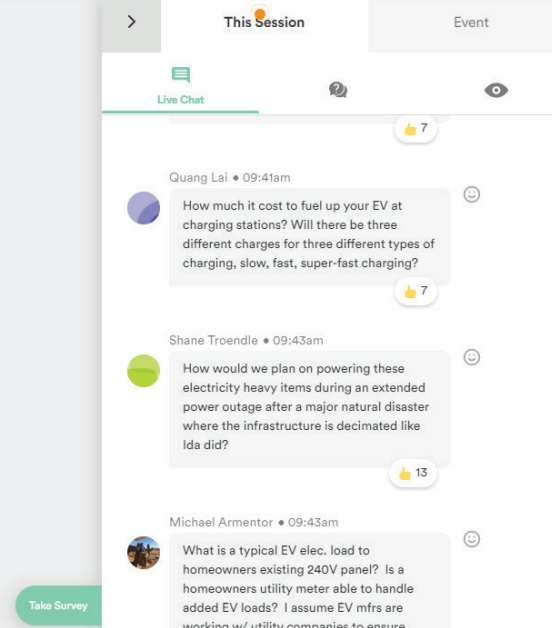
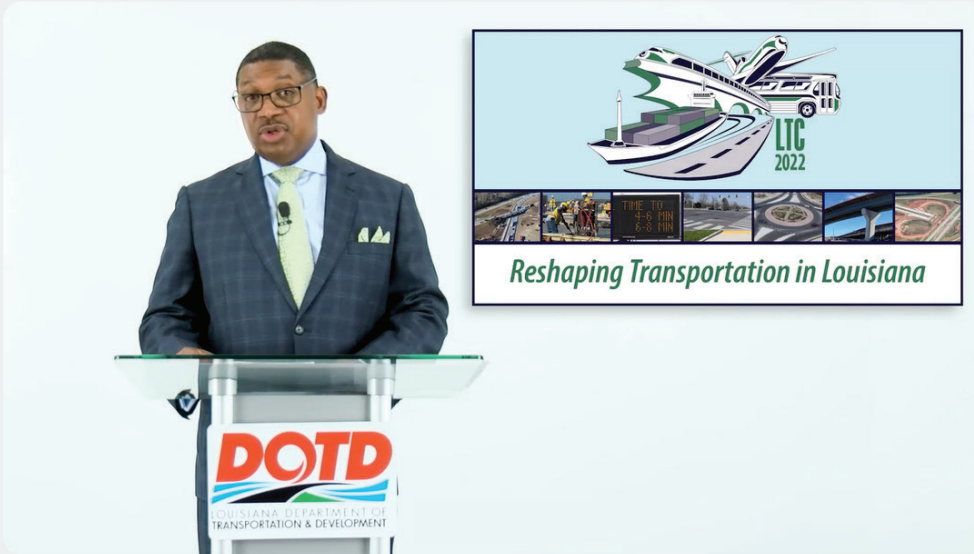




# TECHNOLOGY TODAY

VOLUME 35  
ISSUE 2

*A publication of the Louisiana Transportation Research Center*



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## UPCOMING EVENTS

Emotional Intelligence (TTEC 175)  
July 13

NHI Course No. 142005—NEPA and the  
Transportation Decisionmaking Process (TTEC 100)  
August 10-12

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

## RESEARCH

### LTC Virtual Conference Offers New Experience

With over 800 unique views, the 2022 Louisiana Transportation Conference was able to reach a number of transportation professionals through the comfort of their office or home. This year's conference was held virtually, and attendees were able to view a variety of technical sessions, explore an online exhibit, attend virtual meetings, and live chat during presentations.

Gaining the most views was Secretary Shawn Wilson's keynote session "2022 Louisiana Transportation Conference Secretary Address and Electric Vehicle Technical Session." Dr. Wilson explained, "This year's theme is 'Reshaping Transportation in Louisiana.' How fitting of a theme that is because it accurately reflects what this administration being led by Governor Edwards has done for the last six plus years." He went on to highlight DOTD's centennial, innovative funding methods, completed projects, and major upcoming projects across the state, including the I-10 widening in the capitol region. "We are changing original infrastructure that was built over 50 years ago that has exceeded its useful life to build a better, more resilient and more community friendly interstate system in our busiest corridor in Louisiana," Dr. Wilson said.

*continued on page 2*

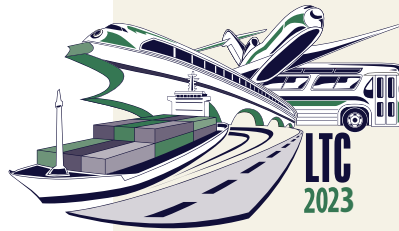
The second part of the secretary's address included a live conversation about the industry of electronic systems, such as electric vehicles (EV). As part of an effort to drastically reduce greenhouse gas emissions by 2050, Dr. Wilson invited Paul Vosper, Juice Bar CEO, and Byron Lee from Airware, LLC to share their expertise and thoughts on EV technology and the vision for opportunities in Louisiana.

Another highly attended session included "Green Book 8 and Road Design Manual Updates" by Robert Iseman, P.E., and David Smith, P.E., where they gave an overview of proposed Green Book 8 as well as information on the latest roadway design guidance, proposed design policy updates, and significant changes to the Road Design Manual.

"Updates on Statewide Highway Safety Initiatives" also gained the attention of a number of attendees. This session was led by Autumn Goodfellow-Thompson, Karla Courtade, Jessica DeVille, and Ralph Mitchell, Jr. The presenters highlighted current initiatives underway in Louisiana to assist planners and engineers, such as the upcoming 2022 Strategic Highway Safety Plan update, Highway Safety Improvement Program activities including the Statewide Pedestrian Crash Assessment, and the new Louisiana Uniform Crash Report and eCrash system rolling out this year across the state.

While many attendees missed the standard in-person conference, there were virtual benefits for some. The event feed allowed a number of participants to engage with speakers and fellow attendees by answering polls, adding comments, and responding to questions in real-time. Attendees also had the opportunity to re-watch anything that was missed as well as watch the conference from their place of choice, avoiding travel.

Overall, while the conference will be returning to in-person next year, attendees were able to experience a reimaged LTC and interact with their colleagues and gain information in a new way—all while looking forward to convening again at the Baton Rouge River Center in March 2023.



### Save the Date

LTRC is already gearing up for the next LTC, which will take place March 12-15, 2023, in the newly renovated Raising Cane's River Center.

In a recent survey, attendees gave input on what they would like to see in next year's conference. Some of these topics included: CAV, geotechnical, current popular projects around the state, complete streets, and the I-10 widening project.

### Have an idea for a conference presentation topic?

Visit the submission form at [www.ltrc.lsu.edu/ltrc\\_23](http://www.ltrc.lsu.edu/ltrc_23) to send your ideas to the program committee.

### Thank you to our 2022 sponsors!

Support for LTC is not possible without the generosity of fellow industry partners. Thank you to our Gold Sponsors: Arcadis; Neel-Schaffer, Inc.; Stantec Consulting Services, Inc.; Gresham Smith; WSP USA, Inc.; Modjeski and Masters, Inc.; T. Baker Smith LLC; CSRS; Dewberry Engineers, Inc.; AECOM; and HDR Engineering, Inc. In addition, thank you to our Silver Sponsors: Intelligent Transportation Systems, Michael Baker International, HeadLight, Buchart Horn, and Crescent Engineering & Mapping, LLC. Attendees had an opportunity to virtually chat with sponsor representatives and explore their company pages as part of the conference this year.

## TRAINING

# New Training Spotlight: SMT—SafeStop MASH Trailer Video

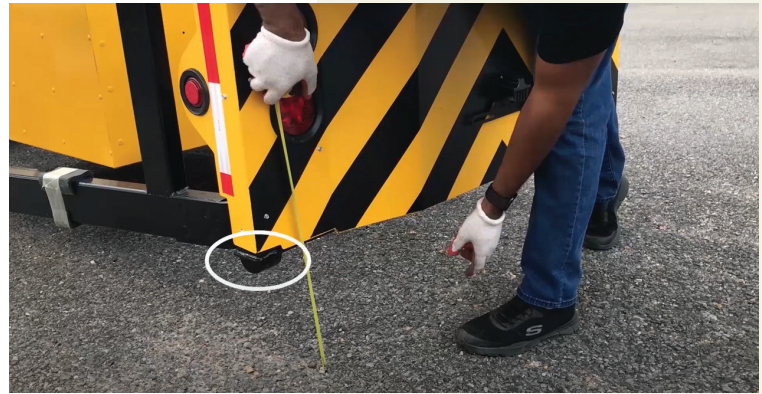
By Annisia Osborne

Patrick Frazier, Chris Melton, and Kirk Wales of LTRC have recently developed a new training video for Section 42, Maintenance Systems Management.

2

This video highlights the SMT Mounted Attenuator that DOTD employees use in work zones. SMT is an acronym for SafeStop MASH Trailer and reduces the impact of work zone injury if impacted by a vehicle. Within the video, an operator

demonstrates how to properly connect and inspect the SMT to ensure it is prepared for use. To accompany the visual display of guidance for proper setup of the SMT in work zones, DOTD has updated the following training manuals: Traffic Control Through Maintenance Work Areas Handbook and District Specified Traffic Control PLAN (TCP). These materials provide DOTD employees with access to safety requirements, rules for placement and movement, and spacing guidance for SMTs during operations.



### Have a course you would like developed?

At LTRC, we are committed to providing education, resources, and learning opportunities for the workforce within the transportation community. If your unit is interested in course development or facilitation, we encourage completion of the Training Needs Request Form on the LTRC website. For more information, please contact us today!

*To view this published training video, please go to <https://www.youtube.com/watch?v=y4r-mhmy4rMk>.*

## RESEARCH

# New Patent Awarded for Bendable Concrete



*High deflection capacity of Engineered Cementitious Composites (ECC) material developed at LSU*

A new concrete U.S. patent has been secured for a group of Louisiana researchers. Using sugarcane bagasse ash (SCBA) as a main ingredient, the team created a specially engineered cementitious composite or “bendable concrete.”

Spearheaded by Marwa Hassan, LSU Construction Management professor, the team included Hassan Noorvand, LSU Construction Management research associate; Tyson Rupnow, LTRC associate director of research; Michele Barbato, University of California-Davis Civil and Environmental Engineering professor; and Gabriel Arce, research scientist at the Virginia Transportation Research Council.

Funded by Tran-SET, researchers sought to find the right balance of SCBA and utilized LTRC’s laboratory space for mixing, curing, and testing samples. Arce explained in an LSU interview, “From our findings, the use of raw SCBA as sand replacement offers great promise, as it produces significant enhancements in the material properties and reduces the cost of ECC. Furthermore, raw SCBA is readily accessible. Regarding the use of post-processed SCBA as cement replacement, we have found that this is not as promising since it does not produce dramatic improvements in material properties, and post-processing of SCBA is a challenge in practical application.”

Tran-SET is a collaborative partnership between nine major institutions and two community colleges, led by LSU, and established to address the accelerated deterioration of transportation infrastructure through “cutting-edge technologies, novel materials, and innovative construction management processes.” Its members are LSU, Arkansas State University, Baton Rouge Community College, Navajo Technical University, New Mexico State University, Oklahoma State University, Prairie View A&M University, Texas A&M University, University of New Mexico, University of Texas at Arlington, and University of Texas at San Antonio.

Thank you to The Lemoine Company, Quality Concrete, IKON, and the Concrete & Aggregates Association of Louisiana (CAAL) for donated materials, equipment, and labor to the project.



# Dr. Gopu Receives Distinguished Appointment and Award



External Programs Associate Director Vijaya (V.J.) Gopu, Ph.D., P.E. was recently honored with two special distinctions. First, he was named Researcher of the Year by ULL's College of Engineering for showing exceptional performance and commitment to the department. Next, he was

appointed by Governor Edwards to serve a six-year term on the Louisiana Professional Engineering and Land Surveying (LAPELS) Board as a Professional Engineer representing Education. In this new role, he will serve Louisiana citizens by helping to safeguard their life and property through careful enforcement of the standards of engineering practice by professionals registered and licensed by the board.

As a LAPELS board member, Dr. Gopu also hopes to facilitate a higher level of communication with the licenses in this digital age and help promote the registration of all engineering faculty at Louisiana universities. "Students pursuing engineering degrees should be taught to take pride in becoming registered engineers by faculty who need to make a commitment to becoming registered engineers," explained Dr. Gopu. "Medical schools would never allow a non-board certified doctor to train medical students; it is important that engineering schools follow their lead. I would like to assist in this change."

Dr. Gopu has been an associate director for LTRC the past 16 years and is thankful for the support and encouragement the center has offered. "LTRC has supported and encouraged my efforts to engage in a myriad of proposal development activities that benefited a large number of faculty in our state universities and participate in consortium driven efforts that enhanced the visibility and stature of LTRC," said Dr. Gopu. "LTRC support was instrumental in my gaining several awards/recognitions from the universities I was affiliated with. It would have been difficult to participate or be involved in a large number of transportation related arenas without being at LTRC."

In addition to his long-standing position with LTRC, Dr. Gopu has held the Formosa Plastics Distinguished Profes-

sor Emeritus position at LSU since 2000, is a Stuller Settings-Matthew Stuller LEQSF/Regents Professor of Civil Engineering at the University of Louisiana at Lafayette, is the chair of the Industrial Advisory Board for the NSF Center for Integration of Composites in Infrastructure, and is a founding member of the International Association for Bridge Management and Safety-USA.

Since beginning his career over four decades ago, Dr. Gopu has made and continues to make an impressive mark in the field of research, teaching, and professional service.

## Decades of Service

After earning his B.S. in Civil Engineering with distinction from Andhra University in 1971, Dr. Gopu went on to obtain his M.S. and Ph.D. in Structural Engineering from Colorado State University in 1972 and 1975.

When he joined the civil engineering faculty at LSU in 1978, no one could anticipate the impact he would have in the field of education and research.

**In fact, he has supervised the research work of 48 master's and doctoral students and served as the principal or co-principal investigator of over 60 research projects with total expenditures exceeding \$20 million.**

During his 22-year tenure at LSU (1978-2000), he served as the department's structures program and graduate program coordinator. During a sabbatical in 1985, Dr. Gopu served as a visiting professor at the Royal Institute of Technology in Stockholm, Sweden for eight months. And during his final two years at LSU, Dr. Gopu worked as the Program Director for Structural Systems and Materials in the Directorate of Engineering at the National Science Foundation in Washington, D.C., on an IPA appointment (1998-2000). In this role, he established a \$20-million joint NSF-HUD initiative in support of President Clinton's PATH (Partnership for Advancing Technologies for Housing) program.

**As evidenced in his lasting service to Louisiana and its universities, Dr. Gopu became the first engineering professor in Louisiana history to achieve tenure as a full professor at four Louisiana universities.**



1971



1982



2005

# Louisiana LTAP Keeps Strong Partnership with Parish Engineers, Industry Experts

*By Rudynah Entera Capone, MPA, and Christopher Melson, MSE, P.E.*

When it comes to peer-to-peer (P2P) collaboration, the Louisiana Local Technical Assistance Program (LTAP) center shares a unique experience because of its strong partnership with the Louisiana Parish Engineers and Supervisors Association (LPESA), the Police Jury Association of Louisiana (PJAL), Louisiana Municipal Association (LMA), and American Public Works Association (APWA).

LTAP's long-standing partnership with LPESA is instrumental in promoting local agency innovations and best practices in the areas of engineering, public works, and infrastructure safety and maintenance. As an affiliate of the National Association of County Engineers (NACE), LPESA serves to foster inter-agency partnerships and facilitate healthy exchanges of ideas amongst parish engineers and local public works employees involved in the planning, operations, and maintenance of locally owned infrastructure. LTAP supports this mission in a variety of ways particularly in offering classes on various topics such as: bridge inspection, work zone safety, heavy equipment operations, pavement preservation, drainage, road safety, and successful supervision.

LTAP Director Steve Strength serves as secretary of LPESA, assisted by LTAP Business Manager Courtney Dupre. He ensures that LTAP staff work hand-in-hand with LPESA's board officers, regional directors, and associate members.

Because LTAP serves as LPESA's primary membership and outreach arm, it is fully integrated into LPESA's inter-agency process as well as its membership outreach activities. Everyone on the staff helps in the agenda planning, coordination and facilitation of LPESA's semi-annual conferences as well as in eLearning courses. LTAP leverages resources through its involvement in LPESA events to further promote best practices to parishes, municipalities, and planning organizations. The staff always participates as exhibitor and/or resource speaker in statewide conferences such as the PJAL

convention and LMA meeting. It is through events like these where the staff can enhance their efforts to promote technical assistance and technology transfer resources available to local public agencies (LPAs). Additionally, LTAP develops informational materials that help coordinate content in LTAP classes with PowerPoint pieces that provide valuable information from a diverse set of subject matter experts. This has been especially true in promoting pavement preservation, emergency recovery, and bridge management. It goes beyond training and providing additional resources to support the implementation efforts of such programs.

LPESA President David Rome speaks highly of how association members benefit from such a strong partnership with LTAP—from connecting peers with industry experts, to fostering partnerships and providing professional development (such as the semi-annual conference). The most recent LPESA conference was held on April 20-21, 2022 at the West-Cal Events Center in Sulphur.

During this conference, Rome warmly welcomed the 130 attendees, 67 of which were locals from 32 agencies. He noted, "Now, more than ever, the infrastructure that we are responsible for stands at the forefront of local, state, and federal priorities. LPESA is proud to network our members, associate members, and vendors who are the driving force behind keeping Louisiana safe and moving forward. I hope that you will find our program informative. I invite you to participate in our discussions."

Rome added that the association's mission is to engage an active member in every parish in Louisiana, and LTAP has been instrumental in helping them achieve that.

## **Providing ample learning opportunities for local public agencies**

LTAP provides a mixture of in-person and eLearning professional development in order to uphold the LPESA's mission of engaging its members and providing continued education for the local transportation workforce.

## *LTAP continued*

First, LTAP offers the Roads Scholar classes and workshops, including web-based course offerings by other LTAP centers across the nation. LTAP consistently publicizes these opportunities through Local Connections e-news. Subscribe to LTAP e-news: <https://louisianaltap.org/local-connections-monthly-e-news.html>. Second, LTAP provides an eLearning platform through the LPESA virtual showcases. These webinars started out as monthly offerings during COVID-19 and now are offered quarterly. It provides an opportunity for associate members and industry experts to demonstrate products, programs, services and activities that are of interest to the LPESA community. Third, LTAP assists in holding LPESA's Board and Program Committee meetings. It is in these meetings where ideas are shared, opportunities are explored, and concerns are addressed.

Lastly, LTAP provides the groundwork for LPESA's semi-annual conferences. The most recent LPESA conference, the LPESA Spring 2022 Conference, provided information on the Bipartisan Infrastructure Law (BIL), best practices in roadway safety, pavement solutions, bridge management and maintenance, regulatory permitting, disaster recovery, broadband connectivity, and local research activities. NACE's executive director Kevan Stone and regional representative Jacob Thorius from Washington County, Iowa was also able to attend and present at the conference. Read more about the conference here: <https://louisianaltap.org/lpesa-conferences.html>

### STAFF NEWS

## Staff Updates and Accomplishments

**Evan Chaney**, recent accounting graduate and LTRC student worker, was recognized as one of the 40 students nominated for the LSU Student Employee of the Year award. Congratulations to Evan for being nominated for the LSU SEOTY.



Senior Geotechnical Research Engineer **Gavin Gautreau**, P.E., was recently elected to the Louisiana Engineering Society (LES) State Board as secretary-treasurer for the 2022-2023 term.

LTAP Innovation and Technology Transfer Manager **Rudynah Capone** was one of the two pilot finishers who received the eLearning Architect Certification, an 8-month course offered through the Louisiana State Civil Service Commission's Comprehensive Public Training Program (CPTP). The program is designed to cultivate diverse knowledge and skills necessary to develop web-based courses. Capone also became a member of the Public



Relations Society of America (PRSA) National chapter and Public Relations Association of Louisiana (PRAL) Baton Rouge chapter.

LTTRC welcomes the newest member of the Special Studies group, **Ashifur Rahman**, Ph.D., who joins as a Research Associate under the ITS/Traffic section.

Congratulations to **Kirk Wales** on being selected as the new Internal and Structured Training Program Manager.

Special Studies Research Administrator, **Julius Codjoe**, P.E., Ph.D., was recognized for outstanding work in research and education by being awarded the 2021 Epps/Dart Award plaque by the Deep South chapter of the Institute of Transportation Engineers (ITE). He was presented the award at the Southern District ITE annual meeting at Louisville, KY. Dr. Codjoe was also invited to present "An Evaluation of Louisiana's Roundabouts" at the 6th International Conference on Roundabouts, held at Monterey, CA, and organized by the Transportation Research Board.



As chapter president, **Louay Mohammad**, Ph.D., P.E. (WY) presided over the LSU Chapter of the Honor Society of Phi Kappa Phi's 2022 awards and induction ceremony. Dr. Mohammad also serves on a Transportation Research Board Committee on the Production and Use of Asphalt (AKM10) task force to develop a circular on Glossary of Asphalt Mixture Balanced Mix Design Terms.



## PUBLICATIONS

### Recently Published

#### **Technical Assistance Report 21-01TA-P**

*Forensic Evaluation of Pavement Structure: Ponderosa Drive in East Baton Rouge Parish*

Qiming Chen, Ph.D., P.E.; Nicholas Ferguson, P.E.; Moses Akentuna, Ph.D., P.E.; Saman Salari, P.E.; Gavin Gautreau, P.E.; and Samuel Cooper, III, Ph.D., P.E.

#### **Technical Assistance Report 22-01TA-B**

*Evaluation of Isocyanate Asphalt Additive*

Corey Mayeux, P.E.; Saman Salari, P.E.; and Samuel Cooper, III, Ph.D., P.E.

#### **Final Report and Technical Summary 660 (18-5B)**

*Evaluation of Asphalt Rubber and Reclaimed Tire Rubber in Chip Seal Applications*

Mostafa Elseifi, Ph.D., PE (VA); Md. Nafiur Rahman; Md. Tanvir Sarkar; Hossam Abohamer

#### **Final Report and Technical Summary 662 (21-5SS)**

*Determining the True Cost and Benefit for Collecting and Maintaining Non-Road and Non-Bridge Asset Data*

Peter R. Stopher, Ph.D., and Ruijie "Rebecca" Bian, Ph.D.

#### **Final Report and Technical Summary 663 (20-2B)**

*Feasibility and Performance of Low-Volume Roadway Mixture Design*

Corey Mayeux, P.E., and Saman Salari, P.E.

#### **Final Report and Technical Summary 653 (15-3ST)**

*Rehabilitation of Deteriorated Timber Piles using Fiber Reinforced Polymer (FRP) Composites*

Hota GangaRao, Ph.D., Drew Damich, Mark Skidmore, and John Harper

#### **Final Report and Technical Summary 659 (16-6P)**

*Quality Management of Cracking Distress Survey in Flexible Pavements Using LTRC Digital Highway Data Vehicle*

Zhong Wu, Ph.D., P.E., and Mostafiz Emtiaz



**VIEW ONLINE**

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