

# Technology

## Today

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### New Smoothness Specifications Being Developed by DOTD



Currently, the Department of Transportation and Development is in the process of developing new specifications to determine pavement ride quality. These specifications will incorporate measurements

automated road profile-measuring device, which uses laser sensors and accelerometers to determine the true profile. The automated profiler provides the advantage of profiling paving projects much faster,

in terms of the International Roughness Index (IRI) using an inertial type profiling system. An inertial type profiler is a fully

safer, and more efficiently. It eliminates the need to manually push the device along the desired path and analyze the paper traces to determine the Profile Index (PI) values. Studies have shown excellent correlation to the California-style "profilograph," which is currently in use by the department for measuring the pavement profiles.

The Louisiana Transportation Research Center, as DOTD's research arm,

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### TRB Transportation Security Webpage Formed to Assist in Nation's Response

The Transportation Research Board has established a new webpage on transportation security (<http://www4.nas.edu/trb/homepage.nsf/web/security>).

In light of the tragic events of September 11, 2001,

enhancing the security of our transportation system is expected to be one of the highest priorities of transportation agencies. TRB and the National Research Council have generated extensive information on this issue in recent years.

This website brings together much of this information. Also included are links to other related websites that contain discussions of issues, actions which can be taken, guidance and

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## New Smoothness Specifications (cont. from page 1)

has been using an ICC high-speed profiler to determine the ride quality measurements for research and evaluation purposes for a number of years. IRI measurements better indicate the ride of the pavements as perceived by the motorists and as compared to the current PI measurements. The database established at

these projects, the data collected by the lightweight profilers is used for informational purposes only. To gain confidence and familiarity with the operation of the new devices, the department and contractors are comparing the automated inertial profiler to the manual California-style profilograph. The manufacturer has provided training for the contractor and district personnel on the operation of the device.

12 mph. Jon Klatt of Ames Engineering, Inc., described the device and presented a short video on the operation and capabilities of LISA. Subsequently, he conducted a test run on a pre-selected tenth of a mile section of the Northline road adjacent to the site. Participants were able to see how the on-board computer of the inertial type profiler calculates the International Roughness Index (IRI), Ride Number (RN), and the Profile Index (PI) from the same profile run.

These profile devices will be transferred to the district offices after the completion of the projects.

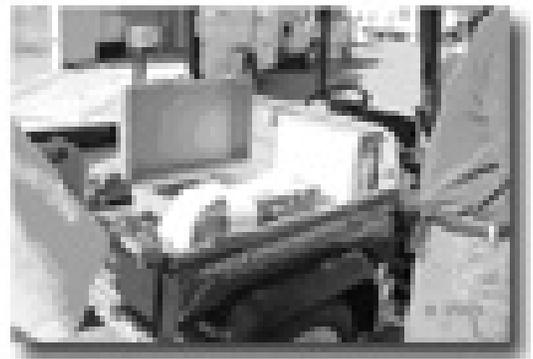


LISA's on-board computer

LTRC under this effort is being used to develop the specifications. It is anticipated that the department will convert to an IRI system of pavement profile measurement for quality control and acceptance by January 2002 with the completion of the new specifications.

DOTD's construction section arranged to have contractors purchase lightweight profilers for several state paving projects. In

In October, representatives from District 07, the Materials Testing Section, LTRC and the LTRC Pavement Research Facility (PRF), along with contractor and manufacturer personnel, attended a demonstration at the PRF site using the Ames Lightweight profiler (LISA). The device, which was purchased by Diamond B Contractors on a DOTD paving project in District 07, determines the true profile of the pavement at speeds of 8 to



**Pictured above is the lightweight inertial surface analyzer.**

## Plans Progress for DOTD's 2002 Transportation Engineering Conference

Louisiana  
Transportation  
Engineering  
Conference  
2002  
We Get You There!

Further information on the conference can be found at the LTRC web site, [www@ltrc.lsu.edu](http://www@ltrc.lsu.edu).

Plans are in full swing for DOTD's 2002 Transportation Engineering Conference to be held February 17-20, 2002, at the Baton Rouge Radisson Hotel and Conference Center. The conference, coordinated by LTRC, provides a forum for members of the industry to relate innovative technologies and to discuss transportation policy, practice, and problems. More than 1,200 transportation professionals are expected to attend, representing the public, private,

and academic sectors of the transportation industry.

A wide range of topics will include *The Law and the Engineer, Tort Liability, Superpave Troubleshooting, Contract Management, AASHTO 2002 Design Guide, Life Cycle Cost Analysis, New Design Concepts, Problem Soils, Cone Penetration Technology, Crack Relief - Composite Pavements, Outsourcing, Enhancement, Information Technology, Construction Issues, and Warranted Pavements.*

Several chat rooms will be available to discuss issues

relative to "*The Red Book,*" *MS Civil Engineering, Warranties, Smoothness Specifications, and Management Training Program.* Additionally, as in the past, alternative sessions will be offered on topics such as *Conflict Management, Communication Skills, Personality Assessments, Becoming a Change-Adept Professional, and Successful Meetings.*

Registration forms may be downloaded and sent to the attention of Gordon Smith, 225-767-9141. The hotel registration form may be downloaded and faxed to the Radisson Hotel.

### TRB Transportation Security Website (cont. from page 1)



training opportunities. This website, which is being sponsored by the TRB Task Force on Critical Infrastructure Protection (A5T56), will continue to be

expanded as more information comes to their attention.

If you have comments or recommendations on other items that should be includ-

ed in this website, please contact Joedy Cambridge ([jcambrid@nas.edu](mailto:jcambrid@nas.edu)) at TRB. To login: <http://gulliver.trb.org/webboard/>.

## Boudreaux Joins LTRC as

## New Implementation Engineer



**NOTE: The staff of LTRC takes this opportunity to welcome its newest member and wish him well in his new position.**

Michael B. Boudreaux, P.E., recently joined the ranks of the Louisiana Transportation Research Center when he was appointed LTRC Technology Transfer Engineer. In this role, he functions as a critical component in the research and technology transfer processes. His responsibilities include coordinating, directing, and documenting all implementation activities for LTRC research projects, developing project cost-benefit analyses when tangible, and working with researchers and the transportation industry to transfer technology through the use of seminars, workshops, and publications. This role also includes management of the Engineering Resource Development Program, which entails recruiting, selection, and the semiannual evaluation of up to ten engineer interns who rotate through various DOTD sections while being evaluated for permanent placement. Additionally, Boudreaux manages the

Engineering Co-op Program and the Senior Projects Program for DOTD and participating universities.

Boudreaux's diversified background more than qualifies him for the challenges of his current position. He received an undergraduate Civil Engineering degree from USL in 1982. After two and a half years working for James Corporation of Opelousas, Inc., an asphaltic concrete producer and construction company, he opted to return to USL to pursue a graduate degree in Engineering Management. Upon the completion of requirements for his Master's degree, Boudreaux received the much coveted privilege of a teaching assistantship within the Princeton University Civil Engineering & Operations Research department. From there, he went on to municipal engineering employment in New Jersey and project management assignments with two engineering consultant firms near Baltimore. In 1991, he returned to Louisiana to work for DOTD.

Within DOTD, Boudreaux's experience includes work for the Geometric Design section, the Materials & Testing section, the Board of Registration for Professional Engineers and Land Surveyors, and the Road Design section before his move to LTRC.

"In an era of continued quality improvement, it becomes imperative to implement fruitful research and technology," says Kirt Clement, Associate Director, Technology Transfer and Training. "Mike's experience, intelligence, and work ethic will serve him well as we strive to transfer theory from research into practical, useful applications."

Boudreaux sees the effective management of technology transfer and research implementation activities as a challenging accountability. "I am excited to have the opportunity to participate in these LTRC programs and look forward to working with engineering students in Louisiana toward furthering their interests in transportation engineering and in DOTD."

## LTRC Efforts Acknowledged through DOTD

**DOTD Deputy Secretary John Basilica recently visited LTRC to recognize a number of the center's staff members as award recipients for the past quarter. Not only did LTRC garner the Best Team Effort of the Quarter, but also the Secretary's Awards of Excellence for the Manager and Employee of the Quarter.**

Quarterly, DOTD solicits nominations from staff administrators for employee awards. Nominations must include supporting documentation of the employee/team's significant performance or achievement. Winners are then decided at the headquarters level.

Comprising the group winning Best Team Effort was the Geotechnical Research Group: Kevin Gaspard, Research Engineer Manager and Team Supervisor; Kenneth Johnston, Laboratory Manager; Melba Bounds, Technician Specialist; and Paul Brady, Technician Specialist.

In the highlighted project to enhance productivity and accuracy, the team compared the traditional stove dry method and the microwave by evaluating the time and accuracy of using microwave ovens for measuring moisture content of soils. Laboratory studies showed that, in determining moisture content, the standard microwave oven produces accurate results in

less time and with less expense than the stove dry method currently used by DOTD. It is also easier to use with less chances for error.

Principal Investigator Kevin Gaspard pointed out that the significance is that the time-savings also benefits the quality of the construction by freeing up work time and allowing inspectors and contractor personnel to make appropriate adjustments to the mixing operations before problems arise. For every mile of base course and embankment construction for each lift, he said, DOTD would save a significant amount in technician salary.

The significant contributions of the team for this reporting quarter were three-fold. They included: 1) the completion of the final report for State Project 736-99-0893, LTRC No. 99-3GT, *Rapid Drying of Soils with Microwave Ovens*, which is currently in review for publication; 2) the training of District 03 and 62 lab personnel on the use of microwave testing which

allows them to perform their own field evaluation and verified results, and 3) the submission of a new test procedure to the DOTD Materials Engineer for implementation.

Other awards included the individual Secretary's Award of Excellence, which went to Greg Tullier, Engineering Materials Manager, as DOTD Manager of the Quarter, and Willie Gueho, Engineering Materials Specialist Advanced, as the DOTD Employee of the Quarter.

Tullier was cited as having shown "great integrity by his firm adherence to the rules and proper ethical conduct that DOTD asks of its employees."

"Greg played a lead role in the innovative move of securing AASHTO accreditation of aggregates for LTRC," Graves said. "The accreditation of the laboratory has allowed LTRC to competitively compete for prestigious national research projects."

## LTRC Tech Transfer Revises Training to Reflect Specification Changes

Approximately every ten years, the Department of Transportation updates its Louisiana specifications for roads and bridges. This compilation of the provisions and requirements for roadway and bridge construction serves as a "bible" for those who are involved in the planning and execution of department-sponsored projects. The new, 2000 edition was implemented on October 1, 2001.

To coincide with this implementation date, the staff of the Construction, Materials, and Design Training Unit has been working to develop and update training materials to reflect the specification changes. This is the first time a training manual has been exclusively devoted to changes in the specifications.

Because it is imperative that any employee in the department's construction, materials, and design areas be familiar with the specifications, during a new employee's period of probation he/she is required to complete training designed to familiarize them with the current edition of the speci-

cations and instruct them in how to best use the book on the job.

The 2001 edition of the training manual for new hires, *Introduction to the Louisiana Standard Specifications for Roads and Bridges, 2000 Edition*, is now available. Also offered is the *Study Guide: Louisiana Standard Specifications for Roads and Bridges, 2000 Edition*, which was designed to introduce the more experienced employee to the changes made to the current (2000) edition of the standard specifications from the 1992 edition.

Another area covered by LTRC's Construction, Materials, and Design Training Unit is Quality Assurance which is also impacted by changes in the specifications. Quality assurance is the process used by the department to inspect, sample, test, and accept or reject contractor's work. To aid in this process, the department, in conjunction with the LTRC Construction, Materials, and Design Training unit, provides a series of Quality

Assurance manuals that standardize policy and procedures relating to different areas of construction. Two manuals currently being updated according to the 2000 specifications are the *Quality Assurance Specifications for Embankment and Base Course* and *Quality Assurance Specifications for Asphaltic Concrete Mixtures*. Other training manuals currently in revision are *Base Course Inspection* and *Advanced Asphaltic Concrete Plant Inspection*.

The 2000 Standard Specifications for Roads and Bridges may be downloaded online at the DOTD website: [www.dotd.state.la.us](http://www.dotd.state.la.us).

A hardcopy may be obtained from:  
LA DOTD  
Headquarters Administration Building - Room 100  
1201 Capitol Access Road  
Baton Rouge, LA 70802

Mail orders should be sent to:  
LA DOTD  
General Files Unit  
P.O. Box 94245  
Baton Rouge, LA 70804-9245

Price - \$10.00 per copy



## Solicitation of Research Problem Statements

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**To participate in future solicitations of problem statements, either call Skip Paul, 225-767-9102, or check LTRC's website, under Research Problem Statement Solicitation, [www.ltrc.lsu.edu](http://www.ltrc.lsu.edu).**

LTRC has initiated its biennial process of soliciting research problem statements. These problems form the basis for the research program of the next two year cycle beginning July 2002 and are essential to the successful development and management of the department's research program. The solicitation is distributed to all engineers and other appropriate personnel within transportation organizations and provides an opportunity for LTRC's transportation partners/customers to make a difference and optimize benefits to industry. Problem statements from universities, transportation industry, and local government are also solicited at this time. All research problem statements were due in the LTRC Director's office by mid-October.

Research Problem Identification Committees (RPICs), comprised of department, university and industry personnel, are appointed according to technical areas depending on the content of problem statements submitted. They are tasked to review and to prioritize the ideas submitted, prioritizing according to need and implementation potential. The top rated problem statements from each RPIC is again rated and prioritized by the Research Advisory Committee (RAC), comprised of the RPIC chairs and other section and district personnel from the department. The RAC then provides a prioritized selection of problems proposed for study.

LTRC expects to have the prioritized listing of projects finalized by mid-January. With set goals in hand, the center can then pursue the course of research most needed by the transportation industry and thereby most benefiting the traveling public.

### Staff Accomplishments

LTRC congratulates Dr. Louay Mohammad on the acceptance by TRB of his refereed paper, *The Influence of Asphalt Tack Coat Materials on the Interface Shear Strength*. The paper was reviewed by TRB Committee A2D03 - Characteristics of Bituminous-aggregate Combinations to Meet Surface Requirements. One of almost 2,000 papers submitted, Dr. Mohammad's paper was recommended for publication in the Transportation Research Record series and for presentation at the TRB 2002 annual meeting.

Dr. Mohammad's excellent record in publications represents an important accomplishment for him personally as well as for LTRC, the LSU Civil and Environmental Engineering Department., and the College of Civil Engineering.

## LTRC Efforts Acknowledged through DOTD (cont. from page 5)



**Award winners pictured above: Ken Johnston, Melba Bounds, Presenter John Basilica, Kevin Gaspard, and Paul Brady.**

**Award Winners not pictured include Greg Tullier and Willie Gueho.**

"Greg's day-to-day approach to work exemplifies self-motivation," said Graves. "He will never accept low productivity from himself or others working in the laboratory."

Also working in materials research, Willie Gueho was recognized as having excellent command of the multiple testing procedures which are required to test asphalt binder, asphalt mixtures, and aggregates for bituminous applications.

"Willie has, on numerous occasions, set aside his personal schedule to accommodate last minute, overnight trips

for out-of-town work that enables LTRC to accomplish its work objective for DOTD," Graves said. "Willie recently performed all of the tests required for AASHTO accreditation for aggregates," he continued. "He also conducts the testing of our federal and state co-op proficiency samples in a manner that allows our laboratory to maintain accreditation in asphalt binder and mixture."

Gueho played an instrumental role in LTRC's obtaining AASHTO accreditation in aggregates for asphaltic concrete. He has been key to the demonstration of laboratory procedure for Superpave classes for DOTD inspectors and contractors and of LSU classes (CE 3700 "Engineering Materials Laboratory" and CE 7650 "Bituminous Material and Mixture Design") for professors. Both Huang and Graves, agree that Gueho's patient demeanor while demonstrating technique and reviewing national procedures has enabled many LSU engineering students and asphalt technicians to become comfortable with new procedures.

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