

Technology Today

Volume 29 Issue 4

Summer 2015

A publication of the Louisiana Transportation Research Center



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Upcoming Events

**NHI Course No. I30092 -
Fundamentals of LRFR and
Applications of LRFR for Bridge
Superstructures**

Oct. 27-30, 2015 – Baton Rouge
TTEC Auditorium, Room 100

**NHI Course No. I32012 - Soils and
Foundations Workshop**

Nov. 3-6, 2015 – Baton Rouge
TTEC Auditorium, Room 100

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

Study Shows How to Reduce Delays Caused by Freight Crashes on Freeways

In 2012-2013, several crashes in the Baton Rouge area brought attention to the significant cost to the public, not only in terms of delay and safety, but in economic impact and personal frustration. In an effort to minimize these costs, LTRC worked with the National Center for Intermodal Transportation for Economic Competiveness (NCITEC) on a research project titled, “Improving Freight Crash Incident Management,” where researchers studied the most effective ways to lessen the impact that freight crash incidents have on Louisiana freeways.

Spearheading the project was LSU Professor Chester G. Wilmot, Ph.D., P.E., along with DOTD Intelligence Transportation System Director Stephen Glascock, Wan Li, and Glen Graham. Dr. Wilmot explains, “Incidents that occur on the interstate system not only involve and impact commuters but commerce as well. On many interstate segments, commercial vehicles are likely to be involved in an incident. Given a crash that blocks critical travel lanes or an entire direction for multiple hours, the cost could be enormous.” To alleviate these costs and reduce delays from these incidents, researchers studied the best practices in other states,

reviewed literature on the subject of mitigating the effect of incidents on affected traffic, noted laws in place in Louisiana that are aimed at improving management of incidents on Louisiana’s freeways, considered the history of freight crash incidents in the state, and developed a cost-estimation procedure to quantify the impact of incidents on road users.

By using this new procedure, Dr. Wilmot and his team were able to determine a rough estimate of the cost efficiency of two programs aimed at early identification of incidents and quick clearance of the site once discovered:

The Instant Tow Dispatch Program provides funding for the police agency to reimburse a tow company that has incurred a “dry run.” A dry run may occur because a driver involved in the incident has requested a specific tow company or the vehicle(s) involved in the incident was able to be driven away under its own power. Providing this reimbursement encourages police agencies to “instantly” dispatch a tow company to an incident as soon as there is an indication that a tow may be needed to

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LTRC Hires New Research Administrator

Formerly serving as the senior concrete research engineer, Tyson Rupnow, Ph.D., P.E., has recently been promoted to associate director of research, following the retirement of previous associate director Mark Morvant, P.E.

From planning and developing research programs to preparing and administering Section 19's operating budget and staffing needs, Dr. Rupnow explains, "I am looking forward to not only continuing the great work being conducted at LTRC, but elevating and leveraging that work on a national level through increased participation at TRB and NCHRP. I am enjoying the challenge of creating a master plan with the input of our many interested groups for the LTRC campus."

As the associate director of research, Dr. Rupnow will also encourage and assist employees in seeking additional external funding from sources such as NSF, federal agencies, and the private sector; advise and provide leadership to the directorate, division, and office levels on technology development and programs and implementation of research results; and represent DOTD on regional and national committees such as TRB, AASHTO RAC, FHWA Technical Committees, and other technical organizations.

Dr. Rupnow currently serves as an adjunct instructor for Louisiana State University where he occasionally teaches Civil Engineering Materials Laboratory and a graduate course in concrete materials. He is also a member of TRB Committees AFN30 Durability of Concrete and AFN10 Basic Research and Emerging Technologies for Concrete and is a Member of ACI – Louisiana, and he serves as a member of ASCE and the Geo-Institute.

Dr. Rupnow holds an M.S. in geotechnical engineering and a Ph.D. in civil engineering materials from Iowa State University. Prior to joining LTRC, he worked as a post doctoral research associate for the National Concrete Pavement Technology Center in Ames, Iowa. During his time as the senior concrete research engineer, his work included evaluation of high portland cement replacement ternary mixtures, implementing the surface resistivity test method, and full scale load testing and evaluation of roller compacted concrete (RCC).

Retirement Celebration Honors Five Long-time DOTD Employees

With over 156 years of combined service in state government, Toni Daigle, Bill King, Doug Hinton, Mark Morvant, and Greg Tullier celebrated their retirement

with 132 of their closest friends and family at TTEC on Friday, June 5. LTRC would like to thank Ergon and Diamond B, who treated guests to a special fish fry, and would also like to thank a number of LTRC staff members who participated in organizing and cooking the afternoon event.



LTRC Gains NSF “New Awardee” Status



LTRC was recently certified as a “New Awardee” by the National Science Foundation after an exhaustive review of LTRC’s administrative and financial information by NSF’s Division of Grants and Agreements. Without this certification, awards to LTRC are limited to \$100,000. LTRC became the first state DOT research center in the country to gain this certification, and this will greatly enhance the ability of LTRC’s research staff to seek NSF funding.

Nearly a thousand pages of documentation were submitted by LTRC to satisfy the requirements of the review process. As a certified new awardee, LTRC is now eligible to receive any size award from NSF like a major university/research organization. LTRC’s updated status has already paved the way for new research funding.

One of the first projects awarded to LTRC by NSF since granting the new awardee status was a \$337,000 grant for support of a project titled, “Field Monitoring and Measurements Education: A Model for Civil and Environmental Engineering.” The principal investigator for this project is Vijaya (VJ) Gopu, Ph.D., associate director for external programs, and the co-PIs are Roger Seals, Ph.D., and Ayman Okeil, Ph.D. This 42-month project will be completed in January 2019.

Father-Son Duo Become Dr. Cooper

Two LTRC employees have recently added a few important, hard-earned letters behind their names. One is named Samuel Cooper, Jr., and the other Samuel Cooper, III. This father and son duo have been working on their advanced degrees since 2008, and happily walked across the stage this past May to become Dr. Cooper.

What is your previous education and what is your Ph.D. in?

Jr.: BS, MS, and Ph.D. Civil Engineering, Major: Transportation, Minor: Geotechnical

III: BS Civil Engineering, BS Environmental Engineering, MS Civil Engineering, Ph.D. Civil Engineering – Transportation

What do you do at LTRC?

Jr.: Associate Director, Technology Transfer and Training—I administer and manage the eight programs and staff of the DOTD/LTRC Technology Transfer and Training Section as well as direct the TTEC budget and its programs, among others.

III: Asphalt Research Manager (DOTD Engineer 6)—I develop and manage the asphalt research program and staff for DOTD.

What was a high-point of your Ph.D. program?

Jr.: Getting out! No, the best part is going back to school and learning things again and getting your brain more active. Utilizing that analytical side is something I enjoy.

III: Solving problems related to laboratory testing and field work was a high point.

What were challenges you faced along the way?

Jr.: Time management was the biggest challenge as a full-time employee. You have to deal with your work schedule and home life. Juggling all the different schedules was difficult.

III: Yes, time management and organization were challenging, especially when dealing with field projects. Not to mention trying to maintain work, school, and life balance. The latter was actually the hardest part.



What are you most proud of during your time in the program?

Jr.: Getting my advance degrees has always been a life dream, so accomplishing that and watching Sammy do the same was definitely a proud moment.

III: It was great to be a part of a nationally recognized research, as well as being the major researcher from start to finish on an NCHRP Research Project, and having 22 journal publications.

What was your experience being in the program with each other?

Jr.: Being “Old School,” I did a lot of computations using paper, pencil, and calculator. Sammy would always tell me not to do it the old fashioned way and use the computer because it would save me time and effort. He would tell me that using the computer would allow me to make changes to an assumption and the computer would automatically update the final product. We also took a lot of course work together and when we got stuck answering a particular problem we would sometimes discuss the issue with each other. Since Sammy and I have the same name I would put my name and then in parenthesis (“The Father”). This would avoid any confusion with the professors trying to grade each of our work products. Sammy would just tell the professor to give him the highest grade.

III: I gained a lot of practical knowledge from working with Dad. He was full of knowledge that I would not be able to learn through study and testing. He forced me to learn theories and testing better, so that I could be able to explain things in depth.

How has working together and/or getting your Ph.D. had an impact on your relationship?

Jr.: Getting able to see him on a more day-to-day basis was nice. It’s been wonderful to see that his education and hard work has advanced his career so quickly at LTRC.

III: It was nice to work together. Sometimes a break was needed. But overall it was nice.

How did it feel to walk across stage and then see your son/father achieve the same accomplishment as well?

Jr.: It was excellent. I just wish I would have been able to walk before him, so I could have waited for him on stage while he got hooded.

III: It was a proud moment. It was nice to walk across first, since I did start first. But I was too occupied with all the picture taking I didn’t get to see as well as I would’ve liked.

What advice would you now give any future father/son duo attempting their Ph.D. at the same time in the same field?

Jr.: I would tell the father, “Don’t wait so long to do it!” Practical experience that the older one has plays an important role because they know what they want, and they don’t get sidetracked. They stay on task. However, the younger students are more computer savvy, and that goes a long way. Also, the parenting doesn’t go away—he still will want to try and mentor his son in going the right direction and staying focused.

III: Listen to what each other has to say. The younger student will likely know the short cuts for testing and analysis. The one with more experience will help save having to repeat work.

Any funny stories throughout the years of getting your Ph.D. together?

Jr.: I would break stuff, and he would fix it! But there may have been a method to my madness.

III: It was fun to ban dad from touching any of the machines in the back. I got tired of fixing them.

Louisiana LTAP Center Staying Busy

This September-December, LTAP is debuting the updated **Roads Scholar #13: Inspection of Local Bridges** and delivering it in nine locations across the state. “We have worked closely with the DOTD Bridge Inspection and Maintenance Section to ensure that the class reflects the requirements of DOTD’s compliance program in accordance with the National Bridge Inspection Standards,” explains LTAP Training Program Coordinator Courtney Dupre. “It is our goal to have every parish send at least one bridge inspector or supervisor to this course.” Kent Hardin, retired DOTD bridge inspection specialist from District 08, will be teaching these classes.

LTAP is also continuing the **Local Public Agency Qualification Program** courses in conjunction with DOTD and FHWA. This winter, LTAP will offer two LPA Qualification Core Training Module courses, one in North Louisiana and one in South Louisiana. Dupre explains, “This course provides an overview of federal and state contract requirements for LPA projects and is geared toward Local Public Agency managers and executives. Completion of this course is required of an agency in order to qualify to receive federal funds in the LPA program.”

On September 23, LTAP assisted FHWA in facilitating the **GRS-IBS Showcase** in Gueydan, Louisiana. The session will feature an introduction to GRS systems for bridge replacement, along with a field visit to the site of a bridge project already underway.

And this fall, LTAP Program Manager Steven C. Strength, P.E., PTOE, will be teaching the newly updated **Roads Scholar #4: Temporary Traffic Control for Local Agencies** in seven locations across the state. “This course is intended for engineers, technicians, inspectors, and maintenance personnel whose duties require an intermediate understanding of traffic control in work zones, including design, setup, and management of traffic controls,” explains Dupre.



New App and Video Page in the Works

LTRC website users will soon have a new, quick access point to all of the center’s online information. With the launch of the free LTRC app approaching, users will be able to instantly reference publications, class information, contact information, as well as view the center’s most recent videos on LTRC’s revamped YouTube channel.

“At first the app was just to be a condensed mobile version of the site, current staff listing, and contact information,” explained LTRC Photographer/Videographer Chris Melton, developer of the app. “But after everyone’s feedback, it turned into a mobile hub for all things regarding LTRC, such as fact sheets, publications, workshop training, and conference schedules.”

Also within the app, users will be able to visit LTRC’s YouTube channel, where content is constantly being developed. Currently, the channel includes videos related to seminars, events, and training. However, developers plan to incorporate a much broader listing of training videos in the near future.

The app will be available for download by this fall. For more information, please contact Chris Melton at (225) 767-9114 or chris.melton2@la.gov.

Study Shows How to Reduce Delays Caused by Freight Crashes on Freeways

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clear the roadway. Instant dispatch allows the tow company to be in route and access the scene before the queue from the accident reaches its maximum.

The Expedited Towing Program provides monetary incentives (in addition to normal towing and recovery charges) to tow companies that can recover heavy duty vehicles or cargo that are blocking travel lanes within a prescribed time frame.

Both programs are recommended for implementation and are estimated to be highly cost-efficient with the estimated cost of delay far exceeding the estimated cost of the programs.

For example, research revealed that an Expedited Towing Program could conceivably reduce the clearance time of an incident that historically would take 4 hours and 20 minutes by 58 percent to 1 hour and 49 minutes.

To read the study in full or learn more about this project, please visit https://www.ltrc.lsu.edu/pdf/2015/FR_542.pdf or contact Dr. Chester Wilmot at (225) 578-4697 or cecgw@lsu.edu.

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Staff Updates and Accomplishments

Amar Raghavendra, P.E., was just recently hired by Section 19 in the Concrete Section as an Engineer 4 - Concrete Research Engineer.

Chester Wilmot, Ph.D., P.E., recently had his I3-5SS project, "Improving Freight Crash Incident Management" chosen by AASHTO RAC as one of the High Value Research Sweet 16.

Materials Research Administrator **Kirk Zeringue, P.E.**, was selected by TRB for membership on the NCHRP Project Panel, I5-62 Access Management and Design Guidelines for Truck Routes.

Vijaya (VJ) Gopu, Ph.D., presented two papers related to timber bridge condition assessment at the 2015 European Bridge Conference in Edinburgh, Scotland, and the 2016 Alabama ASCE/APWA Annual Meeting in Orange Beach, AL, in June 2015 and July 2015, respectively. He also served on four NSF proposal review panels and one NSF Center site visit between January 2015 and June 2015. He also attended the 8th PDCA Professors' Driven Pile Institute Workshop at Utah State University, Logan, UT, from June 21-26, 2015.

Murad Abu-Farsakh, Ph.D., P.E., was recently invited to speak at the PDCA of the Gulf Coast - 3rd quarter 2015 chapter meeting on Thursday, August 20, 2015. His presentation was titled "Field Instrumentations and Testing to Study Set-up Phenomenon of Piles Driven into Louisiana Clayey Soils."

LTRC would like to welcome to **Patrick Mehaffey** as the new TTEC Audio Visual Manager.

Recently Published

Project Capsule 14-4SS

Identifying Local Transit Resources for Evacuation
Chester G. Wilmot, Ph.D., P.E.

Project Capsule 14-5PF

Design and Analysis Procedures for Asphalt Mixtures Containing High RAP Contents and/or RAS
Louay Mohammad, Ph.D.

Project Capsule 15-2GT

Lime Utilization in the Laboratory, Field, and Design of Pavement Layers
Mostafa Elseifi, Ph.D., P.E.

Project Capsule 15-2SA

Development of a Simulation Test Bed for Connected Vehicles using the LSU Driving Simulator
Sherif Ishak, Ph.D., P.E.

Project Capsule 15-3SS

Ensuring Safety in Autonomous Vehicle Legislation in Louisiana
Chester G. Wilmot, Ph.D., P.E.

Final Report and Technical Summary 521

Design Values of Resilient Modulus for Stabilized and Non-Stabilized Base
Khalil Hanifa, E.I.; Murad Y. Abu-Farsakh, Ph.D., P.E.; and Gavin P. Gautreau, P.E.

Final Report and Technical Summary 524

Development of a Highway Safety Fundamental Course
Xiaoduan Sun, Ph.D., P.E.

Final Report and Technical Summary 528

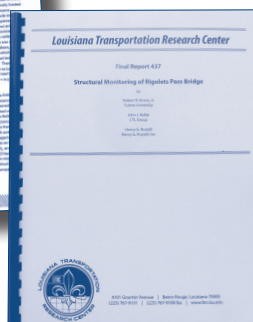
Development of Wave and Surge Atlas for the Design and Protection of Coastal Bridges in South Louisiana
D. Max Sheppard, Ph.D.; Philip E. Dompe; Mark S. Gosselin, Ph.D., P.E.; and Huseyin Demir, Ph.D.

Final Report and Technical Summary 540

Development of a Tool for Documenting, Tracking, Recording, and Analyzing Improvements to Intersection Sites and Roadway Departures in Curve Locations
Helmut Schneider, Ph.D., and Eric Newman

Final Report and Technical Summary 541

Mitigation Strategies of Reflection Cracking in Pavements
Mostafa Elseifi, Ph.D., P.E., and Nirmal Dhakal



Final Report and Technical Summary 542

Improving Freight Crash Incident Management
Chester G. Wilmot, Ph.D., P.E.; Wan Li; Stephen Glascock; and Glen Graham

Final Report and Technical Summary 543

Real Time Driver Information for Congestion Management
Sherif Ishak, Ph.D.; Osama Osman; Raju Thapa; and Sydney Jenkins

Final Report and Technical Summary 544

STC Synthesis of Transportation Funding Sources and Alternatives in the Southeastern States Now and in the Future
J. Bryan Gibson, Ph.D., and Candice Y. Wallace, MPA

Technical Assistance Report 13-02-TA-P

Assessment of Mitigating Transverse Joint Faulting with Polyurethane Foam on LA 1 By Pass, State Project Number 034-30-0023
Kevin Gaspard, P.E., and Zhongjie Zhang, Ph.D., P.E.

Technical Assistance Report 14-01TA-P

Joor Road Noise Level Assessment
Kevin Gaspard, P.E.; Tyson Rupnow, Ph.D., P.E.; and Zhongjie Zhang, Ph.D., P.E.

Technical Assistance Report 14-02TA-B

Evaluation of Rutting Distresses on I-20 near Minden, LA
William "Bill" King, Jr., P.E.; David Mata; and Samuel B. Cooper III, Ph.D., P.E.

 **FIND OUT MORE**

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



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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.

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This public document is published at a total cost of \$553.40. One thousand and one hundred copies of the public document were published in this first printing at a cost of \$553.40. The total cost of all printings of this document, including reprints, is \$553.40. 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.