

TECHNOLOGY TODAY

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RESEARCH

LTRC Study Details Critical Safety Factors for Older Road Users in Louisiana

Louisiana's driving population is aging significantly, and with that demographic shift comes heightened safety concerns for the state's transportation leaders. Between 2010 and 2020, the number of licensed drivers aged 65 and older in Louisiana increased by 55.5%, and sadly, that growth was accompanied by a rise in fatal and serious injury crashes involving older drivers, pedestrians, and cyclists. In 2023, for example, the state's fatality rate per 100,000 population among older road users was 29% higher than the national average.

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TECH TRANSFER

Lights, Camera, Action: A Tour of TTEC's Audio-Visual Technologies

Since opening in 2005, LTRC's Transportation and Training Education Center (TTEC) has welcomed thousands of visitors each year. Members from all sectors of the transportation workforce, and from all corners of Louisiana and beyond, regularly fill the facility to participate in a broad range of professional development opportunities.

These classes, workshops, demonstrations, and more would not be possible without the impressive—and always expanding—array of audio-visual technologies available at TTEC. LTRC's Publications Team recently hosted an illuminating conversation with Audio-Visual Manager Patrick Mehaffey, who explained all that TTEC has to offer our many guests...

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UPCOMING EVENTS

OpenRoads Designer 2
June 22-23, TTEC 179

Organizational Culture
July 9, TTEC 179

To view more events, please visit
<https://www.ltrc.la.gov>

As Louisiana's premier transportation research institution, LTRC is leading the way in investigating and addressing the factors contributing to this concerning trend. Researchers Elisabeta Mitran, Ph.D., Xiaoduan Sun, Ph.D., P.E., and Farooq Azam Khanzada, Ph.D., recently completed a comprehensive study exploring critical safety factors for the state's older road users and recommending several data-driven countermeasures designed to lower the rate of fatal and serious injury crashes. The team's published report, "Older Road Users Safety in Louisiana: Understanding the Crash Contributing Factors," is an invaluable resource that provides targeted support to the state's Strategic Highway Safety Plan.

Following a robust research process, Dr. Mitran and her partners identified several prominent factors contributing to the rising crash rates among older road users (ORUs) in Louisiana. One of the team's key findings was that road users' vulnerability was particularly heightened at age 75 and older, as physical and mental capacities, such as eyesight and reaction time, continue to decline, and incidents of medical illness, fatigue, and even blackout increase. Other dominant contributors to ORU-involved incidents are intersections, complex driving maneuvers, higher speeds, inclement weather, low visibility, and motorcycle use. Additionally, while total crash numbers were higher in urban locations, fatal and serious injury crashes were proportionally higher in rural contexts across Louisiana, particularly on multi-lane highways.

The most notable takeaway from the team's report is the extensive suite of potential safety countermeasures designed to address the multifaceted reasons behind fatal and serious injury crashes involving aging drivers, pedestrians, and cyclists. These measures, which interface with Louisiana's Strategic Highway Safety Plan and resources from the Federal Highway Administration, are organized into three categories: infrastructure, education and outreach, and enforcement and policy. They include:

Driver Countermeasures

1. Infrastructure
 - Older driver-oriented signage/markings
 - Centerline and shoulder rumble strips
 - High-friction surface treatment
 - Enhanced roadway and intersection lighting

2. Education and Outreach
 - Refresher courses designed for older drivers
 - Clinician counseling and referral, including medication review
 - Family engagement ("We Need to Talk")
3. Enforcement and Policy
 - Case-by-case licensing restrictions for older drivers
 - Periodic vision screening and in-person license renewal for older drivers

Pedestrian/Cyclist Countermeasures

1. Infrastructure
 - Enhanced corridor and intersection lighting
 - Crosswalk visibility enhancements
 - Separated bike lanes
2. Education and Outreach
 - Adult bicyclist safety education
 - Share the Road media awareness campaigns
3. Enforcement and Policy
 - Hands-free and distracted driving law enforcement
 - Complete Streets policy implementation

This is only a snapshot of the extensive options available to decision-makers and policy-makers in Louisiana transportation leadership. Dr. Mitran emphasizes the importance of continuing to discover and apply data-driven solutions to enhance the safety of older road users:

"In order to achieve Louisiana's goal of Destination Zero Deaths, and to address increasing crash trends for (road users) over the age of 65, we must find ways to improve the safety of this vulnerable group. In this study, (our team) employed descriptive, statistical, and spatial analyses to identify high-risk crash contexts for older road users and provided data-driven information to guide the implementation of effective countermeasures. I cannot emphasize enough the importance and impact of this ongoing work."

Louisiana Students Compete in AASHTO National Bridge Competition

For the first time in over five years, Louisiana students competed in the American Association of State Highway and Transportation Officials (AASHTO) Bridge Challenge event, held in April at the AASHTO 2026 Spring Meeting in Savannah, Georgia. Sponsored by Bentley Systems and other transportation industry leaders, this annual competition is designed to promote interest in hands-on, interactive STEM (science, technology, engineering, and math) disciplines among middle and high school students in states that participate in AASHTO's STEM Outreach Solutions program.

A total of 18 teams of middle and high school students from across the U.S. participated in this year's competition. Louisiana was represented well by the "Truss Titans" team from Benton Middle School in Bossier Parish. Their team sponsor was Ms. Ida Smith, and team members included Derrick Alexander, Sara Kilpatrick, and Eric Petrash (*pictured top right*). As part of the 7th and 8th grade division, the team's task was to design and construct a truss bridge that maximized the strength-to-weight ratio, carrying as much weight as possible while weighing as little as possible.



The competition consisted of five progressive phases: (1) designing bridges using Model Smart and Bentley software; (2) building a physical bridge model using glue and balsa wood from pre-made kits; (3) developing a portfolio about the constructed bridge; (4) conducting a presentation in front of a panel of judges; and (5) destructive testing of the constructed bridges to determine their strength-to-weight ratio.

DOTD Chief Engineer Chad Winchester expressed his pride in these young Louisiana students: "The goal of (this initiative) is simple but powerful: to spark curiosity, especially in the transportation engineering field, where future talent is greatly needed. I had the opportunity to meet the Louisiana team from Benton this year. Their determination and pride in their work were unmistakable, and I was proud of how they represented our state."

Team sponsor Ida Smith was honored to lead her students in this endeavor: "Our 7th graders were thrilled to participate in (this competition). As the middle school representative for the state of Louisiana, they understood what an incredible honor it was. Once they experienced the event firsthand, they truly grasped the impact they can have as future engineers and leaders."

She continued: "One of the most empowering moments was seeing their excitement grow even stronger. They immediately began talking about attending again and setting new goals for the future. It was an unforgettable experience, and we are deeply grateful for the continued support to LTRC, AASHTO Stem Outreach Solutions, and our outstanding DOTD engineers who guided and encouraged our students along the way."

Congratulations to Derrick, Sara, Eric, and Mrs. Smith for their outstanding work!



TTEC AV (ctd.)

How long have you been in your role at LTRC, and what was your background and experience prior to joining the team here?

PM: I have been at LTRC for 11 years. Prior to my time here, I was a commercial AV installer, programmer, and project manager for several Louisiana-based AV companies. I've also run live sound at many Baton Rouge venues. I have installed a wide variety of AV equipment across the state, including the generals' ready room at Fort Polk, ASPCA New Orleans, the 52nd floor of the Capital One Building in New Orleans, Alex Box Stadium, and the LSU Indoor Track and Field facility. I even soldered microphone connections in the field box on the home side of Tiger Stadium!

Can you give us an overview of the various training spaces and audio-visual capabilities available at TTEC? What are some of the most common use cases for each of these technologies?

PM: We have a variety of spaces to use. There is an executive-style conference room, two general-purpose classrooms, a hands-on computer training classroom, and a 96-seat classroom-style auditorium. Each room has a presenter station featuring a podium-style workspace with a desktop PC and monitor, as well as a state-of-the-art audiovisual system. There are also connections for an individual's device (e.g., laptop, cell phone, iPad, etc.) via the available HDMI inputs.

Presentations are centrally focused in each room by a high-lumen LED projector and screen. The rear of the room also features confidence monitors that display the primary content, allowing instructors to maintain eye contact with attendees without turning their backs to the class.

Each room is equipped with a full audio setup, including microphones and speakers, as well as high-definition 1080p pan-tilt-zoom cameras. With this, instructors can play their media content and even host a virtual meeting via Zoom and other platforms, using the room's microphone, speakers, and HD camera. This can be done on the room-equipped desktop PC or on the presenter's laptop. Additionally, each room is equipped with assisted listening devices that take the room's audio mix and provide boosted sound for those with hearing disabilities. These are available upon request.

In each training space, there is a wireless document camera. This can be taken anywhere within line of sight of the podium and display documents or items on the screen. The document camera is fully articulating, allowing it to be pointed virtually anywhere. Finally, all spaces have been outfitted with zoned LED lighting. This allows the instructor to adjust lighting in each space as needed to customize the experience based on their lesson plans.

How do these technologies better position LTRC to fulfill our mission as a technology transfer and training center for the transportation community in Louisiana and beyond?

PM: The goal for any technology in a training space is to make it easy for instructors to use and enable effective knowledge transfer. We have virtually eliminated the struggle with technology found in many spaces. Our equipment is reliable, with fail-safes and options to keep the training going when the unexpected arises.

What are some of the most notable audio-visual upgrades and advances that you've overseen during your time here at LTRC, and is there anything new on the horizon?

PM: The most notable upgrades were completed over my first 3.5 years at LTRC. The original AV systems were powered by old analog systems running over VGA cabling. Each space was overhauled over time to upgrade to fully digital control and high-definition display. This included the complete removal of the old systems, from the AV rack to the ceiling speakers, and the old wiring. Over the years, we have improved each system by adding features and keeping equipment up to date. Last year, we replaced all of

the AV control systems, giving us increased reliability.

Another notable upgrade has been changing the lighting to zoned LED lighting in each training space. Prior to this, each room had incandescent and fluorescent lighting fixtures that simply switched on and off. We changed it to multiple zones with LED lighting that is dimmable from 10% to 100%. This allows instructors to darken certain parts of the room (e.g. at the projector screen) while maintaining appropriate lighting on the work surfaces. This allows students to see the presentations clearly yet have enough light so they are not straining to see their manuals and laptops.

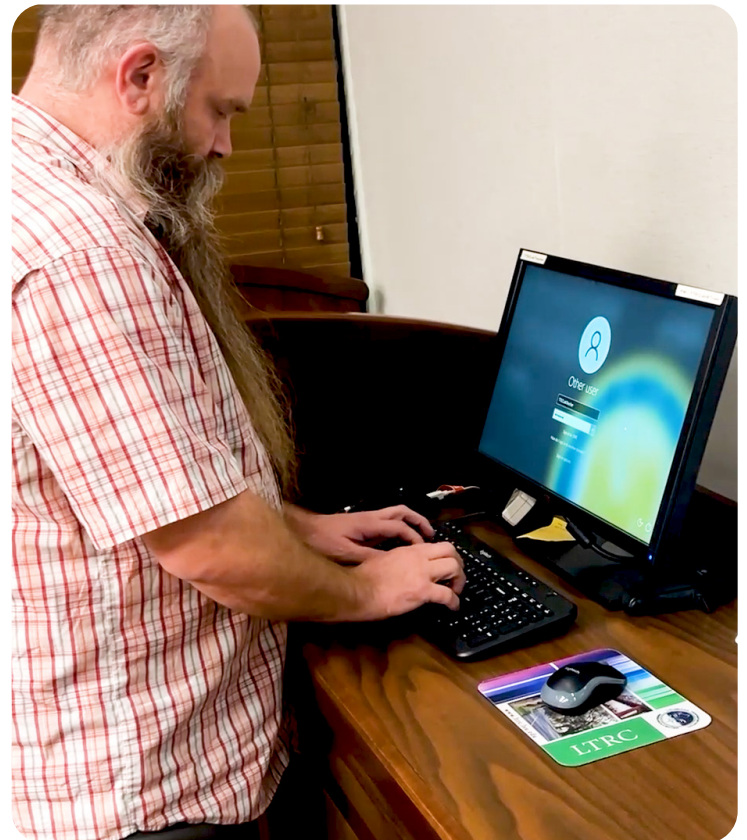
The last one I will mention is called ClickShare. This is a brand new addition to our training spaces. This allows a user to connect their laptop wirelessly to the room's AV system to present locally or even utilize the room's microphones, speakers, and PTZ camera for virtual meetings. In the past, if an individual wanted to host a hybrid training over Zoom, their best use of the space was to run the Zoom call from the room's desktop PC to be able to utilize the room's audio and camera. While this is still the ideal method, the presenter would need to copy their presentations to the room desktop. This can be a problem when those presentations have embedded media or perhaps utilize proprietary software. With ClickShare, that problem is eliminated.

What do you enjoy most about your role at LTRC? What do you find most challenging?

PM: My favorite thing about my role at LTRC is hearing an instructor say, "This facility is great!" What they are telling me in that comment is that many of the places they have to go are not easy to use with technology; they don't know if it will work reliably and consistently. That is not the case here at LTRC.

Another favorite part of my job is when someone thinks they are throwing me a "curve ball" by asking for something out of the ordinary. I'd like to say 100% of the time I can meet their request, but that would be inaccurate. I will, however, say that most of the time, I have anticipated this request and have an adapter, solution, or alternative method to accomplish what they want.

I think the biggest challenge for me now at LTRC is answering these questions: What do we do next? What is the next step in AV technology that will make the experience here even better?



Updates and Accomplishments

Gavin Gautreau, P.E., presented at the 30th Annual Joint Engineering Society (JESC) in March 2026 regarding “LTRC/DOTD Geotechnical Research.”

Murad Abu-Farsakh, Ph.D., P.E., F.ASCE, and **Masoud Nobahar, Ph.D.**, published a paper entitled “Evaluating the Mechanisms and Performance of Geosynthetic-Reinforced Load Transfer Platform of Pile-Supported Embankments Design Methods” for the *International Journal of Geotextiles and Geomembranes*.

Qiming Chen, Ph.D., P.E., was appointed to serve on the NCHRP 20-05/Topic 57-18 Panel: Practices Related to the Use of Geosynthetics and Pavement Foundations.

LTAP Director **Rudynah Capone** engaged with county engineers and program leaders from across the U.S. at the National Association of County Engineers Conference, held in April 2026 in Arlington, Texas. The event provided an opportunity to connect with national partners, exchange insights on local transportation challenges, and explore innovative practices shaping the future of county and parish road systems.

LTAP Program Manager **Courtney Dupre** and Teaching Associate **Genevieve Amick** (pictured below) represented Louisiana at the National LTAP South Central Regional Meeting, held in April 2026 in Little Rock, Arkansas, where they also participated in the Women in STEM Conference held in conjunction with the event. During the meeting, they highlighted Louisiana LTAP’s current initiatives, shared program updates, and engaged with regional peers to exchange ideas and best practices.



PUBLICATIONS

Recently Published

Project Capsule 26-1ST

*Skew Detection System Replacement
on Vertical Lift Bridges (Phase 3)*
Gareth Rees, P.E.

Project Capsule 26-2B

*Evaluation of RAP Fractionation and Its Impact
on Mixture Performance*
Saman Salari, P.E.

Project Capsule 26-1SA

*Pavement Markings Retroreflectivity:
Enhancing Traffic Safety*
Carmine Dwyer, P.E.

Final Report & Tech Summary 717 (Project 20-3B)

*Low and Intermediate Temperature Evaluation of Asphalt Binders
through Dynamic Shear Rheometer*
Saman Salari, P.E.; Samuel B. Cooper III, Ph.D., P.E.

Final Report & Tech Summary 721 (Project 24-2SA)

*Older Road Users Safety in Louisiana:
Understanding the Crash Contributing Factors*
Elisabeta Mitran, Ph.D.; Xiaoduan Sun, Ph.D., P.E.; Farooq Azam Khanzada, Ph.D.

Final Report & Tech Summary 723 (Project 25-2PF)

*Balanced Mix Design: A 1-Year Reality Check on Quality Control Testing
and State DOT Adoption*
Kai Huang, Ph.D.; Baoshan Huang, Ph.D., P.E.

Project Capsule 26-4GT

*Performance Evaluation of Flexible Pavements
Reinforced with Wicking Geotextiles (WGs)
Built Over Soft Subgrade Soils*
Murad Abu-Farsakh, Ph.D., P.E., F.ASCE

Project Capsule 26-5SS

*Expanding Adaptive Traffic Control Signal Systems:
A Strategic Study for Louisiana's Arterial Highways*
Clarke Chauvin, P.E.



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