



TECHNOLOGY TODAY

VOLUME 32
ISSUE 4

A publication of the Louisiana Transportation Research Center



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UPCOMING EVENTS

**National Highway Institute (NHI) Course
No. 130053 - Bridge Inspection
Refresher Training**

January 7-9

TTEC Auditorium - Room 100

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

RESEARCH

Researchers Explore Electronic Field Data Collection

Project inspection and delivery are challenging, resource-intensive jobs; however, the quality and accuracy of collected field data is crucial. As the world continues to move toward digital solutions and paperless environments, researchers at LTRC are exploring possibilities of replacing paper inspection with a new e-construction technology, HeadLight. This technology will allow project inspectors and engineers to see how collecting real-time project data assists with communication and minimizing risk. By using a tablet, photo and video capabilities, equipment and personnel tracking, automatic geolocation, and timestamping can be stored digitally and made available to all parties during the life of the project.

Spearheaded by LTRC Associate Director of Research Tyson Rupnow, Ph.D., P.E., and Associate Director of Technology Transfer and Training Mary Leah Coco, Ph.D., this project will provide a better understanding of the impacts on DOTD when leveraging e-construction innovations through this mobile project inspection system.

Across the state, DOTD still relies on a primarily paper-based process for field data collection, but researchers believe that this new form of electron-

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ic collection and utilization of data from the beginning to end of a construction project may be more efficient and economical.

“Implementation of e-construction technology for project inspection will potentially benefit DOTD economically through increased quality and accuracy of inspection data, reduced claims risk, and increased field-inspection productivity,” explained Dr. Rupnow.

“To date, 52 construction projects are involved in piloting HeadLight. These projects were selected based on the research team’s consulta-

tion with DOTD construction personnel,” Dr. Coco explained. “HeadLight is utilized through leased equipment, and set up to match DOTD reporting requirements for materials and pay items. Extensive training on how to use the equipment was delivered throughout the state, and other micro-tutorials as well as other support is available at all times.”



The amount of time spent on field inspection, the timeliness of daily report submissions, the quality of collected data, and the abatement of claims risk will each be evaluated through this research. A preliminary assessment of HeadLight’s adoptability by DOTD will be prepared, and the results of this study will greatly assist DOTD in determining the potential impact of implementing the HeadLight e-construction technology department wide.

Researchers also plan to examine past performance of the HeadLight e-construction technology, including but not limited to applications in Texas and Washington.

For more information, please contact Dr. Rupnow at (225) 767-9124 or Dr. Coco at (225) 767-9167.



HeadLight in Action

Lester Fletcher, DOTD Engineering Technician 5, is already experiencing how HeadLight allows him to take his construction inspection to the next level. “The ability to add images and video to my daily work reports gives me a stronger position for my observations in the field. The ability to add annotations to the images proved to be a huge benefit to my projects,” Fletcher explained. “I am able to add dimensions and plan data to the images—this information can be tagged and recalled with a built-in search feature. The ability to recall past observation data has made my job much more efficient.”

Jobsite Benefits

DOTD Area/Site Manager Engineer Matt Jones explained, “Field personnel have already stated that they are able to spend more time in the field observing the work being performed and able to leave at the end of the day. Previously they would need to go back to the office to input the daily work report. We have seen how field images have prevented disagreements with site conditions and performance or work items. We have been able to identify safety concerns from projects four hours away.”



Implementation Potential

Louisiana technicians, inspectors, and engineers alike are hopeful to implement this technology state-wide. Fletcher explained, “I would like for all inspectors to have the abilities that this system has to offer. The long-term benefits in data collection, efficiency, and claim mitigation would be a huge benefit to the Department.” Jones added, “It will make our work force more efficient. It will reduce claims on construction projects. There are no limits that I see to how we can use this technology.”

LTAP Lagniappe in the Big Easy

By Rudynah Entera Capone



Louisiana’s summer heat and humidity didn’t stop 160 transportation professionals across the nation from convening at this year’s National Local Technical Assistance Program Association (NLTAPA) Conference held July 23-26, 2018, at the Hotel Monteleone in New Orleans. Surely, a lagniappe of fun and innovation was in store—not to mention, trying out fried alligator and crawfish tails for the first time, joining in the Second Line, and indulging in beignets and café au lait at Café De Monde. All of these great things became the talk of the LTAP community in the Big Easy that week.

“LTAP Lagniappe” was the theme for the four-day NLTAPA conference, so Louisiana added a great layer of fun by piloting the “Partnership Carousel” through a scavenger hunt using the GooseChase mobile app. Each attendee was randomly placed in a team upon registration, and then any member of the team had to complete any task listed on the app to earn points.

Throughout the conference, LTAPers engaged in stimulating discussions during the general sessions, work-group meetings, and breakout sessions on topics such as transportation innovations, locally-led local road safety plans, training providers and tools, technical partnerships, Safety Circuit Rider program, class materials, social media best practices, educating vs. presenting, overcoming barriers to innovation, and training resources.

The pre-conference session on “Safety Innovations” highlighted Federal Highway Administration’s (FHWA) Every Day Counts (EDC) initiatives, including Safe Transportation for Every Pedestrian (STEP), Local Road Safety Plan (LRSP), Reducing Rural Roadway Departures, and Data-Driven Safety Analysis (DDSA). The LTAPers also shed light on issues facing local agencies such as staff turnover, lack of training, lack of communication of safety priorities, and the insufficient funding. FHWA is working closely with each of the state Department of Transportation (DOT) offices and LTAP centers to ensure the integration of local road safety planning and data-driven decision-making efforts in the overall implementation of the Strategic Highway Safety Plan (SHSP), which all states are federally mandated to have. Local participation in the development of the SHSP is critical,

and that’s where LTAP centers take the lead on. Louisiana LTAP is engaged as a team lead in the implementation of the SHSP Infrastructure and Operations (IO) Emphasis Area (EA) that include strategies addressing intersection, roadway departures, and bicycle and pedestrian safety. The implementation of low-cost safety projects funded through the Local Road Safety Program (LRSP) is an important component of Louisiana’s IO Action Plan.

It’s Not Big Easy Without Checking Out the Presbytere

Participants were treated to an off-site networking event at the Presbytere in Jackson Square. Louisiana LTAP Director Marie Walsh (right) and Manager Steve Strength (center) is joined by Arkansas Technology Transfer (T2) Center Director Laura Carter (left).



Much Appreciated, Ladies

NLTAPA’s newly inducted President David Orr, New York LTAP Director, presented tokens of appreciation to LTRC’s staff members Courtney Dupre and Allison Landry for their hard work in coordinating the registration and logistics of the conference.





RESEARCH

“Introduce a Teacher to Engineering” Visits LTRC

A group of 11th grade teachers from Scotlandville Magnet High School visited LTRC as part of their annual "Introduce a Teacher to Engineering Day" to get an inside look into engineering and share their experiences with their students.

During the workshop, teachers were given an overview of LTRC's mission, current and past research projects, and the ways in which the center invests in schools and students by offering assistance in upcoming science fairs. LTRC Training Program Coordinator Rebecca Rizzutto also encouraged teachers to at-

tend the TRAC training this December, a program used to introduce students in grades K-12 to the work world of transportation and civil engineering and inspire them to consider careers in those fields.

Following the workshop, Dr. Tyson Rupnow led the group on a tour of LTRC's labs, where teachers participated in a surface resistivity testing of concrete and received concrete and asphalt artifacts as souvenirs. The visit concluded with a special Q&A as the group prepared for their next STEM stop at Louisiana Department of Environmental Quality.

TRAINING

LTRC's New Registration Management System

Do you have your login?

LTRC is excited to announce the completion of a fresh new design and development of our Registration Management System. Online registration is now the **only** method used to register for events including classes, workshops, and conferences hosted by LTRC. Throw those fax machines and paper forms out the window!



If you have not visited our new registration management system and plan to attend any event at LTRC, get started now by setting up your profile by visiting the following link:



<https://registration.ltrc.lsu.edu/login>

Some things to note on setting up your profile and registering for LTRC hosted events:

- Google Chrome is the preferred browser when using this system.
- Your password should be between 6-12 characters long.
- Please keep and save the email that confirms your profile credentials.
- Once logged in, you will find a list of current events available for enrollment.

- After completing the appropriate registration(s), you will receive an email confirmation. **Please keep this confirmation email as well.**

If you are an agency administrator and have multiple people to register for an event in the LTRC Registration Management System, please contact Jenny.Kirkland@la.gov, and you will be provided detailed instructions.

We'd love to hear your feedback too! Questions or comments can also be directed to Jenny.Kirkland@la.gov. We look forward to seeing you at the next LTRC hosted event.

RESEARCH

New Employee Spotlight: Jose Milla, Ph.D., E.I.



As the new Concrete Researcher for Section 19, Dr. Milla conducts concrete materials related research to improve durability and service life, manages concrete laboratory activities, prepares technical reports, provides technical assistance to DOTD, and conducts forensic evaluations of pavement failures.

Formerly a Research Associate 4 at Louisiana State University, LTRC's research capabilities, career growth, possibilities to implement research findings, and solve practical problems in Louisiana's trans-

portation infrastructure ultimately drew him to the center—a decision he does not regret. “The support from the concrete lab technicians is excellent, and I’m always learning something new every day,” explained Dr. Milla. “I also enjoy the work-life balance and the opportunity to make a difference by researching techniques to improve the durability and/or sustainability of concrete materials.”



Certifications and Honors

- Bachelor of Science – Civil and Environmental Engineering
- Master of Science – Engineering Science
- Ph.D. – Engineering Science
- Engineer Intern License in Louisiana



Fun Facts

- Born and raised in El Salvador
- Bilingual
- Enjoys traveling and playing soccer and tennis in spare time.

Staff Updates and Accomplishments

Dressed in their orange safety vests, the 2018 LTRC kickball team represented the center well during LSU's UREC kickball season. The team went undefeated, winning the last game 18-0.

Thank you to all those that participated: **Angela Rovaris, Austin Gueho, Darby Cressy, David Mata, Emily Wolfe, Jenny Kirkland, Jeremy Icenogle, Kristi Goetting, Layne Brown, Max Aguirre, Nick Ferguson, Peyman Barghabany, Rudynah Capone, and Yucheng Shi**



With teams comprised of randomly selected partners from Sections 19 and 33, LTRC hosted an inaugural team-building corn hole tournament among its employees in August. In a single-elimination round, participants went head-to-head in the halls at TTEC. Ultimately, first place went to **Leon Goudeau** and **Daniel Mayes**, while runners up included Emily Wolfe and Drew Cotten. A special thank you to the concrete lab for creating one-of-a-kind trophies for the winners.

ULL Assistant Professor and LTRC ITS/Traffic Program Manager **Julius Codjoe**, Ph.D., P.E., was selected by TRB to serve on the NCHRP Advisory Panel for SP20-07/Task 420: Road User Understanding of Bicycle Signal Symbol Indications. Dr. Codjoe has also been appointed to serve on a second NCHRP Advisory Panel for Project 03-136 *Evaluating the Performance of Right-Turn-On-Red Operation at Signalized Intersections*.

Special Studies Research Administrator **Kirk Zeringue**, P.E., was appointed for a three-year term to the National Academies of Science, Engineering, and Medicine Transportation Research Board (TRB) ABG 10 Standing Committee on Conduct of Research.

Congratulations to Safety Initiatives Manager **Rudynah Capone** who recently graduated from this year's Lead LSU Program. Formerly known as "Lead...Emerge," Lead LSU is a leadership development program for high-performing and emerging leaders at the university.

Vijaya (VJ) Gopu, Ph.D., P.E., Associate Director of External Programs, presented technical papers at the Advisory Board Meeting of the CICI in Raleigh in June and the Alabama ASCE/AWP Annual Summer Meeting held in Orange Beach in July.



LSU Professor and EMCRF Manager **Louay N. Mohammad**, Ph.D., P.E. (WY) delivered an invited presentation titled *Effect of Asphalt Mixture Design and Construction on Density and Durability of Asphalt Pavements* at the 4th Conference of the Middle East Society of Asphalt Technologists, July 4-6, 2018, Beirut, Lebanon.



Patrick Frazier, Engineer Technician DCL-Asphalt Concrete Training, was recently selected and featured in the State Civil Service Employee Spotlight, a series created to highlight all the great and positive things state workers do across all agencies and put a face to state government.



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

Recently Published

Project Capsule 19-2GT

Quality Control/Assurance on Base Course and Embankment with the Dynamic Cone Penetrometer
Nicholas Ferguson, E.I.

Project Capsule 18-5SA

Evaluating Pedestrian Crossings on High Speed Urban Arterials
Julius Codjoe, Ph.D., P.E.

Project Capsule 18-2SA

Louisiana's Alcohol-Impaired Driving Problem: An Analysis of Crash and Cultural Factors
Eva Shipp, Ph.D.

Project Capsule 19-2P

Mechanistic Characterization of Asphalt Overlays for Pavement Rehabilitation and Preservation using Pavement ME Approach
Zhong Wu, Ph.D., P.E.

Project Capsule 18-4P

Cost-Effective Detection and Repair of Moisture Damage in Pavements
Mostafa Elseifi, Ph.D., P.E.

Project Capsule 18-5B

Evaluation of Asphalt Rubber and Reclaimed Tire Rubber in Chip Seal Applications
Mostafa Elseifi, Ph.D., P.E.

Project Capsule 18-4ST

Load Rating of Existing Continuous Stringers on Louisiana's Bridges
C. Shawn Sun Ph.D., P.E.

Project Capsule 18-5ST

Investigating Available State of the Art Technology for Determining Needed Information for Bridge Rating Strategies
Robert F. Lindyberg, Ph.D., P.E.

Project Capsule 18-4GT

Geotechnical Asset Management for Louisiana
Gavin Gautreau, P.E.

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Evaluation of Non-Destructive Density Determination for QA/QC Acceptance Testing
David Mata, P.E., and Nicholas Ferguson, E.I.

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A Decision-making Tool for Incorporating Cradle-to-Gate Sustainability Measures into Pavement Design
Marwa Hassan Ph.D., P.E. (VA)

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I-10 Girder Repair Using Post-Tensioned Steel Rods and Carbon Fiber Composite Cables (CFCC)
Ching Tsai, Ph.D., and Walid Alaywan, Ph.D., P.E.

Final Report and Technical Summary 547

Performance and Analysis of Concrete Bridge Railing using Conventional and Composite Reinforcement Materials
Walid Alaywan, Ph.D., P.E.

Final Report and Technical Summary 593

Live Load Rating of Cast-in-Place Concrete Box Culverts
Ayman Okeil, Ph.D., P.E. (FL)

Final Report and Technical Summary 591

Evaluating Cell Phone Data for AADT Estimation
Julius Codjoe, Ph.D., P.E., Grace Ashley, and William Saunders

Final Report and Technical Summary 553

Evaluation of Warm Mix Asphalt Technology in Flexible Pavements
Louay Mohammad, Ph.D., P.E. (WY), Amar Raghavendra, P.E., Marcelo Medeiros, Jr., Ph.D., Marwa Hassan, Ph.D., P.E. (VA), and William "Bill" King, Jr., P.E.

Technical Assistance Report 17-01TA-C

Evaluation of Cores from I-49 Near LA 1 in Shreveport
Amar Raghavendra, P.E., Zachary Collier, E.I., and Tyson Rupnow, Ph.D., P.E.

Technical Assistance Report 17-01TA-SA

Traffic Safety Messages on Dynamic Message Signs (DMS)
Elisabeta Mitran, Ph.D., Dortha Cummins, and Ashley Smithers



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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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This public document is published at a total cost of \$890.00. Eight hundred and fifty copies of the public document were published in this first printing at a cost of \$890.00. The total cost of all printings of this document, including reprints, is \$890.00. This document was published by Printing Tech, 11930 South Harrell's Ferry Road, Baton Rouge, to report on the research and training of the Louisiana Transportation Research Center, as required in R.S. 48:105. This material was duplicated in accordance with standards for printing by state agencies, established pursuant to R.S. 43:31. Printing of this material was purchased in accordance with the provisions of Title 43 of the Louisiana Revised Statutes.