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TTEC

February 15

Principles of Quality HMA
Construction Seminar
TTEC

March 1-2

Deep South Institute of Transportation
Engineers Winter Meeting
TTEC

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

Rolling Wheel Deflectometer to be Implemented in Department

LSU Assistant Professor Mostafa A. Elseifi, Ph.D., recently completed research on implementation options for the rolling wheel deflectometer (RWD). This moving vehicle structure is designed to collect continuous deflection profiles at normal highway speeds, without the need for lane closures, providing an innovative and improved method of evaluating pavements for pavement management and preservation purposes.

The knowledge of pavement structural capacity and integrity is very important in the selection of suitable maintenance and rehabilitation strategies. The falling weight deflectometer (FWD) traditionally can be used for this purpose. It is a non-destructive deflection testing method that is widely used to assess the structural capacity of in-service pavements. However, issues such as expenses involved in data collection and scarcity of resources appear to represent obstacles for wide scale adoption of the FWD for pavement testing at the network level. In addition,

delays due to lane closures may compromise the safety of the traveling public and highway workers.

The RWD was introduced to support existing non-destructive testing techniques by providing for a screening tool of structurally deficient pavements at the network level. This non-destructive test device also offers the potential for characterizing the structural capacity and integrity of the pavement network in an effective way in terms of time and cost associated with the testing process. However, the current testing technology only allows it to be used to evaluate asphalt pavements.

Researchers conducted a detailed field evaluation of the RWD system in Louisiana. Through this evaluation conducted in DOTD District 05, the repeatability and the effects of testing speeds on RWD measurements were quantified and found acceptable. In



addition, the relationship between RWD and FWD deflection measurements and pavement conditions was investigated and found to be in general agreement. Based on the data collected and analysis presented in this study, a model was developed to predict the pavement structural number (SN) from RWD measurements, which will serve as a quick and simple screening tool at the network level to identify structurally deficient pavements.

In light of such promising results, the Pavement Management System (PMS) of DOTD is adding the Rolling Wheel Deflectometer Index (RI) and RWD generated SN to the PMS for District 05 as a provisional network structural analysis index with three categories (thin pavements less than 3 in. thick, medium pavements between 3 in. to 6 in., and thick pavements greater than 6 in.), including various layers of GIS maps.

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DOTD executives are currently considering a proposal to assess the remaining eight districts with RWD. Doing so would allow statewide usage of the RI and RWD generated SN in the pavement treatment selection process. LTRC will continuously provide the technical support to fulfill that goal.

To learn more or gain more information on this project [*Implementation of Rolling Wheel Deflectometer (RWD) in PMS and Pavement Preservation*], please contact Kevin Gaspard at kevin.gaspard@la.gov or 225-767-9104.



LTRC Promotes Managers to New Administrative Positions

Cindy Twiner Named DOTD Structured Training Director

LTRC welcomed Cindy Twiner as the new DOTD Structured Training Director in August 2011. In her promoted role, Twiner monitors all the structured training programs within LTRC's Technology Transfer & Training section. In addition to supporting PPM 59, Twiner will also be participating in the conversion of the center's learning management system, ETRN, to the statewide LSO

SAP system. During the next year, Twiner and her staff will be working to revise all training materials to meet the guidelines of the new Department Standard Specifications.

Twiner explains, "We've made a great deal of progress in the last few years. We've been able to get outdated courses revised, we've taught classes, and we've developed new training. With the staff and partners we have in place, including our trainers in the districts, I expect LTRC to be able to continue to provide quality training for DOTD and the industry. I'm also very excited about our partnership with Baton Rouge Community College, which will allow students to obtain certificates and associate degrees in engineering technology. These programs will allow DOTD and the industry to hire workers who are trained in construction and 'ready to work.'"

Twiner graduated from Louisiana State University in 1981 with a B.A. in anthropology and in 1989 with a masters of arts in humanities. She first began working with DOTD in January 1985 in the Environmental Section as an archaeologist. Twiner was transferred to LTRC in August of 1989 as a human resource development specialist 2, working under all programs at the center. Gaining the nickname "floater" from her colleagues, Twiner worked on construction and maintenance training development, wrote newsletter articles, ordered supplies, scheduled people for classes, and addressed many other items that demanded the center's attention.

She eventually settled into the Construction and Materials Program under Dee Jones and was promoted to a human resource development specialist 3 in 1991. During that time, Twiner did mostly instructional design, which included manuals, videos, and evaluation materials. These manuals included *Basic Asphaltic Concrete Plant Inspection*, *Density Testing for Embankment and Base Course*, and *Introduction to the Standard Specifications*. She was also involved in converting the construction training materials to the SI metric system during the brief period where the Department planned to replace the English system.

In 2002, when Jones retired, Twiner was promoted to the Construction and Materials Training Program manager where she was still doing instructional design, but also managing the Construction Certification Program for DOTD and the industry. During this time, Twiner was able to be involved in the implementation of the Specialty Area test program, which allowed employees to take training in a certification area without having to complete the full certification. In 2006, DOTD began requiring that all certified inspectors and technicians get recertified in order to keep their credentials. In response, Twiner and her team developed guidelines, tests, and an implementation plan for this effort. That year, every certified inspector or technician was recertified for 5 years. They also implemented an on-line testing program for the construction training manuals. Students were then able to take tests and receive grades and feedback immediately.

In June of 2008, Twiner was promoted to training and development staff manager I, where she supervised two training and development specialists and an engineering technician DCL. During this time, she worked on the BRCC program and oversaw the development and revision of training materials such as *Base Course Inspection*; *Surveying with Transits, Theodolites, and Total Stations*; and *Pile Driving Inspection*. During this time, a plan to produce a video for each DOTD testing procedure was developed and several videos have been completed. She also became involved in the statewide effort to convert all training functions to the LSA SAP system.

William “Bill” King Promoted to DOTD Materials Research Administrator

In October 2011, LTRC introduced Bill King, P.E., as their new materials research administrator. In his promoted role, King administers research projects related to asphalt, concrete, structures, and advanced materials characterization of emerging technologies within LTRC’s research department.

“Materials research covers a vast array of the different materials used in highway construction for Louisiana. The materials research group is not only involved in research, but heavily involved in providing DOTD with forensic evaluations and assistance in new specifications,” explains King. “In addition, the Materials group administers the Innovative Bridge Research and Deployment program, which has provided over a million additional dollars to DOTD.”

King graduated from Louisiana State University in 1981 with a B.S. degree in civil engineering. He began his career with DOTD in December 1981 in the Bridge Design Section as an engineer in training. King obtained his professional engineers license while in Bridge Design and transferred to LTRC in May of 1988 as a research engineer supervisor. In July 1997, King was reassigned to manage LTRC’s Pavement Research Facility, and in January 2007, he became the asphalt materials research engineer, where he served until his promotion.



Some of King’s most noted research with great benefit to DOTD is the *Evaluation of Thin Bonded Concrete Overlays*, *Evaluation of Crumb Rubber Modified Asphalts under Accelerated Loading*, *Evaluation of Stone/RAP Interlayer under Accelerated Loading*, *Evaluation of Test Equipment for Asphalt*, and most recently, the *Implementation of Open Graded Friction Course (OGFC)*.

For additional recent promotions within the center, visit the Staff Updates and Accomplishments section on p. 7.

LTRC Director Awards Student LTC Winners

Harold “Skip” Paul, director of LTRC, recently awarded honors and cash prizes to engineering students after naming the winners of this past year’s senior design project competition at the 2011 Louisiana Transportation Conference. In January, engineering seniors from across the state presented their projects to a panel of transportation officials where they were judged and interviewed. To generate a level of competition and induce better senior design projects in the future among Louisiana universities, the LTRC Policy Committee presented 1st, 2nd, and 3rd place winners a monetary award for the first time in conference history.

Paul travelled to two of the universities and presented each group and their engineering departments with their awards during each school’s American Society of Civil Engineers Student Chapter meeting. First place honors and a cash award of \$1000 were awarded to Louisiana Tech University, while second place and a prize of \$750 were awarded to the University of Louisiana at Lafayette. And third place honors and an award of \$500 were awarded to the Louisiana State University. All award recipients also received a plaque for display in their departments.

The next Louisiana Transportation Conference is currently slated for February 17-20, 2013, where new seniors will have an opportunity to present their latest projects and chance for honors and monetary prizes for their engineering departments.



Louisiana Hosts Southeastern Transportation Consortium



The annual meeting of the Southeastern Transportation Consortium (STC) was held in Baton Rouge, LA on October 25-27, 2011, at LTRC's TTEC facility. The meeting was hosted by lead state Louisiana with many member states in attendance, including Alabama, Arkansas, Georgia, Kentucky,

Mississippi, and North Carolina. Member states Tennessee, Virginia, and West Virginia were not represented this year. The FHWA Louisiana Division was also represented as well as LTRC personnel.

In light of last year's launch of the STC website, members spent time this year providing updates on the site's latest

features and discussed how to best maintain the site's information. The site can be found at <http://www.ltrc.lsu.edu/stc/index.html> or through LTRC's website. The site serves as a central hub for all members to search for information in the state research project database. Members can search for projects by state, status, keyword, and category. The STC website also enables users to view quarterly reports and obtain meeting information.

Members also discussed the development of synthesis projects within the consortium. One of the consortium's goals is to reduce duplication of research and provide means for better communication of research activities in the state research programs. There are many transportation issues that are universal to all states, so STC hopes to develop synergy between the member states and enable a more efficient use of resources. In order to reduce redundancy of state research projects and promote transfer of knowledge on completed research, synthesis projects will be used to classify and quantify the focus, status, and implementation of all member state research

projects and programs. These projects are ultimately technical summaries of research performed and state-of-the-practice reports prepared under contract by outside individuals or firms. They are also oriented toward practical solutions of specific transportation problems. Current projects include topics on warm mix asphalt, asphalt surface treatments for preventive maintenance, and water quality management at construction sites. It was determined by members to advertise a request for proposals in December 2011, select principal investigators in February 2012, and give notice to proceed in March 2012.

Discussion also took place regarding collaboration opportunities where members discussed strategies for the next three-year funding cycle, timber bridge inspection collaboration, and a high-RAP pooled fund study, where LTRC presented project objectives and tasks and noted that opportunity for collaboration is still ongoing. Louisiana is the lead state on the study, which is titled, *Develop a Design and Analysis Procedures for Asphalt Mixtures Containing High-RAP Contents and/or RAS*. Researchers hope to develop modifications to current specifications, so agencies can design asphalt mixtures with high-RAP contents with satisfactory performance. The use of high-RAP contents in asphalt mixtures has the potential of reducing material costs without sacrificing performance, while also maintaining environmental sustainability.

Implementation of research efforts across the states was also a key topic of interest, where all members had input on implementation efforts they are conducting or will conduct in the future.

To learn more about current research happenings across the Southeast, members closed the meeting by providing brief presentations on research program activities within their own agencies or departments.

For more information on the consortium, please contact Mark Morvant at mark.morvant@la.gov or by phone at 225-767-9124.

NTTD Conference Convenes in New Orleans

Transportation training directors from across the nation convened in New Orleans during early October for the National Transportation Training Directors (NTTD) Conference. Held at the historic Hotel Monteleone, in the heart of the French Quarter, transportation training professionals met and discussed topics such as knowledge management, workforce planning, building confidence in program performance management, and instructional design and facilitating innovation.

The conference was opened with a greeting from NTTD National President and LTRC Transportation Training and Education Center (TTEC) Associate Director Glynn Cavin, Ph.D. DOTD Secretary Sherri LeBas, P.E., welcomed the attendees to Louisiana and thanked them for selecting New Orleans to hold this year's meeting. She also spoke about the importance of training within the Department and how she looked forward to hearing about the innovative ideas on training that would come from this event.

Monday morning meetings continued with a New Orleans Convention & Visitors Bureau representative, welcoming the group to the city and encouraging participants to visit some of the wonderful tourist attractions in the French Quarter. Rick Barnanby and the National Highway Institute



team then updated participants on the new classes and developments within NHI. Michael Mayrath, Ph.D., wrapped up the Monday morning meeting with his presentation on *DOT's Pavement Preservation Checklists Mobile App: A Review of the Phase I and a Vision Forward*. Dr. Mayrath's presentation pointed out how mobile applications can empower workforce with anytime, anywhere education. He emphasized that training tools equal productivity tools.

Exhibitors Franklin Covey continued the Monday afternoon discussion with the *Speed of Trust in Government*. Marie Walsh, Ph.D., then updated the attendees on the National Local Technical Assistance Program Association (NLTAPA). The NLTAPA's main goals include building awareness about local technical assistance programs in the transportation community, assisting FHWA with developing strategies for the program, and building the capacity of each center to best meet the needs of its customers.

Tuesday sessions were highlighted with subjects such as *Knowledge Management* by Maureen Hammer, Ph.D. Dr. Hammer emphasized that knowledge management can include getting the right knowledge to the right people at the right time, identifying, capturing, organizing, and disseminating critical institutional knowledge and establishing networks between people to share knowledge. The knowledge management discussion continued with state sharing after lunch.

The Transportation Training Coordination Council (TCCC) update was given on Wednesday. The TCCC mission is to develop and maintain a national curriculum for various transportation disciplines and identify training and certification requirements. The TCCC mission also includes coordinating and facilitating training efforts. The TCCC participates in numerous state sharing programs. TCCC trainings are all available for free and provide the published trainings for internal state learning management systems, state Intranets, and other state training needs.

DOTD Undersecretary of Management and Finance, Michael Bridges, P.E., delivered a presentation entitled *Transportation Asset Management: The New Business model for Transportation Agencies*. Through this presentation, Bridges shared with the various DOT representatives that transportation assessment management (TAM) is a "strategic and systematic process of operating, maintaining, upgrading, and expanding physical assets effectively throughout their life cycle." Bridges also highlighted that TAM is intended to stimulate strategic thinking about transportation infrastructure by asking a series of questions that aid in the identification of objectives, measures of success, and resources available to succeed in the determined mission.

Mary Leah Coco, Ph.D., wrapped up the Wednesday discussion with her presentation titled *Not Everyone is a Winner*. Dr. Coco spoke about communication across generations. Her communication categories included traditionalists, baby boomers, generation X, and millennials. Wednesday afternoon activities concluded with a field trip to the riverboat Natchez.

The NTTD conference wrapped up on Thursday with more state sharing and Kimberly Seeger's presentation, *Intend Something Extra: Design Something Extraordinary!* Seeger is the author of *111 Questions to Design and Learning*.

For more information on the National Transportation Training Directors Conference, please contact Glynn Cavin at 225-767-9112 or glynn.cavin@la.gov. NTTD would like to thank conference sponsors including, Louisiana Immersive Technologies Enterprise, Pavia Systems, NE Roundabouts, Lundy Professional Development Resources Inc., the Louisiana Department of Transportation and Development, and the Louisiana Transportation Research Center. Presentations from the NTTD conference can be found online at <http://www.ltrc.lsu.edu/nttd/presentations.html>.



Recently Published

Final Report and Technical Summary 451

Determination of Coefficient of Thermal Expansion Effects on Louisiana's PCC Pavement Design

Hak-Chul Shin, Ph.D., P.E., and Yoonseok Chung

Final Report and Technical Summary 452

Finite Element Simulation of Structural Performance on Flexible Pavements with Stabilized Base/Treated Subbase Materials under Accelerated Loading

Zhong Wu, Ph.D., P.E., Xingwei Chen, Ph.D., and Xiaoming Yang

Final Report and Technical Summary 478

Cost Effective Prevention of Reflective Cracking of Composite Pavement

Mostafa Elseifi, Ph.D., and Rakesh Bandaru

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Evaluation of Cement and Fly Ash Treated Recycled Asphalt Pavement and Aggregates for Base Construction

Tyson Rupnow, Ph.D., P.E., Patrick Icenogle, E.I., and Scott Reech

Project Capsule 10-4B

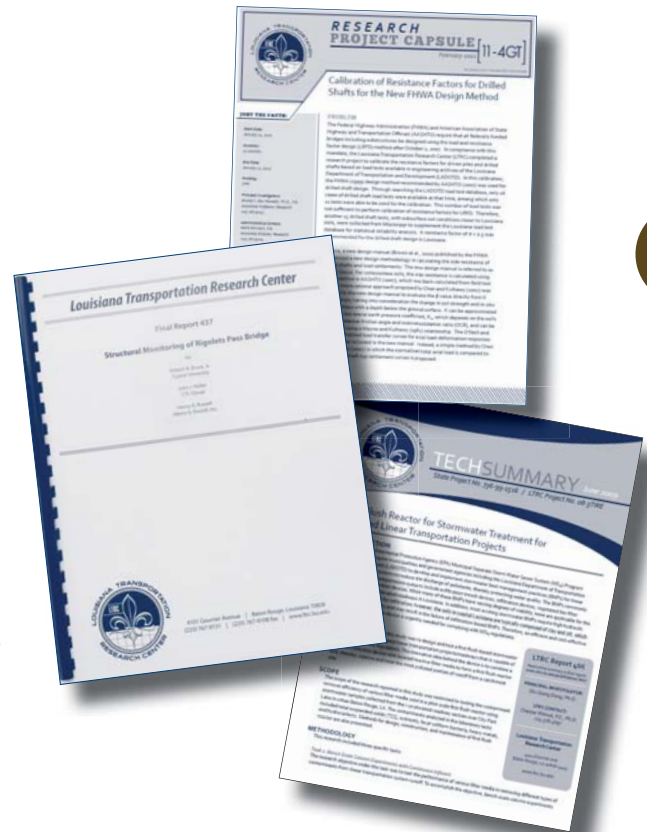
Development of Performance Based Specifications for Louisiana Asphalt Mixtures

Louay Mohammad, Ph.D.

Project Capsule 12-1PF

Traffic and Data Preparation for AASHTO MEPDG Analysis and Designs

Kelvin C.P. Wang



FIND OUT MORE

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

Staff Updates and Accomplishments

LTRC congratulates **Karen Cordell** on her promotion to training and development program staff manager I effective October 24, 2011, and **Kelvin Stone** on his promotion to training and development program manager effective November 7, 2011.

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