

Technology Today

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In this Issue

TIRE Program Awards Four Proposals
3

LA Transportation Conference 2011:
"Transportation: A Key to a
Sustainable Future"
4

35th Southwest Geotechnical Engineering
Conference Convenes in Baton Rouge
5

Seminar Series Focuses on TRB Paper
Presentations
6

Recently Published
7

Staff Updates and Accomplishments
8

Upcoming Events

Sponsored by the Association of Transportation Safety Information Professionals (ATSIP), the 36th International Forum on Traffic Records and Highway Safety Information Systems "Leaving the Silos Behind" will be held **July 25-28, 2010** at the Hilton Riverside in New Orleans, LA.

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

Researchers Investigate Cost Effectiveness of LADOTD Pavement Management System

Pavement management systems (PMS) have been in place for years assisting states by collecting valuable data essential to the well-being and preservation of pavements across the country. The system can be

used as an important tool monitoring pavements and identifying adequate levels of serviceability, such as scheduling maintenance, collecting data, analyzing pavement conditions, among others.

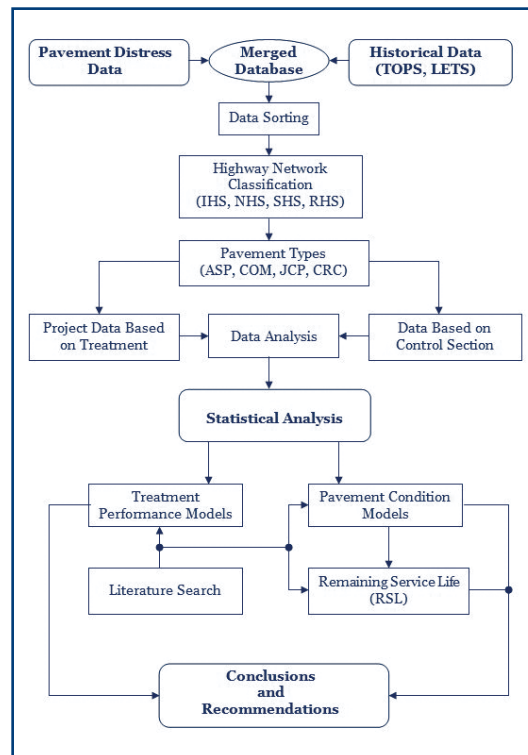
Current

Louisiana state laws, the Louisiana Department of Transportation and Development (LADOTD),

and the Federal Highway Administration (FHWA) have recently emphasized the need for development and implementation of cost-effective pavement preservation strategies to

improve the condition of the transportation network. Such strategies must rely heavily on the historical pavement condition data that are stored in the pavement management database and analyzed by the personnel of the pavement management

system. Sponsored by the Louisiana Transportation Research Center (LTRC), the University



Flow chart representing the research approach for the study

of Louisiana at Lafayette (ULL) designed and executed a research plan led by ULL Civil Engineering Associate Professor Mohammad Jamal Khattak, Ph.D., P.E., with the help of LTRC researchers, FHWA officials, and PMS engineers to assess and evaluate the effectiveness of the current PMS that has been in place in Louisiana since 1993. The goal behind the project aimed to find the most cost effective way to incorporate PMS into LADOTD's regular operations and make PMS information usable for engineers within the Department (especially for district level personnel who schedule construction and maintenance activities).

The review focused on the pavement selection process as perceived by pavement management data users. The team concluded that the various functional sections of LADOTD did not effectively use PMS data as a whole due to the gap between the output of PMS and the Department users' needs. In an effort to improve PMS operations, the PMS section of LADOTD and LTRC initiated a two-phase research study to evaluate the overall accessibility and effectiveness of the PMS system.

The first phase (LTRC Report No. 430) focused on the practice of LADOTD's PMS regarding accessibility, PMS reports, reference location systems, and distress indices. The assessment was conducted through the information gained from responses of all district engineers' survey questionnaires and personnel interviews as well as a review of the LADOTD's PMS as a whole, including classification systems, storage practices, calculations, and reports, among others. Investigators believe that by establishing a unified roadway identification system acceptable to all PMS users, it will facilitate better communication among various PMS data users and decision makers.

During the second phase (LTRC Report No. 460), a comprehensive evaluation and analysis of the pavement performance and treatment models were conducted using LADOTD pavement distress data and historical data. These models assist LADOTD in the allocation of future budgets, planning and recommending appropriate maintenance, and rehabilitation activities. Statistical analyses were used to generate the model for pavement condition prediction and treatment performance evaluation. It is believed that findings of the study will enhance LADOTD capabilities in predicting pavement performance and the remaining pavement service life, thereby, monitoring pavement network health in a more efficient manner.

More than 25 recommendations have been made based on actual data analysis and the needs of PMS users. In fact, most of the recommendations of the first phase of study have been either



implemented or in the process of implementation by LADOTD, which has enhanced the PMS capabilities in managing pavements and facilitating better communication amongst various PMS data users and decision makers. This study has provided LADOTD the tools that will help maintain and improve the existing highway network in a cost-effective manner by utilizing the following: upgraded processes and techniques in decision making with improved communication between various sections of LADOTD, updated models for pavement performance predication for timely maintenance and rehabilitation, and the remaining service life for asset management activities in the future.

To read more on Dr. Khattak's research, visit http://www.ltrc.lsu.edu/pdf/2008/fr_430_web.pdf to learn about Phase I of the project. Phase II findings will be available online in the following months.

TIRE Program Awards Four Proposals

In response to a Request for Proposals for the Transportation Innovation for Research Exploration (TIRE) program, LTRC received 17 proposals for small-scale, exploratory research in all fields of transportation science, engineering, and education. Such research is characterized by:

- Preliminary work on untested and novel ideas
- Ventures into emerging research ideas
- Application of new expertise or new approaches to “old” research topics
- Multi/cross-disciplinary work crossing LTRC program boundaries
- Research having severe urgency with regard to availability to access to data, facilities, or equipment (i.e., study to support on-going research or construction projects)
- Efforts of similar character likely to catalyze rapid and innovative advances

Awards will be made to the following proposers:

Application of Nano Technology to Develop Smart Hot Mix Asphalt (HMA) Mixtures Concrete and Asphalt

Ahmed Khattab (University of Louisiana at Lafayette)

Evaluation of Erosion Control Methods for Coastal Highways

S. Klemetson (McNeese State University)

Performance Evaluation of Recycled PET Fiber Reinforced Concrete

Hak-Chul Shin (Southern University)

Mining Potentially Interesting Positive and Negative Association Patterns from Traffic Safety Data

Vijay Raghavan (University of Louisiana at Lafayette)

LA Transportation Conference 2011: "Transportation: A Key to a Sustainable Future"

The next Louisiana Transportation Conference will be held **January 9-12, 2011, at the River Center in downtown Baton Rouge**. This biennial conference provides a forum for interchange among LADOTD personnel and the public and private sector to allow the LADOTD Secretary and other LADOTD administrative officials an opportunity to relate their vision, direction, and expectations. Attendees represent the public, private, and academic sectors from throughout Louisiana and the nation.

4

The conference also provides for the educational enhancement of the transportation engineering community by relating the engineering activities, progress, and special projects of the Department as well as presenting information on innovative technologies and offering professional development opportunities.

As the conference date draws closer, more information on the Web site (http://www.ltrc.lsu.edu/ltrc_11/conf_info.html) regarding accommodations, the conference program, the Transportation Awards, and online registration will become available.

Mark your calendars and be sure to also check upcoming issues of *Tech Today* for regular conference updates. Online registration and downloadable registration forms will be available in August 2010.



Sponsorships Now Available

Industry sponsorship support will help defray the cost of hosting this event and allow for more networking opportunities with other transportation professionals. The sponsorship form is now available for download, and tiered sponsorship packages are described online at http://www.ltrc.lsu.edu/ltrc_11/sponsors.html. If you have any questions about sponsorships, please contact Emily Wolfe at emily.wolfe@la.gov or 225-767-9145.

Do you have specific comments or questions about the upcoming conference? Contact:

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35th Southwest Geotechnical Engineering Conference Convenes in Baton Rouge

Approximately 150 people from across the country visited Baton Rouge for the 35th Annual Southwest Geotechnical Engineering Conference (SWGEC) hosted by the Pavement and Geotechnical Engineering Section of LADOTD.



The conference was held at the Crowne Plaza Hotel from April 26-29, 2010.

The conference theme *NDT–Unknown*

Foundation Determinations attracted numerous presentations that explored the challenges and advancements in the geotechnical engineering practice. The three-day conference brought together private and public sector designers, contractors, suppliers, manufacturers, and research professionals involved in geotechnical engineering in the transportation field. Professional development hours were earned by all in attendance.

LTRC was represented in three sessions at the conference. Xinbao Yu, LTRC research associate 3, opened the second session with his presentation on “Evaluation of Resistance Factors for Axial Load Capacity of Drilled Shafts using Different Interpretation Criteria.” Immediately following, Jay Wang, Louisiana Tech University civil engineering assistant professor, gave a presentation on the LTRC-sponsored project “Estimating Setup of Piles Driven into Louisiana Clayey Soils.” In Session 5, Associate Professor of Research at LTRC and Geotechnical Engineering Research Laboratory Manager Murad Abu-Farsakh presented “Structural Health Monitoring System at the I-10 Twin Span Bridge over Lake Pontchartrain.” Finally, Qiming Chen, LTRC research associate 4, contributed to the closing session in which he spoke on “Field Rutting Performance of Various Base/Subbase Materials under Two Types of Loading.”



SWGEC presentations can be found online at the following link: <http://www.ltrc.lsu.edu/swgec/>.

For more information concerning the conference, please contact Ching Tsai at ching.tsai@la.gov, Jeff Lambert at jeff.lambert@la.gov, or Steve Meunier at steve.meunier@la.gov.

Seminar Series Focuses on TRB Paper Presentations

6

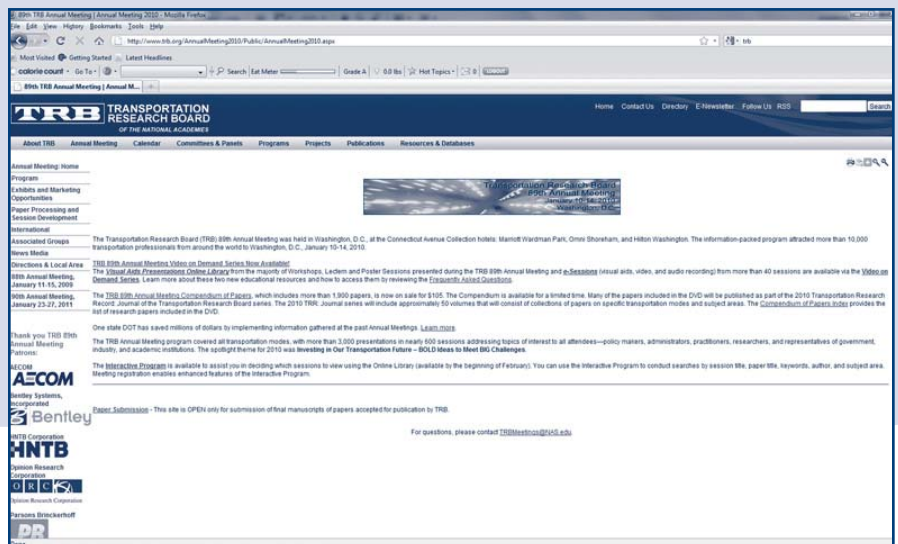
Researchers and engineers with LTRC, LADOTD, and Louisiana universities represented Louisiana at the Transportation Research Board (TRB) 89th Annual Meeting that was held in Washington, D.C., January 10-14, 2010. Speakers from across Louisiana presented results from numerous LTRC sponsored research projects through presentations as well as poster sessions. More than 10,000 transportation professionals from around the world attended the event.

The TRB Annual Meeting program included all transportation modes, with more than 3,000 presentations in nearly 600 sessions addressing topics of interest to all attendees—policy makers, administrators, practitioners, researchers, and representatives of government, industry, and academic institutions.

In March, LTRC kicked off its first seminar series of the year by inviting local TRB speakers to share their TRB presentations, allowing transportation professionals who were unable to attend the Washington meeting useful information regarding Louisiana's latest transportation research. With nine sessions in topics ranging from geotechnical, pavement, policy, materials, and traffic research, 25 presentations were made throughout the two-day seminar on March 23-24 at the TTEC facility.

The seminar attracted over 75 transportation professionals from across the state. The session that gained the most attention was the second session, which consisted of four pavement paper presentations. Pavement topics included the use of stabilized blended calcium sulfate, new approaches to indexing roughness, field rutting under different types of loading, and alleviating transverse joint faulting in jointed concrete.

To view all presentations made by Louisiana at TRB, visit TRB's annual meeting's Web page at <http://www.trb.org/AnnualMeeting2011/Public/AnnualMeeting2011.aspx>.



Recently Published

Final Report and Technical Summary 437

Structural Monitoring of Rigolets Pass Bridge

Robert Bruce, Jr., Ph.D., P.E.; John Roller, P.E.; and Henry Russell, Ph.D., P.E.

Final Report and Technical Summary 443

Elimination of Deck Joints Using a Corrosion Resistant FRP Approach

Guoqiang Li, Ph.D., and Aziz Saber, Ph.D., P.E.

Final Report and Technical Summary 449

Calibration of Resistance Factors Needed in the LRFD Design of Driven Piles

Murad Abu-Farsakh, Ph.D., P.E.; Sungmin Yoon, Ph.D., P.E.; and Ching Tsai, Ph.D., P.E.

Final Report and Technical Summary 457

The Rideability of a Deflected Bridge Approach Slab

Mark Martinez, P.E.

Final Report and Technical Summary 466

First Flush Reactor for Stormwater Treatment for Elevated Linear Transportation Projects

Zhi-Qiang Deng, Ph.D.

Project Capsule 10-1C

Evaluation of Surface Resistivity Measurements as an Alternative to the Rapid Chloride Permeability Test for Quality Assurance and Acceptance

Tyson Rupnow, Ph.D., P.E.

Project Capsule 09-2ST

Performance and Analysis of Concrete Bridge Railing Using Conventional and Composite Reinforcement

Walid Alaywan, MSCE, P.E.

Project Capsule 08-3ST

Evaluation of Design Methods to Determine Scour Depths for Bridge Structures

Guoping Zhang, Ph.D., P.E.

To view a complete list of LTRC publications, visit the Web site at www.ltrc.lsu.edu.



Staff Updates and Accomplishments

TTEC Administrator **Glynn Cavin, Ph.D.**, was recently elected president of National Transportation Training Directors (NTTD), an organization of training leaders of state departments of transportation in the United States to improve the development and delivery of technical and organizational training, reduce training costs, accelerate training delivery, and assess competencies of employees.

8

Materials Research Administrator **Chris Abadie, P.E.**, gave a speech on “Performance of Louisiana Rubblization and Overlay Projects” at the National Asphalt Pavement Association (NAPA) conference in Austin, TX held May 4 and 5. Abadie also participated in the panel discussion regarding “Alternate Binder Specifications” at the same meeting.

Stay current with what’s happening at LTRC and connect with other LTRC researchers and employees through LTRC’s new Facebook and Twitter pages.



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Find us on facebook at <http://www.facebook.com>.

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