Technology Today

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In this Issue

Upcoming Events

June 3-5
National Highway Institute (NHI) Course No. 135090—Hydraulic Design of Safe BridgesTTEC-100

July 7-11
NHI Course No. 152054—Introduction to Urban Travel Demand Forcasting
TTEC-160 and 175

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

Roller Compacted Concrete Study First to Use New Concrete Testing Device

LTRC has recently expanded its accelerated pavement testing capabilities by investing in a new testing device, called the ATLaS 30, at the DOTD Pavement Research Facility (PRF), located in Port Allen, La. As a heavy vehicle load simulation device, the ATLaS 30 is able to conduct accelerated pavement testing, such as carrying capacity and structural performance, on concrete roads.

The first project to utilize the new device is an LTRC-sponsored study titled "Roller Compacted Concrete (RCC) over Soil Cement under Accelerated Loading," and is being spearheaded by Senior Concrete Research Engineer Tyson D. Rupnow, Ph.D., P.E., and Associate Professor of Research and Accelerated Pavement Research Program Manager Zhong Wu, Ph.D., P.E.

The purpose of this study is to evaluate the performance of RCC surfacing over soil cement pavements under accelerated pavement testing. Dr. Rupnow explains, "The project will determine appropriate thicknesses of RCC for applications as well as assist in the development of a more refined design procedure for the thinner RCC sections." Properly designed RCC mixes can achieve outstanding compressive strength values despite low cement content. The initial construction cost of RCC is comparable to that of asphalt concrete base but lower than the conventional concrete.

The construction of the test lanes for the project was carried out with the assistance from industry partners in the concrete field. The CAAL organization, under the direction of Executive Director Bill Temple, was instrumental in arranging industry support for this project through donations to physically construct the test sections. Gilchrest Contractors donated the manpower and equipment necessary to layout and construct the subgrade and base course

layers of the RCC test lanes. Rollcon out of Houston, Texas also donated their time and their specialized High Density paving equipment to construct the test lanes. Cemex donated the manpower to setup and operate the specialized mixing equipment to produce the concrete mixture used in the RCC test lanes. Through these elaborate combined efforts of LTRC, CAAL, and the concrete construction industry, LTRC was able to save the DOTD over $250,000 in construction costs.

The testing of these sections is scheduled to begin by May 1, 2014, and researchers predict that the results from this research study will provide a cost-effective and durable RCC-surfaced pavement design option for low-and/or high-volume roads in Louisiana, which can be directly implemented by the Department.

In the meantime, a showcase is currently being planned to highlight this project in Spring 2014.

About ATLaS 30

Manufactured by Applied Research Associates, Inc., the ATLaS 30 can be viewed as a system having three vital components. The first component is the National Instruments-based software system, which allows indoor control of electronic and hydraulic operations of the device. The second component is the Operations Trailer, which houses the electrical controls and hydraulic pumps that propel ATLaS 30. And the third and most major component is the physical device itself.

ATLaS Model 30 is a tool designed to apply a rolling load of up to 30,000 lb. to a pavement surface, through either dual truck tires or a super single tire over a longitudinal distance of 40 ft. at a top speed of 6 mi/hr. It is constructed around a steel frame consisting of two parallel I-beams and is 65-ft. long, spanning the length of a test section. The two beams are connected by a steel support structure at each end, with the load being applied by hydraulic cylinders reacting against the static weight of the machine.

With this new device and PRF's Accelerated Loading Facility (ALF), pavement testing is maximized for the state by now having a way to test both asphalt and concrete. With two such wide-ranging testing devices at the research facility, opportunities for Louisiana's research program will continue to grow and positively impact future pavements throughout the state.

LTRC Opens New Training Lab near BRCC

As part of the newly integrated Highway Engineering Technology curriculum carried out by LTRC and Baton Rouge Community College, an 892-square-ft. space has recently been transformed into a premier, state-of-the-art training laboratory for DOTD and BRCC students.

Because of a greater demand for diversity in technician training as well as a demand for workers that can begin jobs as trained employees, LTRC recently partnered with BRCC to create a curriculum that leads to an Associate Degree or a Certificate and allows students to take all of the necessary courses for construction certification in order to have the training needed before beginning work at DOTD or in the industry. However, in order to successfully train a student to become a successful technician, students need to obtain laboratory testing training as well.

Structured Training Director Cindy Twiner explains, "It was decided that a new, centrally located facility was needed since most of the construction training DOTD provides to its employees and to the construction industry has traditionally been taught out of the district training offices. This does not allow for hands-on laboratory training due to space constraints in the district as well as disruption to on-going operations. Plus, BRCC students would not be able to travel to the districts."

While DOTD and BRCC do have available classroom space, there were no laboratory facilities that could be dedicated for this training. Fortunately for the program, space was available at the DOTD Materials Laboratory, which sits on the edge of BRCC's campus. This space was ideal because it is within walking proximity to BRCC, and there is a classroom down the hall from the space. Once approval was given to build the laboratory, Michael Elliott, a department engineering technician assigned to training, began designing and equipping it for students.

"With the training, students who finish this program can be hired at a higher level and for higher pay. These students would also be provided with the means to work during school, to give them the necessary field experience," says Twiner. "The laboratory will be accredited, has distance learning capabilities, and the ability to film testing procedures for training purposes and broadcasting. The laboratory has all the equipment needed to perform all aspects of asphaltic concrete testing."

Training in this lab will be performed by subject matter experts. Currently, Elliott will run the training lab and teach classroom and lab sessions for asphalt as needed. Because the facility was funded by LTRC and is on DOTD property, this lab will also be used to train department and industry personnel to become asphaltic concrete plant inspectors and technicians. This training would be part of the current Construction Certification Program already in place.

The first training class in the new facility was held March 10-14 and March 24-28 for department and industry personnel wishing to become certified in Asphaltic Concrete Plant.

For more information about the new class or training lab, please contact Cindy Twiner at cindy.twiner@la.gov or 225-767-9125.

SASHTO 2014 Registration Now Open

Registration is now open for the 2014 Southeastern Association of State Highway and Transportation Officials (SASHTO) meeting. This year's theme is "Transportation Innovation: Building the Future." As the Louisiana Department of Transportation and Development (DOTD) hosts, transportation leaders from across the 12 Southeast state departments of transportation and Puerto Rico will convene in New Orleans, La on Aug. 23-27. Representatives, as well as local and federal transportation agencies and private-sector companies, will gather to exchange ideas and best practices on the topic through a series of information sessions and panel discussions.

The early registration deadline is Friday, June 27, 2014. Interested conference participants can register online with a credit card at http://www.ltrc.lsu.edu/sashto2014/reg.html; participants can also mail their completed form (found here for download: http://www.ltrc.lsu.edu/sashto2014/pdf/sashto_14_reg.pdf) and check to LTRC (Attn: Cindy Twiner).

Registration will include:

- Access to all meetings and sessions as well as trade show
- Access to Hospitality Room throughout the conference
- Opening Reception on Sunday night
- Breakfast and lunch during conference
- Access to Sponsored Hospitality Suites during conference
- Closing reception and Tuesday night dinner
- Transportation from airport if needed and all conference events
- Eligible to participate in golf tournament (Separate registration required)

** Conference name badges will be required for admission to all conference events.*

THE PURPOSE OF SASHTO

1. Encourage a balanced transportation system within member states.
2. Study the various materials, methods of construction and maintenance, and to discuss common problems experienced with transportation facilities.
3. Exchange ideas and evaluate programs within the aviation, highway, rail, transit, and water modes of transportation.
4. Cooperate in every way possible with the U.S. Department of Transportation, the Federal Highway Administration, the Federal

Aviation Administration, the Federal Railroad Administration, and the Federal Transit Administration in the consideration of transportation problems.

5. Support legislation for the purpose of protecting capital investments in current transportation systems and for improving transportation programs.

Be sure to visit the conference website at www.ltrc.lsu.edu/sashto2014 to get more information about the conference and New Orleans. The Web site will be updated frequently as the conference approaches. We look forward to seeing you in New Orleans at the 2014 SASHTO conference!

Staff Updates and Accomplishments

Associate Professor, Research and GERL Manager **Murad Abu-Farsakh, Ph.D., P.E.**, served as the Technical Publication Committee Chair/Editor for the Geo-Congress 2014 in Atlanta, GA Feb. 23-26.

Associate Director, Technology Transfer and Training **Sam Cooper, P.E., MSCE,** recently received AASHTO's 25-Year Award of Meritorious Service. The award is given to AASHTO member department employees having the grade of at least district engineer (or equivalent responsibility in the department) with 25 years of continuous or cumulative service in one or more of the 52 member departments

LTAP Program Manager **Steve Strength** recently became a member on the NCHRP 17-65 Panel: Two-Lane Highway Operational Performance and Design Effects on Safety and a member of FHWA Technical Oversight Working Group (TOWG) for Development of Safety Briefing Sheets for Local and Rural Roads.

Mary Leah Coco, Ph.D., was recently promoted to Transportation Training and Education Center (TTEC) Director.

Associate Professor and Research Accelerated Pavement Research Program Manager **Zhong Wu, Ph.D., P.E,** has been appointed as Panel Chair on National Cooperative Highway Research Program Project 01-53: "Proposed Enhancements to Pavement ME Design: Improved Consideration of the Influence of Subgrade and Unbound Layers on Pavement Performance."

Recently Published

Project Capsule 14-1GT

Calibration of Region-Specific Gates Equation for LRFD

Eduardo Tavera, P.E.

Project Capsule 14-2GT

Testing Protocol for Predicting Driven Pile Behavior within Pre-bored Soil

Malay Ghose Hajra, Ph.D., P.E.

Project Capsule 14-1PF

Best Practices for Achieving and Measuring Pavement Smoothness, a Synthesis of State-of-Practice

David K. Merritt, P.E.

Project Capsule 14-2PF

STC Synthesis of Real-time Driver Information for Congestion Management

Sherif Ishak, Ph.D., P.E.

Project Capsule 14-2SS

DOTD Support for UTC Project: A Simulation Model for Intermodal Freight Transportation in Louisiana

Peter Kelle, Ph.D.

Project Capsule 14-4SS

Identifying Local Transit Resources for Evacuation

Chester G. Wilmot, Ph.D., P.E.

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LTRC Administration and Publications Staff

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