

# Technology Today

Volume 25, Issue 1

Fall 2010

A publication of the Louisiana Transportation Research Center



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## Upcoming Events

### October 5-7

Southeastern Transportation Consortium

### October 12

NHI Course No. 134037A - Managing  
Highway Contract Claims: Analysis and  
Avoidance

### November 9

NHI Course No. 132022 - Driven Pile  
Foundations - Construction Monitoring

### December 1

NHI Course No. 135056 - Culvert Design

To view more events, please visit  
<http://www.ltrc.lsu.edu>.

## Dynamic Cone Penetrator Implementation into the Subgrade Soil Survey Process Approaching Completion

With thousands of miles of roadways stretching across the state, Louisiana understands the importance of designing pavements that are long lasting and reliable. In an effort to continue ensuring roads reach their respective service lives, the Louisiana Transportation Research Center (LTRC) has conducted three extensive research projects evaluating a device called the Dynamic Cone Penetrator (DCP). Capable of gathering information on pavement subgrades and base courses more quickly and serving as a tool to measure stiffness index (DCPI), the DCP proves to be a valuable asset in designing pavements built to last. The DCP has also been used in numerous forensic studies investigating failed pavements. LTRC researchers also correlated DCPI with resilient modulus ( $M_r$ ) used in the design of pavement for cohesive soils in Louisiana.

In light of DCP capabilities, the Louisiana Department of Transportation and Development

(DOTD) recently charged LTRC with the task of initiating an Implementation Committee to utilize the DCP in the subgrade soil survey portion of the DOTD pavement design process. "By utilizing the DCP in this segment, researchers and engineers will be able to gather subgrade strength information, which is not available with the current method of soil borings," says Kevin Gaspard, senior pavement research engineer and head of the DCP implementation committee. With more information at their fingertips and a new method of obtaining information, engineers will soon have an updated system when it comes to building pavements specific to every project throughout the state.

In order to complete the implementation of the DCP in Louisiana, the LTRC implementation team first had to revise an existing DOTD Engineering Directives and Standard Memorandum, more

commonly known as EDSM. LTRC received approval for their revision from DOTD's chief engineer in June 2009, enacting a new policy for all districts across the state to use the DCP in their subgrade soil surveys.

During the next phase of implementation, the team developed and gained approval of a new TR procedure in the DOTD testing manual for the DCP, explaining the proper way to use the device as well as how to accurately record DCP readings. In fact, LTRC created a downloadable form available for engineers to record all the necessary information when operating the device in the field. After the field data is entered into the form, users can then transfer all the gathered information into an Excel template. From there, users will be able to access a new piece of LTRC software that interfaces with the Excel template capable of producing both a DCPI and  $M_r$  profile as shown in Figure 1.

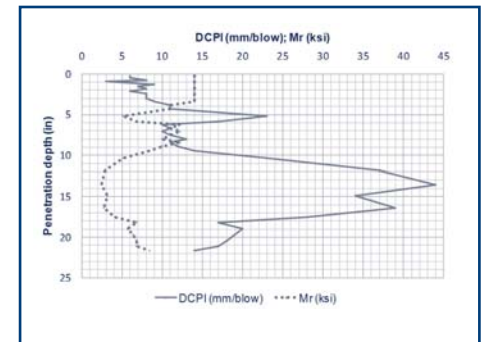


Figure 1

This software step signifies the third phase of implementation that LTRC is currently undergoing—the computer software phase. Here, engineers and programmers have developed new software designed for analyzing DCP data and producing a subgrade soil DCPI sheet. “The software is designed to minimize the amount of work required to analyze DCP data, which can be quite tedious,” explains Gaspard.

As the software approaches completion in the next few months, Gaspard explains that it is user friendly and includes a self-contained tutorial. Additionally, it produces the subgrade soil DCPI chart once the layers are identified by the user as shown in Figures 2 and 3.

The fourth and final phase of implementation into the subgrade soil survey process will include two types of training: training for the analysis of data for pavement engineers as well as data collection training for district lab engineers. More information on this step will be available in the near future as plans progress.

For more information on the status of the DCP implementation, contact Kevin Gaspard at [kevin.gaspard@la.gov](mailto:kevin.gaspard@la.gov).

No.	Start Depth (in)	End Depth (in)	Layer Type	Mean	Std. Deviation	COV	Std. Error	Number of Points
1	0	3.5	Pavement	0.8	0.76	94.58	0.07	112
2	3.51	12	Base Course	2.07	3.36	162.43	0.33	102
3	12.01	21.3	Subbase	14.31	3.34	23.34	0.84	16
4	21.31	35.6	Subgrade	11.03	5.62	50.95	0.96	34
5	35.61	55.8	Subgrade	15.41	3.45	22.39	0.61	32

Figure 2

Control Section Log Mile	Offset (ft.)	Pavement		Base Course		Subbase		Subgrade		Comments
		Depth	AVG. DCP	Depth	AVG. DCP	Depth	AVG. DCP	Depth	AVG. DCP	
0.945	0	3.5	3.51	12	2.07			12.01	35.6	15.38
2.509	0	3.5	3.51	12	2.07			12.01	35.6	20.51
3.111	0	3.5	3.51	12	2.07			12.01	35.6	15.3

Figure 3

# Annual Forum on Traffic Records and Highway Safety Information Systems Meets in New Orleans

The 36th Annual Forum on Traffic Records and Highway Safety Information Systems was held July 25-28 at the Riverside Hilton in New Orleans, LA. Hosted by the Association of Traffic Safety Information Professionals (ATSIP) and DOTD, the forum theme was *Leaving the Silos Behind*.

The 2010 program emphasized research and programs that cut across and exist outside the usual separate “programmatic silos” that have narrowed and restricted the progress across the wide front of traffic safety issues. In keeping with the goal to widen the world view of traffic safety information professionals, the planning committee sought to build a program that encompassed the widest range of traffic safety topics.

The program also addressed issues and research within or across one or more of the six federal Core Highway Safety Data Systems (crash, roadway, driver, vehicle, citation/adjudication, and injury surveillance) as well as in related fields of human behavior, information management, and information technology.

The forum hosted an awards luncheon for the 2010 Best Practices in Traffic Records Competition. Traffic record experts from across the country competed with projects that improved data capture, manipulation, and evaluation. Many of these projects are experiencing great success throughout the country and the world. Best Practices seeks to bring as many of these projects to the forefront as possible, so we may all benefit now and in the years to come.

Louisiana State University competed with two traffic projects: Louisiana HSRG Data Portal: Making Information Accessible and Utilizing the Effectiveness of a Digital Pen to Collect Crash Data in Louisiana. The Best Practices award went to Rutgers’ Center for Advanced Infrastructure and Transportation with their project Plan4Safety: Comprehensive Online Crash Analysis Software.

DOTD Highway Safety Engineer Hadi Shirazi was also elected President of the 2011 Association of Traffic Safety Information Professionals. Shirazi was presented with the 2011 executive gavel from Robert Rasmussen of the Virginia Department of Transportation. Rasmussen served the board as president for two terms.

Vendors from across the country also participated in the forum. Twenty vendors lined the Versailles ballroom for the duration of the forum. A welcome reception was held Sunday evening from 5:30-7:30, which allowed vendors to demonstrate their traffic records products to attendees. Several vendors participated in forum sponsorship, including Platinum Sponsor—Open Portal Solutions, Gold Sponsor—PD Magic, and Silver Sponsors—ESRI,



Ledge Light Technologies, Carfax, Federal Motor Carrier Safety Administration, Federal Highway Administration, and the National Highway Traffic Safety Administration.

To learn more, see a complete list of award winners or view presentations from the 36th Annual Forum on Traffic Records and Highway Safety Information Systems by visiting the Web site at [www.trafficrecordsforum.org](http://www.trafficrecordsforum.org). A photo gallery of forum highlights can be found at [www.ltrc.lsu.edu/atsip/photos.html](http://www.ltrc.lsu.edu/atsip/photos.html). The 37th Annual Forum on Traffic Records and Highway Safety Information Systems will be held July 31-August 3, 2011 at the Westin in Charlotte, North Carolina.



Presentations featured advances in:

- Traffic safety issues research
- Data collection
- Integration
- Notable uses of data
- Research to reduce crashes, injuries, and fatalities
- “Best practice” examples of using data to make sound program and policy decisions
- Human factors in crash causation
- Use of data to formulate public policy
- Law enforcement data automation
- State-level coordination of data initiatives
- Operational aspects—using data to identify problems and measure program performance
- The work of Traffic Records Coordinating Committees
- Building Strategic Highway Safety Plans
- Traffic safety workforce development and training



# 2011 Louisiana Transportation Conference Open for Registration

The Louisiana Transportation Research Center is pleased to announce that plans are in full swing for the 2011 Louisiana Transportation Conference (LTC). The theme for the conference is *Transportation: A Key to a Sustainable Future* and will be held January 9-12, 2011 at the Baton Rouge River Center in downtown Baton Rouge.



Private industry, government/university, DOTD retiree, and student registration are all active and can be accessed from LTC's Web site at [www.ltrc.lsu.edu/ltc\\_11/reg.html](http://www.ltrc.lsu.edu/ltc_11/reg.html). All DOTD employees and students are required to use online registration. Attendees will receive an email confirmation after registering online. All those in other categories are encouraged to register online; however, LTRC has forms available for download to mail in with payment. Conference attendees are also responsible for making their own room reservations for overnight stays. For hotel information, please visit [www.ltrc.lsu.edu/ltc\\_11/acc.html](http://www.ltrc.lsu.edu/ltc_11/acc.html).

In addition to registration, LTRC has posted the preliminary program for the conference to obtain feedback from attendees for conference planning purposes. The technical session topics include:

Accelerated Bridge Construction (ABC)  
Access Management  
Agile Assets  
Air Quality & Transportation  
Asphalt Construction I  
Asphalt Construction II  
Asset and Project Management  
Asset Management Systems  
Bridge Construction  
Bridge Design  
Bridge Instrumentations and Evaluation  
Bridge Maintenance  
Changing the Way We Lead  
Civil Rights  
Climate Change and Transportation  
Concrete I: Thinking for a Sustainable World  
Concrete II: Thinking for a Sustainable World  
Consultant Contract Admin  
Contract Administration DOTD, Consultant,  
and FHWA Involvement  
Design-Build  
Designing for Safety  
DOTD Customer Service – Key to a  
Sustainable Agency

Environment: What's New  
Financing DOTD, Performance Mgt, Strategic,  
and Ops Plan  
Geotech  
Geotech and Pavement Research  
GIS  
Highway Pipe  
Highway Safety - Human Factors, Education,  
and Enforcement Strategies  
Highway Safety Data  
Highway Safety Programs and Initiatives  
I-1 Twin Span Bridge Instrumentations  
Intermodal Transportation  
ITS/Operations Regional  
ITS/Operations Statewide  
LA Gov and Beyond  
Land Use and Access: How They Effect  
Transportation  
Land Use and Transportation Planning  
Materials  
Minimum Standards for Surveyors (Workshop)  
Movable Bridges  
Multi-Hazard Design/Extreme Event Design  
MUTCD

New Safety Tools & Guidance  
Photo Enforcement  
Pile Driving and Drill Shaft Inspection/Techniques  
Point Source Water Conservation  
Privatizing and Outsourcing  
Project Systems  
Public Works  
Regional Transportation Planning  
Research/General  
Roadside Projects  
Roundabout  
Strategic Highway Safety Plan Status  
and Implementation Tools  
Student Presentations  
Sustainability and Transportation  
Sustainable Materials  
Sustainable Transportation System  
System Preservation  
Teach Me GIS (Workshop)  
Tort Liability (Workshop)  
Understanding FHWA and the  
Federal Aid Program  
Work Zone Management  
Workzone Safety

If you would like to contribute your preferences, please vote for up to eight topics you are more likely to attend at [www.ltrc.lsu.edu/ltrc\\_11/prelim\\_survey.html](http://www.ltrc.lsu.edu/ltrc_11/prelim_survey.html).

LTC sponsorship opportunities are also still available. With the growth of LTC each year—the 2009 conference had over 1,500 attendees from Louisiana and the entire nation—sponsors will have a unique and prominent presence throughout the entire four-day event. Please visit the Web site at [www.ltrc.lsu.edu/ltrc\\_11/sponsors.html](http://www.ltrc.lsu.edu/ltrc_11/sponsors.html) for more information on sponsorship packages.

Plans for the Vendor Exhibition are also underway. The exhibition displays and demonstrates new materials and equipment from industry consultants and vendors and provides a tremendous networking opportunity. To learn more about the exhibition, visit [www.ltrc.lsu.edu/ltrc\\_11/exhibitor.html](http://www.ltrc.lsu.edu/ltrc_11/exhibitor.html).

Be sure to visit the conference Web site at [www.ltrc.lsu.edu/ltrc\\_11](http://www.ltrc.lsu.edu/ltrc_11) to get more information about the conference. The Web site will be updated frequently as the conference approaches.

Contact Cindy Twiner at [cindy.twiner@la.gov](mailto:cindy.twiner@la.gov) or Jenny Speights at [jenny.speights@la.gov](mailto:jenny.speights@la.gov) for questions regarding registration.

The screenshot shows a web browser window displaying the registration page for the 2011 Louisiana Transportation Conference. The page includes a header with navigation links, a sidebar for conference sponsors, and a main content area with a registration form. The form is titled "Conference Registration - DOTD Employee" and contains various fields for personal and organizational information. A logo for the conference is also visible.

**Transportation: A Key to a Sustainable Future**  
**LTC 2011**  
 Louisiana Transportation Conference  
 January 9-12, 2011  
 River Center, Baton Rouge

**Conference Registration - DOTD Employee**

**Required Fields**

\*First Name:   
 \*Middle Initial:   
 \*Last Name:   
 \*Organization: Louisiana DOTD  
 \*Title:   
 \*District / Section:   
 \*Gang:   
 \*First Name for Badge:   
 \*Address:   
 \*City:   
 \*State/Country: Louisiana  
 \*Zip:   
 \*Phone:  area code  phone  
 Fax:  area code  phone  
 \*E-mail:

The registration fee covers admittance to all conference events, including the following:  
 \*Will you be attending the exhibitor reception on Monday, January 10, 2011? ☐ Yes ☒ No  
 \*Will you be attending the exhibitor lunch on ☐ Yes ☒ No

***DOTD retirees, private industry, government/university, and students can all register for the upcoming conference online at [http://www.ltrc.lsu.edu/ltrc\\_11/reg.html](http://www.ltrc.lsu.edu/ltrc_11/reg.html).***

# Staff Updates and Accomplishments

Associate Director of Technology Transfer and Training **Sam Cooper**, P.E., MSCE, recently represented LTRC as the closing speaker at “Transportation & Energy Institute,” a conference held by Southern University on July 2, 2010.

LTRC Director **Skip Paul**, P.E., has been appointed to two National Cooperative Highway Research Program (NCHRP) panels: NCHRP 20-89, Intellectual Property Stewardship Guide for Transportation Departments as chair, and NCHRP 20-91, NCHRP Participation in European Road Association (ERA) ERA-NET ROAD Research Program.

LTRC would like to congratulate **Douglas Hinton** and **Paden Shilling** who have been promoted to Engineering Technician 3 effective June 2010. Recognition also goes to **Khalil Hanifa, EI** who recently advanced to Engineer Intern 2.

Associate Director of External Programs **Vijaya (V.J.) Gopu**, Ph.D., P.E., presented two technical papers and chaired a technical session at the “2010 World Conference on Timber Engineering” held in Riva del Garda, Italy in June 2010. He also presented an invited paper and chaired a technical session at the “International Symposium on Life-Cycle Performance of Bridge and Structures” held in Changsha, China, also in June 2010. Dr. Gopu also presented a lecture titled “ASD and LRFD Code for Wood Construction” to the ASCE-SEI New Orleans Chapter on August 26, 2010 and participated in the Experts Meeting on Combined Uplift and Shear Load Path held by the National Association of Home Builders in Washington, D.C. on July 26, 2010.

**Mary Leah Coco**, training events program manager, presented an “e-poster” session titled “Evaluation of Knowledge Transfer in an Immersive Virtual Learning Environment” at the 26th Annual Distance Teaching and Learning Conference, August 4-6, 2010.

Materials Research Administrator **Chris Abadie**, P.E., recently represented Louisiana and other state governments at the FHWA Pavement Preservation Emulsion Task Force meeting in Boston, MA July 25-27, 2010.

Engineering Materials Characterization Research Facility (EMCRF) Manager and LSU Civil Engineering Professor **Louay Mohammad**, Ph.D, presented an invited speech titled “Rubber Spotlight: Louisiana’s Experience with the Use of Waste Tires in Asphalt Mixtures” at the 2010 Institute of Scrap Recycling Industries that was held in San Diego, California, May 4-8, 2010.

**Dr. Mohammad** also participated as a panelist in the National Science Foundation sponsored US-China Workshop on Energy and Environment in the Development of Sustainable Asphalt Pavements that was held on June 7-9, 2010 at Chang’an University in Xi’an, China. While there, he also moderated a technical session on “Asphalt and Energy” and made a presentation on “Fundamental Characterization of Sustainable Materials for Pavement Infrastructure” at the workshop.

## Recently Published

### **Final Report 440 and Technical Summary 440**

*Field Verification for the Effectiveness  
of Continuity Diaphragms for Skewed  
Continuous P/C P/S Concrete*

*Girder Bridges*

Aziz Saber Ph.D., P.E.



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### **Final Report 456 and Technical Summary 456**

*Establishing an Intelligent Transportation Systems (ITS) Lab at LTRC*  
Sherif Ishak, Ph.D.; Brian Wolshon, Ph.D., P.E.; Chris Schwehm;  
Pradeep Rayaprolu; and Bharath Sridhar

### **Final Report 450 and Technical Summary 450**

*Evaluation of the Base/Subgrade Soil under Repeated Loading: Phase I—  
Laboratory Testing and Numerical Modeling of Geogrid Reinforced Bases  
in Flexible Pavement*

Murad Abu-Farsakh, Ph.D., P.E., and Munir Nazzal, Ph.D., P.E.

To view a complete list of LTRC publications, visit the Web site at  
[www.ltrc.lsu.edu/publications.html](http://www.ltrc.lsu.edu/publications.html).



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## Technology Today Publication Statement

Technology Today is a quarterly publication of the Louisiana Transportation Research Center, administered jointly by the Louisiana Department of Transportation and Development and Louisiana State University. For additional information on material included in this newsletter, contact the public information director at 225.767.9183.

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