TECHNOLOGY TODAY

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RESEARCH

New Collaborative Study Evaluates Innovative Funding Sources for State DOTs

It has been said that change is the only constant in life, and this adage certainly holds true in the transportation industry. One such change currently impacting state Departments of Transportation (DOTs) and other highway agencies across the United States is a steep drop in motor fuel tax revenue. While such "gas taxes" have been the primary source of U.S. surface transportation funding for decades, revenues have declined at an accelerating rate over the past 25 years, prompting states to explore alternative funding sources instead. In response to this nationwide industry challenge, LTRC recently sponsored a broad-ranging project to explore and evaluate many of these solutions.

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SPECIAL EVENTS

LTRC Goes to Washington, D.C.: Transportation Research Board's 2026 Annual Meeting

The 2026 Transportation Research Board Annual Meeting was held at the Walter E. Washington Convention Center in Washington, D.C., on January 11-15. As the world's premier transportation research conference, the meeting convened over 10,000 government, academic, and private industry professionals from across the United States and beyond. LTRC representatives from both Sections 19 and 33 participated in this year's meeting. Several of the center's staff members were also featured as session presenters and/or presiders.

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UPCOMING EVENTS

National Highway Institute Course No. 130053—Bridge Inspection Refresher Training
March 24-26, TTEC 100

OpenRoads Designer Drainage & Utilities
April 27-30, TTEC 179

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

This study, titled "Alternatives to Motor Fuel Taxes for State DOT Funding," was led by Principal Investigator Travis P. Dunn, Ph.D., and funded by the Southeastern Transportation Consortium Pooled Fund. Dr. Dunn and his research team aimed to gain a comprehensive understanding of the evolving landscape of transportation funding in the U.S., including factors contributing to the decline in the effectiveness of fuel taxes and a wide variety of practical strategies currently being implemented by state-level leaders. They noted that the diminishing returns on "gas taxes" are primarily due to the growing adoption of electric and alternative-fuel vehicles, the improved fuel economy of internal combustion engine vehicles, and rising infrastructure construction costs. Because these trends are likely to persist, it is crucial that states be proactive in pursuing alternative revenue streams for their surface transportation needs.

Following a thorough review of emerging funding practices across the U.S., Dr. Dunn's report organized these strategies into six major categories: fuel taxes, vehicle-related fees, direct usage fees, indirect usage fees, externality taxes, and other mechanisms such as property taxes and value capture. While several states have implemented short-term solutions such as indexing the "gas tax" to inflation and charging higher registration fees on electric vehicles, the most promising long-term alternative among the strategies evaluated is road usage charges (RUC).

RUC systems charge drivers based on the miles they travel rather than the fuel they consume, directly counteracting the factors that undermine the sustainability revenues generated through traditional fuel taxes. Four U.S. states (Hawaii, Oregon, Utah, and Virginia) have already enacted RUC on electric

State DOTs across the U.S. are exploring how to generate revenue as more drivers transition to electric and alternative-fuel vehicles.

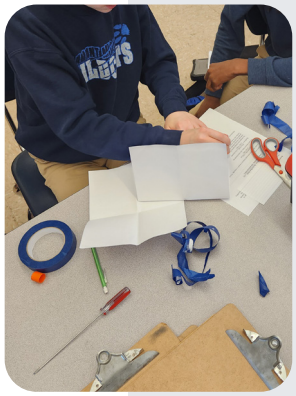
and other alternative-fuel vehicles, with an additional sixteen states implementing pilot programs to explore this mechanism. Other promising funding practices include implementing retail delivery fees and dedicating auto sales tax revenues, while kilowatt-hour taxes on electric vehicle charging demonstrated a much more muted impact.

Dr. Dunn and his team emphasize that state DOTs need to take a diversified approach to addressing their growing funding concerns, rather than relying solely on a single solution. Additionally, consistent and transparent communication with the public about any potential funding measures is crucial to addressing common questions and concerns and garnering trust and acceptance. No matter what strategic decisions transportation leaders make in their unique local contexts, the time is now to act on this growing issue with data-driven urgency and innovation.

Read Final Report & Tech Summary 720 online: *www.ltrc.lsu.edu/publications.html*

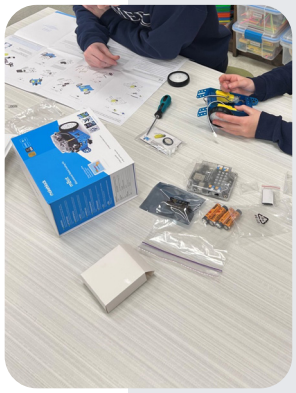
Education Outreach Impacts

LTRC's education outreach programs, organized and executed by Stacey Wilton, are making big impacts in K-12 classrooms across Louisiana. Here is a snapshot of several innovative ways that the tools and resources provided by LTRC are making a difference in the lives of teachers and students around our state...



Dustin McCrory at St. Amant Middle School used funds awarded through the Bentley Grant to facilitate a Carnival Tycoon project for his 6th grade students. Students designed their own carnival games, factoring in probability, mechanics, and player experience. They had to test their ideas using a pneumatic catapult, make adjustments based on data, and refine their designs to balance fairness and profit.

McCrory: *"This grant has given my students opportunities they wouldn't have otherwise, and I'm incredibly grateful. Hands-on STEM projects have transformed my classroom, helping students connect theory with real-world applications. Their confidence in problem-solving has grown, as has their curiosity. I look forward to building on this momentum in the future!"*



Tiffany Virdure of Our Lady of Mercy School utilized money awarded by LTRC through the Bentley Grant to purchase robotics kits for her students. Students had a collaborative, hands-on experience building, coding, and problem-solving with the robots they created. This project enabled them to apply theoretical concepts to real-world scenarios, making abstract subjects like physics, engineering, and programming and more accessible and engaging.

Virdure: *"I loved watching the students collaborate and solve problems together. The robotics kits allowed for self-paced learning, where students could tackle challenges and progress at their own speed. This personalized approach helped cater to different learning styles and paces, making the material more accessible and growing students' resilience."*

Ida Smith of Benton Middle School put her Bentley Grant to work by purchasing materials for her 7th and 8th grade students to create submersible underwater remotely operated vehicles (ROVs). These vehicles can collect water samples from local sources and enable students to study science topics such as microbiology and mimicry. Students worked collaboratively to build their ROV kits, learning to design and assemble circuits, resolve motor issues, and more!

Smith: *"Over time, as students completed this project, something amazing happened. They would come back with new knowledge, but even better, with the ability to provide insight and expertise to others who needed the training, too! Each student who learned paid their knowledge forward and taught a peer to do the same. It was remarkable to see friendships forged and peer tutors empowered to become mentors to others."*

From ERDP to the Executive Suite: An Interview with M. Todd Donmyer

In January 2025, M. Todd Donmyer was a passenger on a snowplow driving across the Atchafalaya Basin Bridge. Following a historic storm that blanketed South Louisiana with nearly a foot of snow, Donmyer, P.E., joined one of the emergency operations crews from the Arkansas Department of Transportation (ARDOT) in a frontline cleanup effort to reopen key roads and bridges. "I have to be on a very short list of people who can say they've had that experience," he joked.

As unique as this event may have been, what is not unique is Donmyer's unyielding commitment to both the DOTD workforce and Louisiana's road users. He is a passionate public servant who works tirelessly to ensure our state's transportation infrastructure is as safe, efficient, and operationally effective as possible. Donmyer recently joined LTRC's Publications Team to share about his "unlikely" 25-year journey as an engineer and leader within the Department.

When and how did you first become interested in the field of transportation?

TD: As a military kid, I moved around a lot when I was younger, but eventually landed on the West Bank near New Orleans, where I attended L.W. Higgins High School. After graduating, I came to Baton Rouge to attend LSU, not knowing what I wanted to do. I was fairly strong in math, so I decided to study civil engineering, but without a definite sense of what direction I wanted it to take. Transportation really wasn't on my radar at that time.

When it came time to graduate from LSU in 1999, I had some job opportunities out of state, but I wanted to stay in the Baton Rouge area. I honestly did not know much about DOTD, but when I graduated, there was an opportunity to join the rotational program for engineers and get an overview of the different opportunities within the Department. After getting to see a little bit of everything through that experience, I landed in the construction office in District 61 in Baton Rouge. I had some prior experience during college working in vertical construction, so I thought this would be a good fit for me.

What roles and responsibilities have you held during your time with the Department? Among these, which did you enjoy the most, and why?

TD: After completing the rotational program for several months, I joined the District 61 construction office here in Baton Rouge. I spent my first 14 years in two different construction units, eventually serving as a Project Engineer. After this, I became the Area Engineer overseeing East Baton Rouge Parish for several years before being promoted to Assistant District Administrator of Engineering. As ADA of Engineering, I was responsible for overseeing the design section, materials lab, utilities, permitting process, water resources, and more. Ultimately, I was named the District 61 Administrator, where I served for about three years before coming to Headquarters in my current role.

Of these roles and responsibilities, my favorite was that of Area Engineer over East Baton Rouge Parish. While this was probably my toughest job, and I may not have said so when I was in the midst of it, looking back it was definitely one of the most rewarding things I have done in my career. I loved being able to identify a real-world problem and work with our maintenance or emergency operations crews to address it right away. It was so satisfying to come to the end of a day and see that you had a part in fixing something that would tangibly improve the lives of the people impacted by it. I also loved seeing our district personnel come together as a family to perform the "boots on the ground" work that is so essential, especially in an emergency situation like Hurricane Gustav or the 2016 flood.

You are an alumnus of LTRC's ERDP program. What impact did that experience have on your career trajectory?

TD: It definitely helped me see the "big picture" of how the Department works, as well as the many different opportunities that exist within it. As a result, I was able

to steer clear of certain functions that were outside of my interest and skill set while pursuing those that were the best fit for me. As I progressed through different roles in my career—especially when I became Area Engineer in District 61—I was able to draw on my experiences from the rotational program to understand the unique value that each section brings to the Department's work as a whole. DOTD is a big machine, to say the least, and it is critical that every individual part does its job well to ensure the effectiveness of the whole.

How long have you been in your current position as Assistant Secretary of Operations? What are your primary responsibilities within this role?

TD: I started in this role nearly four years ago, and I have a broad range of responsibilities. Each of the nine DOTD districts across the state reports to me, as well as all statewide maintenance crews, our facilities section, and our emergency operations personnel. This includes signal and sign crews, bridge maintenance and inspection crews, other maintenance personnel (especially those who operate our larger and more specialized equipment), and the intelligent transportation systems section.

I think my longtime background in District 61 is really helpful to me in my current role, because I understand firsthand the challenges faced by those who are on the "front lines" of what we do across the state. I like to get out on the road to visit our district personnel as much as possible, from employee appreciation days to equipment ROADEOs (a safety and training conference and competition for heavy equipment operators across the state) and more. Getting that consistent face time helps me to build trust and stay attuned to what is happening on the ground and how I can best support our people there. That's what I see as my core responsibility—helping our districts do what they need to do as safely and effectively as possible. That can be challenging because every district's needs are unique, and we have to manage a finite amount of resources, but our team is committed to doing whatever we can to make it happen.

What is your favorite thing about working in transportation, and specifically in serving the Department? What do you hope to accomplish during your tenure?

TD: I love that I have the opportunity as a public servant to serve Louisiana's road users, making our transportation infrastructure safer and better, and in the process improving the welfare of our state's people. Even though that is not something I am able to accomplish completely during my tenure, I'd love to be able to say that I made improvements to our processes and set things up for further success in the future. I am also committed to the well-being of our DOTD workforce. I want to help our people do their jobs more safely, productively, and effectively. Worker safety is a huge priority for me. Many people in the traveling public grossly underestimate the level of danger that our employees put themselves in every single day. We are always looking for innovative and practical ways to mitigate those dangers, be it through raising public awareness or acquiring new equipment to take our people out of harm's way.

As admittedly stressful as they are, I think my favorite aspect of working in this space is emergency operations. We don't go into that mode very often, but when we do, as a Department we provide an absolutely critical benefit to the state. That is when Louisiana's citizens depend on us the most, and I believe that is when we are at the top of our game. I am so proud of our workforce's steadfast commitment to doing whatever it takes to respond in these situations, both here in Louisiana and in our neighboring states, too, whenever they find themselves in a crisis.

What advice would you give to someone considering a career in public service? Why is this work important to the present and future of our state?

TD: Public service is absolutely essential. If you are someone who has a true passion for the work you're doing and the positive impact it can have on literally hundreds of thousands of people, this is a great fit for you! You have the opportunity to be involved in things that will enhance the well-being of an entire population. If you are at all motivated by helping others, I encourage you to seriously consider serving the public, whether that be through DOTD or another agency like it.

These included: Murad Y. Abu-Farsakh, Ph.D., P.E.; Moses Akentuna, Ph.D., P.E.; Qiming Chen, Ph.D., P.E.; Julius Codjoe, Ph.D., P.E.; Samuel B. Cooper, III, Ph.D., P.E.; Gavin P. Gautreau, P.E.; Vijaya "VJ" Gopu, Ph.D., P.E.; Ahmed Hemida, Ph.D.; Jun Liu, Ph.D., P.E.; Zhen Liu, Ph.D., P.E.; Corey Mayeux, P.E.; Elisabeta Mitran, Ph.D.; Louay Mohammad, Ph.D., P.E.; Milhan Moomen, Ph.D.; Masoud Nobahar; M. Ashifur Rahman, Ph.D.; Tyson Rupnow, Ph.D., P.E.; Saman Salari, P.E.; and Garrett Wheat, Ph.D.

LTRC Director Samuel B. Cooper III highlights the value of the center's presence and participation at TRBAM: "The TRB Annual Meeting offers LTRC employees the opportunity to connect with colleagues from around the world who share a common goal: improving transportation infrastructure in their communities. This two-way exchange of ideas allows us to share our own experience and innovations while also learning from others, helping us identify solutions we can adapt at home and implement more efficiently and effectively to advance our transportation network."

PUBLICATIONS

Recently Published

Project Capsule 26-3GT

Update on Evaluating the Magnitude and Time Rate of Consolidation Settlement of Embankments and Other Piezocone Penetration Tests (PCPT)
Murad Abu-Farsakh, Ph.D., P.E., F.ASCE

Project Capsule 26-2SA

Safety of Median Openings on High-Speed Highways in Louisiana
Elisabeta Mitran, Ph.D.; Hany Hassan, Ph.D., P.E.

Final Report & Tech Summary 721 (Project 25-1PF)

Artificial Intelligence & Its Role & Use Within State DOTS
Mark Egge, AICP; Syndney Tate, P.E.; Donner Kahl; Isaac Gonzales

Final Report & Tech Summary 718 (Project 20-3GT)

Development of a Design Methodology for Geosynthetic Reinforced Pavement Using Finite Element Numerical Modeling
Murad Abu-Farsakh, Ph.D., P.E., F.ASCE; Mehdi Zadehmohamad, Ph.D.

Final Report & Tech Summary 719 (Project 24-2P)

Develop a Methodology for Pavement Drainage Rating System
Qiming Chen, Ph.D., P.E.; Jun Liu, Ph.D., P.E.

Final Report & Tech Summary 720 (Project 25-3PF)

Alternatives to Motor Fuel Taxes for State DOT Funding
Travis P. Dunn, Ph.D.; Roberto Alvarado; Abbie Dirks

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

Updates and Accomplishments

Allison Landry celebrated her retirement from Section 33's External Training group in January 2026 after 34 years of state service, including 31 wonderful years at LTRC.

Welcome to **Chincia Ezejiofo**, who is joining Section 33's Internal Training Team as the Professional Development Program Manager.

Ashifur Rahman, Ph.D., has been promoted to Assistant Professor (Research) and will oversee and conduct research in LTRC's Planning and Intermodal Research areas.

Sandra Brady, MLIS, celebrated her 30-year work anniversary at LSU in February 2026.

Julius Codjoe, Ph.D., P.E., was recently appointed as the 2026 Vice President of the Gulf Region Intelligent Transportation Society. GRITS is a chapter of ITS America, focusing on advocating for the implementation of innovative and advanced transportation technology to enhance the safety and quality of life for road users in the geographic areas of Alabama, Louisiana, and Mississippi.

Gavin Gautreau, P.E., Jesse Rauser, P.E., and **Xin Peng, P.E.** (Geosyntec), presented at the 2026 Transportation Research Board Annual Meeting in Washington, D.C., regarding LTRC/DOTD Geotechnical Database Research. Their session was titled "Innovative Tools to Leverage Managed Data for Better Decisions During Site Characterization and Construction."

Gautreau was also selected as the recipient of the 2026 Louisiana Engineering Society Technology (James M. Todd) Award. He received the award during Engineers' Week in February 2026.

Isam Khasib, an LSU Ph.D. student under the supervision of Murad Abu-Farsakh, Ph.D., P.E., successfully passed his Ph.D. defense in November 2025. The title of his dissertation is "Assessment of the Axial Capacity of In-Place Piles: Quantifying Aging Effects and Scour Impacts." Khasib worked extensively on LTRC Project 22-3ST, "Evaluation of Embedded Pile Resistance on Scour Critical Bridges." He also published three journal articles based on his work.

Murad Abu-Farsakh, Ph.D., P.E., and **Masoud Nabohar** recently published a new article entitled "Bayesian Updating of LFRD Resistance Factors of Driven PPC Piles from Dynamic Pile Load Tests." This article was published in the *Canadian Geotechnical Journal*.

LTRC awarded five students **Bentley Travel Grants** *(pictured below)* in the amount of $1,000 each in November 2025. These grant funds were used to defray the costs associated with attending and presenting transportation research results in a lecture or poster format across the United States. Congratulations to this year's recipients!

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LTRC Administration and Publications Staff

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