolis, Indiana, presented case studies on the development of CSS concepts in real-world applications.

IDOT described how, in order to develop consensus for a complex urban project, the organization brought aerial images of the project area to stakeholders, then worked together with them to refine alternatives for the development needs of the region.

Mn/DOT, along with Linda Figg of FIGG Engineering, described a collaborative process between the state organization and the contractors and stakeholders involved in replacing the collapsed I-35 bridge in Minneapolis.

MDOT presented its ‘Guidelines for Stakeholder Engagement,’ which emphasized effective collaboration with stakeholders, from large-scale projects down to the simplest routine

CTE Collaborates on SHRP2 Visioning Research

As part of the project activities for the second Strategic Highway Research Program (SHRP2), CTE researchers and staff are contributing to the development of a web-based visioning resource for transportation practitioners.

Working with prime contractor Cambridge Systematics, the CTE team led by Senior Research Associate Leigh Lane is performing several project tasks to develop the web resource ‘Transportation – Visioning for Communities.’ Called ‘T-VIZ’ for short, the resource details an innovative planning process known as ‘visioning’ in which users are guided through a process of critical activities for preparing, creating and implementing a vision that reflects a community’s transportation goals within regional socioeconomic and environmental considerations.

The T-VIZ website includes an interactive ‘vision guide’ tool that links the outputs of visioning into a larger collaborative, strategic approach that engages the many stakeholders within a community. This collaborative approach, in turn, improves transportation planning and project development.

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CTE assisted in developing ‘Transportation – Visioning for Communities,’ for the SHRP2 federal transportation research program. The web resource helps practitioners learn how to apply an innovative planning process known as ‘visioning’ to transportation projects.

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References: This research was supported by Federal Highway Administration’s Surface Transportation Environment and Planning Cooperative Research Program (STEP).
Webcast Focuses on Improving NPDES Compliance

As part of CTE’s long-running National Broadcast Series, a three-hour live webcast, ‘Best Practices in Addressing NPDES and Other Water Quality Issues in Highway System Management,’ was held from Raleigh, NC, on March 25, 2010.

Presented in cooperation with the Federal Highway Administration, the webcast convened a panel of federal, state, and consulting experts to discuss the results and highlights of a recent US domestic scan tour of stormwater programs in several states.

Nearly 400 transportation and environmental practitioners from forty-eight states and Puerto Rico registered to view the webcast and participate via email-submitted questions. Registrants included representatives from the fields of transportation planning, engineering and construction, as well as environmental staff from state DOTs, federal agencies, and the private sector. The event provided practitioners with the opportunity to discuss issues with a large panel of experts involved with the domestic scan tour.

The scan tour was undertaken by FHWA to determine actions that will help state DOTs increase their compliance with the US Environmental Protection Agency’s National Pollutant Discharge Elimination System (NPDES) regulations. The findings of the scan will provide transportation agencies better insight into the project delivery process, ways to improve compliance with NPDES permits as well as methods to reduce project delays associated with NPDES violations and noncompliance.

During the webcast panelists reviewed program strategies including total maximum daily loads, innovative stormwater best-management practices, agency reporting practices, and permitting.

The panelists featured in the webcast included Brian Smith of FHWA and co-chair of the scan team, Rachel Herbert from the US EPA Water Permits Division, and Karuna Pujara, highway hydraulics division chief for Maryland State Highway Administration. North Carolina DOT stormwater and environmental engineers also on the panel included David Harris, Matt Lauffer, Andrew McDaniel, and Ken Pace. Scott Taylor of RBF Consulting, Carlsbad, CA, who served as subject matter expert for the scan team, moderated the webcast.

This is the 45th program in CTE’s National Broadcast Series of video teleconferences, which aims to engage transportation and environmental professionals in a dialogue about policy issues, research innovations, and best practices. An archive of the webcast, along with a transcript and additional program information, is available on the CTE website www.cte.ncsu.edu/CTE/TechTransfer/Teleconferences.

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maintenance. And representatives from the I-65 project described the guidelines they used to address not just mobility on the interstate but also concerns of livability and corridor aesthetics.

The panel discussion, moderated by Clark Wilson of the US Environmental Protection Agency’s Smart Growth Program, brought out a bevy of insights both from panelists and participants. Key issues discussed during the panel included the relationship between CSS and Livability, the importance of multi-disciplinary teams and the need for effective leadership to develop implementable policies.

CTE and FHWA are partnering on the CSS National Dialog project to initiate an ongoing exchange of ideas, and build momentum for wider implementation of CSS in the transportation industry. Since late 2009 the Dialog has convened over 500 participants at regional workshops and via webcasts across the country. Participants have represented state DOTs; state, federal and local governments; and the private sector as well as university affiliates and NGOs.

To view all workshop materials and learn more about the CSS National Dialog, visit www.cssnationaldialog.org.
Local Students Learn About Sustainable Transportation

CTE Research Associate Ann Hartell recently joined staff members from the Institute for Transportation Research and Education (ITRE) to speak with area middle school and high school students about sustainable transportation practices. CTE is located within ITRE at North Carolina State University in Raleigh, NC.

Hartell, and fellow ITRE researchers Bastian Schroeder, Chris Cunningham, and Daniel Findley, visited with eighth-graders at Wake Forest-Rolesville Middle School this spring to discuss their transportation work. The group presented on ways to make current transportation modes more sustainable, and discussed ideas for the future redesign of cities that better integrate land use and transportation systems.

The school invited CTE and ITRE staff to speak as part of its ‘Project Phoenix’ program, which engages students working in cooperative math and science groups to explore what current and future technologies are moving the country toward a more sustainable future. Speakers are invited to inspire students to research sustainable development and careers that may be associated with “new ways” of thinking, according to Deborah Scherr-Freedman, Wake Forest-Rolesville Middle School teacher and Science Department chair.

“Students benefited a great deal from presentations that supplemented what we had been discussing in class,” said Ms. Scherr-Freedman. “I hope to continue this project next year,” she added, “and I would love to have [the] staff come back to give further talks.”

Later in the spring, high school seniors from the Carolina Friends School in Durham, NC, visited the offices of CTE and ITRE for a field trip to learn about sustainable transportation practices. Hartell guided the students’ tour and introduced them to various researchers and their work.

The tour was a part of a research project the students were involved with called ‘The Green Triangle,’ in which they visited various organizations within the state’s Research Triangle region that are actively involved in ‘green’ sustainable living practices. The Triangle region of North Carolina includes the cities of Raleigh, Durham, Chapel Hill, and surrounding suburban communities.

Students talked in depth with three ITRE researchers about their current projects. Mickey Atkins, program manager for the Transportation Information Management System (TIMS) in the Pupil Transportation Group, explained how TIMS had developed a system that greatly increased the gas mileage of school buses by implementing shorter, more efficient routes.

Darcy Zorio, research associate in the Public Transportation Group, spoke on the role of vans as a transportation option in the Triangle, specifically the ways in which ITRE designs more efficient travel routes and how the vans provide vital transportation to citizens who have limited access to buses or trains.

Researchers at CTE and ITRE were impressed with the students’ knowledge and preparation. “The students had clearly thought a lot about multiple dimensions of sustainability and its role in transportation,” Hartell said. “We, as researchers, were able to talk extensively about our own work with a receptive audience.”

As part of their research project, the students also created a ‘wiki’ website which describes their many site visits and impressions, and offers others a chance to dialogue with the students about their work. The students’ website can be found at http://thegreentriangle.wikispaces.com.
Leigh Lane Welcomed Back to CTE

CTE is pleased to welcome back Senior Research Associate Leigh Lane, who rejoined the Center’s staff in December, 2009, after a three-year stint with an internationally recognized engineering consulting firm.

Lane has 23 years of experience in transportation project planning and development, with a focus on environmental studies and community impact assessment (CIA) including environmental justice analysis and public involvement. She has a degree in civil engineering from North Carolina State University and is a professionally trained facilitator and charrette planner.

Before originally joining CTE in 2003, Lane worked for fifteen years at the NC Department of Transportation and also owned her own consulting business. In 2006 Lane departed CTE to accept an opportunity in the private sector with the Raleigh, NC office of The Louis Berger Group, Inc.

“It was a great experience,” Lane said of her work with Berger. “I learned a tremendous amount.” But, she said, it was in the university transportation center environment that she has been able to fully engage with her professional passion, which is policy research. “Working at CTE is by far the best fit,” said Lane, “because it’s given me the best opportunity to really pursue that interest.”

Martin, Lane Accept Appointments to Leadership Positions

James Martin, PE, associate director of CTE, was recently named president-elect for the National Local Technical Assistance Program (LTAP) Association. Martin spent the previous year serving as vice president of the professional organization which represents local and tribal technical assistance programs.

LTAP, funded by the Federal Highway Administration, has fifty-eight centers across the United States and in Puerto Rico. The centers provide smaller, local governments with much needed training and assistance to which they wouldn’t normally have access. In addition to his administrative role at CTE, Martin has also served as director of the North Carolina LTAP program since 1991.

In 2009 under Martin’s leadership, NC LTAP conducted around eighty workshops for local governments throughout the state. The workshops provided effective road maintenance and safety training, as well as training for managerial positions within local governmental structures.

“It’s a rewarding position, because we’re able to provide something that local governments wouldn’t normally get,” Martin said of LTAP. “It’s important that we have the opportunity to work directly with these organizations, with local folks.”

A registered Professional Engineer in the state of North Carolina, Martin holds bachelor’s and master’s degrees in civil engineering from North Carolina State University. He is also a member of three Transportation Research Board (TRB) committees: Environmental Analysis (ADC10), Ecology and Transportation (ADC30), and Maintenance and Operations Personnel (AHD10).

CTE Senior Research Associate Leigh Lane also recently accepted an appointment to serve as a Section Chair for the Transportation Research Board. In this role, Lane is responsible for overseeing and coordinating the research efforts of five TRB standing committees: Transportation and Sustainability (ADD40), Environmental Justice in Transportation (ADD50), Transportation and Land Development (ADD30), Transportation and Economic Development (ADD10), and Social and Economic Factors in Transportation (ADD20).

Lane’s main task as Section Chair is ensuring that the committees collaborate successfully and contribute their unique research to the larger TRB strategies for effective environmental transportation practices. “Given current national policy directions regarding sustainable transportation solutions, I’m excited to be associated with overseeing the critical work of these committees,” said Lane.

The Transportation Research Board is a division of the National Research Council, which serves as an independent adviser to the President, the Congress and federal agencies on scientific and technical questions of national importance. TRB’s mission is to promote innovation and progress in transportation through research. TRB’s activities annually engage more than 7,000 engineers, scientists, and other transportation researchers and practitioners, all of whom contribute their expertise in the public interest by participating on TRB committees, panels, and task forces.
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outcomes. “T-VIZ is invaluable to transportation practitioners,” said Lane, “because it provides a step-by-step process with ‘how to’ resources.”

Lane, along with CTE Research Associate Ann Hartell, Distance Learning Specialist Eugene Murray, and Web Development Specialist Nancy Bailey, are working closely with Cambridge Systematics staff to complete several tasks. These include a literature review related to quality of life considerations in visioning, including the collection of over 800 quality of life indicators; developing the visioning guide process and web tool design; preparing a chapter of the technical report titled ‘Community Considerations;’ and vetting the draft vision guide.

Lane and Murray are also assisting with the development of online training modules for practitioners to learn about visioning techniques and how to utilize the T-VIZ website in their work. “The online training is effective because of its interactive nature,” Lane added. “The combination of voice narration with text, animated graphics and video really serves to illustrate the program’s key learning points.”

The ‘Transportation – Visioning for Communities’ web resource is one of several research projects under the SHRP2 program, established by Congress and administered by the Transportation Research Board. To learn more, visit the T-VIZ website at http://shrp2visionguide.camsys.com/visioninpractice.htm.

CTE/NCDOT Environmental Research Project Profile

CTE assists the North Carolina Department of Transportation with promotion and distribution of its environmental research results to the transportation and environmental community at large. NCDOT funds one of the largest environmental research programs in the country. A final report for the following research project has been released and is available online.


Principal Investigators: Dr. Joseph C. Neal and Dr. Jim Burton, Department of Horticultural Science, North Carolina State University

Project Period: July, 2005 – August, 2009

NCDOT maintains approximately 78,000 miles of roadside rights-of-way. In 2008, the NCDOT spent $30 million controlling woody vegetation using mowing as the primary method. Mowing only provides temporary control and is expensive in the long term. Traditional alternatives to mowing are using broadcast foliar applications of herbicides and cut-stump or basal herbicide applications. Broadcast foliar applications can have environmental and public relations concerns. Cut-stump and basal herbicide applications are expensive. This research tested the effectiveness of two brush mowers with built-in herbicide applicators, the Diamond Wet-Blade and the Brown Brush Monitor. The Diamond Wet-Blade mower applies low volume herbicide applications directly to the cut surface of stems simultaneously while cutting. The Brown Brush Monitor is similar to a normal brush mower; however, it has a spraying chamber mounted on the back of the mower that applies herbicide to a brush which wipes the herbicide to the cut stem. Six field studies were conducted during the research period to compare the Diamond Wet-Blade Mower and the Brown Brush Monitor. Although there were demonstrable reductions in stem counts and the heights of re-growth in several experiments, more often no control of woody vegetation was achieved with the herbicides applied through the mower-applicator systems evaluated. Based upon this research, the purchase of these pieces of equipment for herbicide application on woody weeds is not recommended. Link to the complete final report at www.ncdot.gov/doh/preconstruct/tpb/research/download/2006-05finalreport.pdf.
North Carolina’s Research Triangle region.

Each year, CTE recognizes a graduate student whose academic work exemplifies outstanding research and leadership qualities in the transportation and environment field. The ‘Student of the Year’ award is given by each of the University Transportation Centers (UTC) sponsored by the U.S. Department of Transportation. Recipients are recognized at the annual UTC awards banquet conducted at the Transportation Research Board (TRB) annual meeting in Washington, DC. The recipient receives $1,000 plus registration and expenses for the TRB annual meeting.

Visit www.cte.ncsu.edu to learn more about CTE Students of the Year.