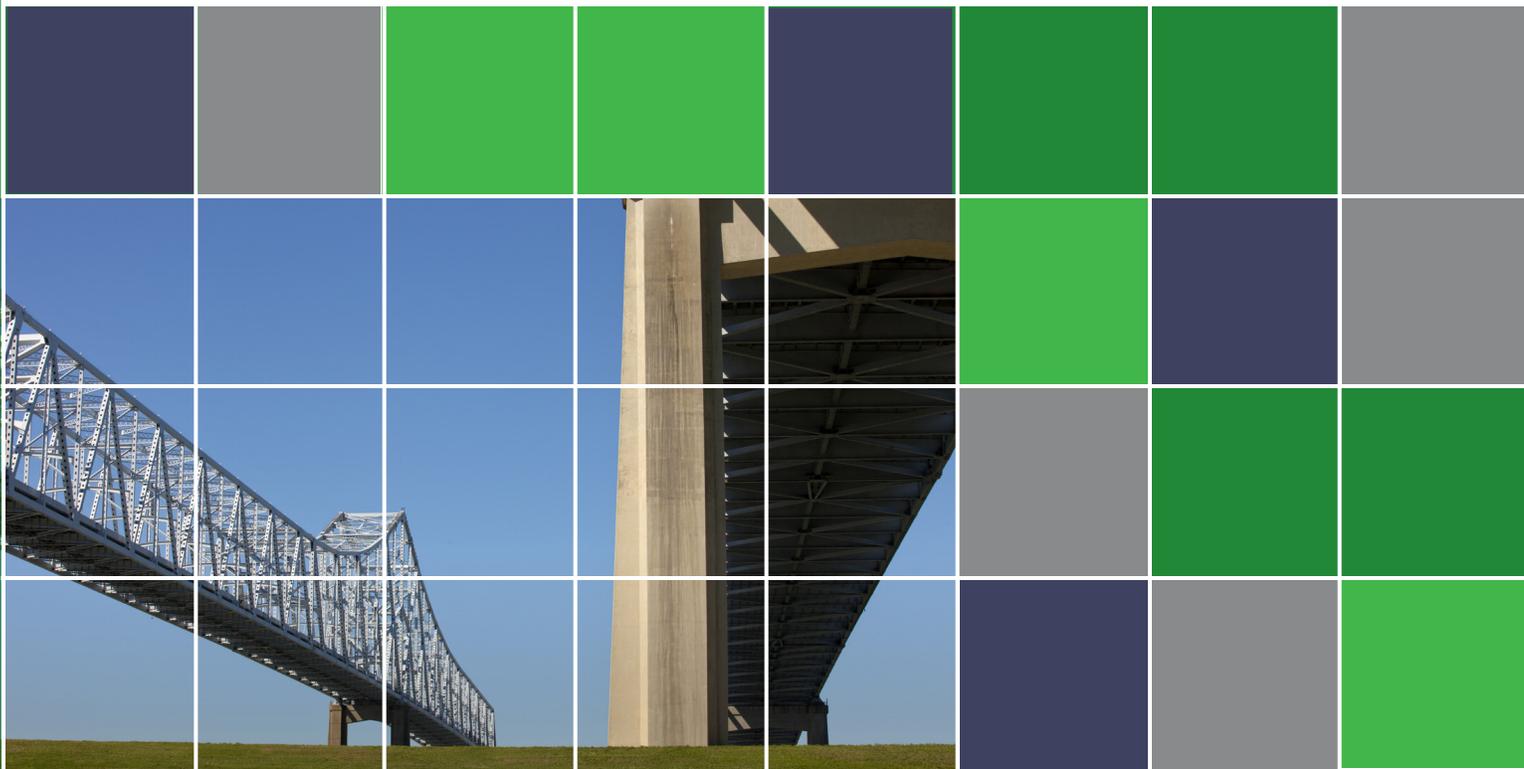


# LTRC

2015-2016 | Annual Report





**Shawn D. Wilson, Ph.D.**  
**Secretary**

**F. King Alexander, Ph.D.**  
**LSU President**

The Louisiana Transportation Research Center (LTRC) is a research, technology transfer, and training center administered jointly by the Louisiana Department of Transportation and Development (DOTD) and Louisiana State University (LSU). LTRC provides a setting in which the thresholds of technology can be explored and applied in practical ways. By merging the resources of DOTD and LSU, a versatile core of facilities and expertise addresses the rapidly evolving challenges in the transportation field.

In addition to its affiliation with LSU, LTRC participates fully with other universities in Louisiana that house engineering programs (Louisiana Tech University, McNeese State University, Southern University, Tulane University, University of Louisiana at Lafayette, and University of New Orleans). By combining their resources with those of DOTD, the center eliminates duplication of effort and provides a richer base of support. The center also provides an avenue for multi-disciplinary support from universities to meet the practical and academic needs of the transportation industry in such areas as engineering, law, business and management, basic sciences, planning, and environmental studies.

Since its creation by the Louisiana legislature in 1986, LTRC has gained national recognition through its efforts to improve transportation systems in Louisiana. The center conducts short- and long-term research and provides technical assistance, training, continuing education, technology transfer, and problem-solving services to DOTD and the transportation community at large. The center is largely supported through funding authorized by DOTD and the Federal Highway Administration (FHWA).

LTRC merges the resources of the state and local government, universities, and private industry to identify, develop, and implement new technology to improve the state's transportation system. By harnessing these valuable resources, LTRC is empowered to find innovative solutions to Louisiana's transportation problems.

The LTRC Foundation, a non-profit organization, enhances the center as the focus for transportation-related research, technology transfer, and education in Louisiana. The foundation provides an excellent partnership opportunity for DOTD, state universities, and the private sector.

In these and other ways, LTRC is paving the way for more efficient and beneficial research and training, thanks to a combination of modern techniques, locally available resources, and a wide pool of support.

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*This publication is a report of the transportation research, technology transfer, education, and training activities of the Louisiana Transportation Research Center for July 1, 2015–June 30, 2016. The center is sponsored jointly by the Louisiana Department of Transportation and Development and Louisiana State University.*

# Facilities



(top to bottom)  
Louisiana Transportation  
Research Center;  
Transportation Training  
and Education Center;  
Accelerated Loading Facility

Located on the LSU campus in Baton Rouge, LTRC provides researchers and students access to excellent laboratories and state-of-the-art research equipment. The full resources of LSU as a Carnegie Designated Doctoral/Research Extensive Institution are also available. The unique position of LTRC provides access to virtually all of LSU and DOTD's resources to pursue the center's mission.

LTRC houses more than 90 employees and up to 30 students in two adjacent facilities. The LTRC building is a 25,300-square foot facility that includes five research laboratories, a conference room, and offices. The laboratories are used to conduct advanced research into asphalt, concrete, soils, and pavements. The 14,000-square foot Transportation Training and Education Center (TTEC) houses a lecture hall, a computer-based training classroom, and two general classrooms that are all equipped with advanced education and training equipment and distance learning/video-conferencing capabilities. A comprehensive transportation library, executive conference room, and offices are also included.

The addition of TTEC greatly enhances LTRC's mission by facilitating the delivery of training, professional development opportunities, and technology transfer to engineers, technicians, undergraduate and graduate students, and professionals from both the public and private domains.

LTRC has identified research areas of strategic importance and has developed expanded capabilities for concentration in several areas: the Engineering Materials Characterization Research Facility (EMCRF), a laboratory facility specializing in fundamental materials characterization; the Geotechnical Engineering Research Laboratory (GERL), a laboratory focusing on transportation earth-works, structural foundations, and geosynthetics; Pavement on the Move (POM), a multi-use mobile laboratory for collecting data from field construction projects as well as research and training; and the Intelligent Transportation Systems (ITS) lab, the newest lab designed to evaluate traffic data collected from Louisiana's traffic management centers. Although remote from the center, the Louisiana Pavement Research Facility is an important facility that streamlines pavement loading research by compressing years of road wear into months of testing. The six-acre facility is located on the west side of the Mississippi River and incorporates an Accelerated Loading Facility (ALF™) for testing flexible pavements and our ATLAS for testing rigid pavements.

LTRC is a budget division of the Louisiana Department of Transportation and Development. Funding is a combination of State, State Planning and Research (Part II, Federal), Innovative Bridge Research and Deployment (Federal), Surface Transportation Program (STP-Federal), and external contracts and grants, such as the National Cooperative Highway Research Program, Federal Agency Grants, and the National Science Foundation.

# Director's Message

As the seventh Director of the Louisiana Transportation Research Center, it is my great pleasure to present the 2015 -2016 LTRC Annual Report. It is my goal to move the Louisiana Department of Transportation and Development, in concert with LTRC and its industry partners, into the future and further LTRC's prominence both nationally and world-wide. An integral part of this process is having the right staff in place that are trained, highly motivated, and can think outside of the box. In the last year, there have been numerous personnel retirements that resulted in a change in leadership in the majority of all areas at LTRC, which will facilitate moving us into the future.



Inside this report, you will find featured articles on the research program, technology transfer and training, and technology transfer activities. In addition, you will find completed and active research projects, training accomplishments, and support of higher education, publications, and presentations.

LTRC is committed to the support of higher education and solving Louisiana's transportation problems. Within this annual report, it is shown that LTRC has 49 active research projects and completed an additional 21 research projects. In addition, LTRC is a partner in a Tier 1 University Transportation Center housed at Mississippi State University entitled the "National Center for Intermodal Transportation for Economic Development Competitiveness (NCITEC)." Also, Louisiana is the lead state in the Southeast Transportation Consortium, which is a Federal Highway Administration pooled-fund collaborative effort between the 12 SASHTO states.

Some highlights of the 2015-2016 LTRC Annual Report are as follows:

- 2016 marks LTRC's 30th anniversary.
- Louisiana hosted the 2016 Louisiana Transportation Conference in which 1,800 people from across the nation were in attendance. The theme of the conference was "Transportation: Making Connections That Matter." Key speakers at the general session included the Honorable John Bel Edwards, Governor of the State of Louisiana, and retired General Richard "Dick" Burleson, Vice President of Neel-Schaffer. Welcome addresses were given by Dr. Shawn Wilson, DOTD Secretary, and Frederick "Bud" Wright, AASHTO Executive Director. A separate plenary session was held in which the special speaker was Anthony Foxx, U.S. Secretary of Transportation.
- Through research activities, it was determined that thin roller compacted concrete (RCC) has high load carrying capacity.
- LTRC hosted training initiatives for approximately 13,000 individuals both internally (DOTD) and externally (state, local, federal, and transportation industry partners).
- In the area of Technology Transfer, LTRC published 23 final reports, 20 technical summaries, 23 project capsules, 2 technical assistance reports, and 4 Technology Today newsletters.

In summary, I am excited about the future of DOTD and LTRC. It is through cooperation with our transportation partners and the public that we will be able to solve Louisiana's transportation issues. Please feel free to follow LTRC's latest news via our website, [www.ltrc.lsu.edu](http://www.ltrc.lsu.edu), and through social media.

Respectfully submitted,  
Samuel B. Cooper, Jr., Ph.D., P.E., Director

# Completed Research

## Bituminous (Asphalt)

10-1B	Field versus Laboratory Volumetrics and Mechanical Properties	Louay Mohammad	LTRC
14-3B	Hamburg Wheel-Track Test Equipment Requirements and Improvements to AASHTO T 324	Louay Mohammad	LTRC
12-4B	Performance of WMA Technologies: Stage II – Long-term Field Performance	Louay Mohammad	LTRC

## Concrete

12-4C	Evaluation of Portland Cement Concrete with Internal Curing Capabilities	Tyson Rupnow	LTRC
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## Geotechnical

08-3GT	Support Study to Structural Health Monitoring of the I-10 Twin Span Bridge Over Lake Pontchartrain	Murad Abu-Farsakh	LTRC
11-1GT	In Situ Evaluation of Design Parameters and Procedures for Cementitiously Treated Weak Subgrades using Cyclic Plate Load Tests	Murad Abu-Farsakh	LTRC
15-2GT	Lime Utilization in the Laboratory, Field, and Design of Pavement Layers	Mostafa Elseifi	LSU

## Pavement

10-3P	LED Traffic Signal Lifetime Management System	Leticia Courville	LTRC
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## Safety

14-1SA	DOTD Support For UTC Project: Drugged Driving in Louisiana	Helmut Schneider	LSU
14-2SA	Factors Influencing Seatbelt Utilization in Louisiana and Strategies to Improve Usage Rate	Helmut Schneider	LSU

# Completed Research

## Special Studies

13-10SS	Economic Evaluation of Applicants to the Port Construction and Development Priority Program	James Richardson	LSU
12-1SS	DOTD Support for UTC Project: Traffic Counting using Existing Video Detection Cameras	Sherif Ishak	LSU
13-4SS	Highway for Life Demonstration Project: La 511 (70th Street)	Nazimuddin Wasiuddin	LTU
14-1SS	DOTD Support For UTC Project: Development of an Optimal Ramp Metering Control Strategy for I-12	Sherif Ishak	LSU
14-2SS	DOTD Support For UTC Project: A Simulation Model for Intermodal Freight Transportation in the State of Louisiana	Peter Kelle	LSU
15-3SS	Investigation into Legislative Action Needed to Accommodate the Future Safe Operation of Autonomous Vehicles in the State of Louisiana	Chester Wilmot	LTRC

## Structures

10-5ST	Developing Prestressed Girder Transportation Guidelines	Jonathan McGormley	Wiss, Janney, Elstner Associates, Inc.
15-1ST	Development of Wave and Surge Atlas for the Design and Protection of Coastal Bridges in South Louisiana Phase II	D. Max Sheppard	INTERA Incorporated of Texas

## Transportation Innovation for Research Exploration (TIRE)

16-3TIRE	Development of High Strength Super Light Weight Concrete for Transportation Infrastructures	Shaurav Alam	LTU
16-2TIRE	Easy Add-on Fuel Saver for Non-Hybrid Vehicles	Chandra Theegala	LSU
16-1TIRE	Development of a Composite Bridge System for Short and Medium-span Bridges	Fatmir Menkulasi	LTU

# Active Research

## Bituminous (Asphalt)

12-1B	Evaluation Of Asphalt Mixtures Containing Recycled Asphalt Shingles	Louay Mohammad	LTRC
14-1B	Effects of Temperature Segregation on the Quality of Asphalt Mixtures	Louay Mohammad	LTRC
14-2B	Field Implementation of the Louisiana Interface Shear Strength Test	Louay Mohammad	LTRC
15-1B	Evaluation of Crumb Rubber Modification of Louisiana Mixtures	Samuel B. Cooper, III	LTRC
15-2B	Support Study for Evaluation of Crumb Rubber Modification of Louisiana Mixtures	William H. Daly	LSU
16-4B	Evaluation of Non-SBS Modified Binders using the Multiple Stress Creep Recovery Test	David Mata	LTRC
16-5B	DOTD Support for UTC Project: Ductility of Extreme-Temperature Asphalt Binders by Shear and Extensional Rheology	Nazimuddin Wasiuddin	LTU

## Concrete

13-1C	Evaluation of MIT-SCAN-T2 for Thickness Quality Control for PCC and HMA Pavements	Tyson Rupnow	LTRC
14-1C	Evaluation of Dowel Bar Alignment and Effect on Long Term Performance of Jointed Concrete Pavements	Tyson Rupnow	LTRC
14-2C	Implementation of Concrete Maturity	Tyson Rupnow	LTRC
14-4C	Evaluation of Bonded Concrete Overlays over Asphalt under Accelerated Loading	Tyson Rupnow	LTRC
14-5C	DOTD Support for UTC Project: Development of Rapid PCC Pavement Repair Materials and Construction Techniques	Hak-Shul Shin	Southern University

## Geotechnical

11-2GT	Field Instrumentation and Testing to Study Set-Up Phenomenon of Piles Driven into Louisiana Clayey Soils	Murad Abu-Farsakh	LTRC
11-3GT	Accelerated Load Testing of Geosynthetic Base Reinforced Pavement Test Sections	Murad Abu-Farsakh	LTRC
13-3GT	Finite Element Analysis of the Lateral Load Test on Battered Pile Group at I-10 Twin Span Bridge	Murad Abu-Farsakh	LTRC
13-5GT	Monitoring of In-Service Geosynthetic Reinforced Soil (GRS) Bridge Abutments in Louisiana	Murad Abu-Farsakh	LTRC
13-7GT	Support Study to ITRS proposal on "An Integrated Computational and Experimental Study of Pile Setup in Soft Clays"	Murad Abu-Farsakh	LTRC
13-9GT	CORS 911: Continuously Operating Reference Stations for the Bayou Corne Sinkhole	Joshua Kent	LSU

# Active Research

15-1GT	pLog Enterprise - Enterprise GIS-Based Geotechnical Data Management System Enhancements	Scott Deaton	Dataforensics, LLC
15-3GT	Calibration of LRFD Geotechnical Axial (Tension and Compression) Resistance Factors for California	Murad Abu-Farsakh	LTRC
16-5GT	Corrosion Map for Metal Pipes in Coastal Louisiana	Sanjay Tewari	LTU

## Pavement

12-11P	Field Validation of Equivalent Modulus for Stabilized Subgrade Layer	Mark Martinez	LTRC
12-1P	Assessment of Pavement Distresses caused by Trees on Rural Highway	Kevin Gaspard	LTRC
12-2P	Assessment of Environmental, Seasonal and Regional Variations in Pavement Base and Subgrade Properties	Kevin Gaspard	LTRC
12-3P	Minimizing Shrinkage Cracking in Cement-Stabilized Bases Through Micro-Cracking	Zhong Wu	LTRC
12-7P	Roller Compacted Concrete Over Soil Cement Under Accelerated Loading	Zhong Wu	LTRC
14-2P	Assessment of Structural Capacity Indicators from Rolling Wheel Deflectometer Data Collection in Louisiana	Mostafa Elseifi	LSU
16-6P	Quality Management of Cracking Distress Survey in Flexible Pavements Using LTRC Digital Highway Data Vehicle	Zhong Wu	LTRC

## Pooled Fund

14-5PF	Design and Analysis Procedures for Asphalt Mixtures Containing High-RAP Contents and/or RAS	Louay Mohammad	LTRC
16-1PF	Development of a Guidebook for Determining the Value of Research Results	Yoojung Yoon	West Virginia University
15-1PF	Prep-ME Software Implementation and Enhancement	Joshua Li	Oklahoma State University

## Safety

15-3SA	Investigating Safety Impacts of Centerline Rumble Strip, Lane Conversion, Roundabout and J-turn Features on Louisiana Highways	Xiaoduan Sun	ULL
15-2SA	Development of a Simulation Test Bed for Connected Vehicles using the LSU Driving Simulator	Sherif Ishak	LSU
15-1SA	Exploring Naturalistic Driving Data for Distracted Driving Measures	Sherif Ishak	LSU
16-3SA	Evaluating Cell Phone Data for AADT Estimation	Julius Codjoe	LTRC

# Active Research

## Special Studies

10-6SS	Establishing an Intelligent Transportation Systems (ITS) Lab at LTRC (Phase II)	Sherif Ishak	LSU
12-2SS	History of the Implementation of AASHTO and Louisiana DOTD Road Design Standards	Sherif Ishak	LSU
16-5SS	Diverted Traffic Measurement	Ravindra Gudishala	LTRC
15-2SS	Cost and Time Benefits for using Subsurface Utility Engineering in Louisiana	Kirk Zeringue	LTRC
14-3SS	Development of a Mode Choice Model to Estimate Evacuation Transit Demand	Chester Wilmot	LTRC

## Structures

16-3ST	Live Load Rating of Cast-in-Place Concrete Box Culverts in Louisiana	Ayman Okeil	LSU
16-2ST	Field Monitoring and Measurements Education: A Model for Civil and Environmental Engineering	Vijaya Gopu	LTRC
15-3ST	Rehabilitation of Deteriorated Timber Piles using Fiber Reinforced Polymer (FRP) Composites	Hota GangaRao	West Virginia University
14-2ST	Development of A Sustainable UHPC Bridge Decks For Movable Bridges	Fatmir Menkulasi	LTU
13-2ST	Live Load Monitoring of the I-10 Twin Span Bridge	Steve Cai	LSU
13-4ST	I-10 Girder Repair Using Post-Tensioned Steel Rods and Carbon Fiber Composite Cables (CFCC)	Ching Tsai	LTRC
15-3ST	Rehabilitation of Deteriorated Timber Piles using Fiber Reinforced Polymer (FRP) Composites	Hota GangaRao	West Virginia University
14-1ST	Evaluating Louisiana New Continuity Detail for Girder Bridges	Ayman Okeil	LSU

## Transportation Innovation for Research Exploration (TIRE)

16-5TIRE	Use of Steel Fibers for Induction Heating and Self Healing in Asphalt Concrete	Mostafa Elseifi	LSU
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## Technical Assistance

LTRC's technical assistance program provides laboratory testing, field testing, and forensic investigation in direct response to Departmental inquiries for expert analysis on DOTD projects. LTRC also provides assistance to state universities for laboratory or field testing on research projects not funded by LTRC. During fiscal year 2015-2016, LTRC responded to 12 technical assistance requests.

# Research Highlights

## Thin RCC Pavements Found to Have High Load Carrying Capacity

Highlight of active project 12-7P

Serving as an economical, fast-paving, and durable candidate for many heavy-duty pavement applications, roller compacted concrete (RCC) has recently gained the attention of pavement researchers in Louisiana. Over the past year, LTRC has been testing the load-carry capacity and performance of several full-scale RCC pavement test sections with the center's newest accelerated loading testing device, ATLaS30. The RCC pavement sections (the structures of which were designed for low-volume pavements) have been made thinner by researchers to determine the thickness needed to survive under heavy truck trafficking in Louisiana, and the results have led to a cost-effective pavement design alternative as well as a new fatigue model for RCC thickness.



The research project, “Performance Evaluation of Thin RCC Pavements under Accelerated Pavement Testing,” was launched in response to DOTD’s desire to find alternate uses of RCC for low-volume roadways in the oil and gas exploration areas in the northwest region of the state.

Leading the project, LSU Research Associate Professor and LTRC Accelerated Pavement Research Program Manager Zhong Wu, Ph.D., P.E., explained, “RCC has traditionally been used for low-speed pavements such as parking, storage areas, port and airport service areas, and intermodal and military facilities. However, with improved paving and compaction methods as well as surface texturing techniques, recent applications of RCC are found for interstate highway shoulders, city streets, and other highways.” Researchers discovered that all four RCC pavement test sections (with varying RCC slab thicknesses of 4 ~ 6 in. and two soil cement base types) had very high load-carrying capacities. However, while three RCC sections were able to load until a fatigue cracking failure, the fatigue cracks were found to initiate in the longitudinal direction at a location either in the middle of a tire print or at the edge of the tire print. “With continuous load repetitions and the crack pumping actions of fine materials, voids began to be formed underneath a RCC slab, which would generate more slab-bending and deflections, and gradually propagate cracks into a fatigue cracking failure,” Dr. Wu explained. “Due to the combination effects of slab thickness and base/subgrade support, the final fatigue cracking pattern was found much wider in a thicker RCC section than that in a thinner RCC section.”

Another deliverable from the study comes in the form of a new RCC fatigue model. “The current RCC fatigue models in the literature were derived from the design of RCC industrial, heavy-duty pavements with a minimum RCC thickness of 8 in., which may be not suitable for a thin RCC-surfaced pavement design,” explained Dr. Wu. “Based on the accelerated pavement testing performance of the RCC sections, a set of fatigue prediction equations will be developed from this study. The developed models will be better suited in the prediction of fatigue damage for a thin RCC-surfaced pavement over a soil cement base, which can be used as a cost-effective pavement design alternative for low-volume roadways where heavy truck trafficking may be often encountered.”

# Research Highlights

## Louisiana Center for Transportation Safety (LCTS)



Campaign support for Work Zone Safety Week

**Peer-to-Peer Facilitation.** LCTS, in partnership with LTAP and DOTD Highway Safety Section, conducted the Local Road Safety Peer Exchange wherein over 65 transportation professionals from parishes and

municipalities convened to exchange ideas on road safety best practices and innovations that help save lives. LCTS Director Dortha Cummins and Program Manager Rudynah Capone served as resource speakers and co-facilitators. The LCTS continues to work with LTAP Center's staff in providing technical assistance and encouraging local entities to implement road safety improvements through the Local Road Safety Program.

**Communications, Marketing and Outreach.** To enhance marketing and outreach efforts, the LCTS staff worked toward the design and printing of promotional banners. The LCTS regularly disseminates the monthly *Traffic Safety Roundup*, which is a compilation of traffic safety e-news, tools, links, and event announcements. In each of the monthly editions distributed during the past year, LCTS recorded an average click rate of 25% of more than 1,000 federal, state, and local stakeholders reached.

The LCTS worked with LTAP to publish an article titled "Local Stakeholders Discuss Parish Safety Plans at Peer Exchange: The Goal is Destination Zero Deaths" in the 2015 Winter Edition of the *Police Jury Association of Louisiana's Quarterly Magazine*.

In the summer of 2015, the LCTS stepped up to take leadership in coordinating the SHSP Communications Coordinating Council (CCC), a committee tasked with coordinating state public information officers, regional coalition coordinators, and media stakeholders to ensure collaboration, coordination, and communication of consistent road safety messaging across Louisiana. Since then, the council has already conducted six meetings (two in-person meetings, four conference calls). The LCTS continues to closely coordinate with the DOTD Communications Section, the Louisiana State Police Public Affairs Division, the Louisiana Highway Safety Commission, and the regional safety coalitions to disseminate major safety campaigns and relevant traffic safety information to media partners and safety stakeholders.

**Poster Dash Collaboration.** Through the SHSP Communications Coordinating Council, the LCTS's staff worked with the regional safety coalition coordinators to co-author a poster titled "Louisiana's Regional 4E Approach to Saving Lives: The Goal is Destination Zero Deaths," which was presented at the largest gathering of traffic safety professionals, the Lifesavers Conference held in Long Beach, California.

**Knowledge Transfer.** The LCTS has delivered presentations at various events, including the SHSP Statewide and Regional Coalition Meetings, DWI Task Force Meetings, and the Drug Free Communities Coalition Meetings. LCTS Director Dortha Cummins, along with Cassie Parker of South Central Planning and Development Commission (SCPDC), served as resource speakers for the National Center for Rural Road Safety's May 2016 Webinar on "Louisiana's Regional 4E Approach to Saving Lives: the Goal is Destination Zero Deaths."

*cont. on next page*

# Research Highlights

## 2016 Marks LTRC's 30th Anniversary



We hope that you will take some time to watch the new video and witness some of the ways in which LTRC has assisted the Louisiana transportation system over the last 30 years and will continue to do so as the center tackles new problems and challenges every day. **Visit [youtube.com](http://youtube.com) and search “Louisiana Transportation Research Center.”**

Join us as we take a fresh look at the center’s goals, connections, and structure through our latest video online, celebrating LTRC’s 30th anniversary.

Over the last few decades, the center has evolved from a small state research department to a multi-facility center, boasting over 100 employees, both university and state alike, comprised of numerous state programs, research departments and laboratories, as well as state-of-art training resources.

The value that the center has brought to the state exceeds savings in the millions through projects such as those focusing on high strength concrete, instrumental monitoring of structures, and recycled asphalt pavements, just to name a few. In addition to the extensive research program, LTRC houses more essential programs and facilities than ever before.

*LCTS, cont. from previous page*

During the LA Transportation Safety Summit last October 20-22, 2015, the LCTS team provided support in terms of facilitating and presenting at breakout sessions that focused on the summit’s theme “Zero: Let’s Make It Happen” ([www.destinationzerodeaths.com](http://www.destinationzerodeaths.com)). The staff also took the lead in engaging the attendees via social media conversations on Twitter and Facebook throughout the duration of the conference. LCTS Director Dortha Cummins, along with Ken Trull with the Louisiana Highway Safety Commission presented on “Occupant Protection and High-Risk Populations” that informed attendees on the state’s high-risk, unbelted populations. These populations were identified as: nighttime drivers, pickup truck drivers, rear seat occupants, and African-Americans. Both Cummins and Trull are the co-chairs of the statewide Strategic Highway Safety Plan (SHSP) Occupant Protection Emphasis Area Team. They are both active leaders and members of national committees of the AASHTO Standing Committee on Highway Traffic Safety (SCOHTS) and the Governors Highway Safety Association (GHSA). In addition, they serve on statewide teams such as the SHSP Implementation Team, the Traffic Records Coordinating Council (TRCC), and the recently re-activated Communications Coordinating Council ([www.ltrc.lsu.edu/lcts/shsp-communication-coordinating-council.html](http://www.ltrc.lsu.edu/lcts/shsp-communication-coordinating-council.html)).



*SHSP Outreach at LA Chiefs of Police Conference*

# Workforce Development



Training is a critical component of career advancement, and DOTD supports and promotes an environment of continual learning. This atmosphere allows employees to maximize their potential and provide qualified personnel crucial to the effective management of the transportation system. Through specialized and intensive job-specific training and education programs, LTRC reaches out to individuals working in the transportation industry.

LTRC manages DOTD's Structured Training Program, External Training Program, Management Development Program, and Leadership Development program; develops maintenance, construction, and leadership training materials and programs; coordinates seminars, workshops, and conferences for continuing education and professional development; and contracts with the private and public sectors for unique training needs.

Each year, the External Training Program hosts programmatic initiatives for over 10,000 individuals (state, local, federal, and industry) and is a progressive partnering effort between the public and private sectors of the transportation industry.

## DOTD Internal Training

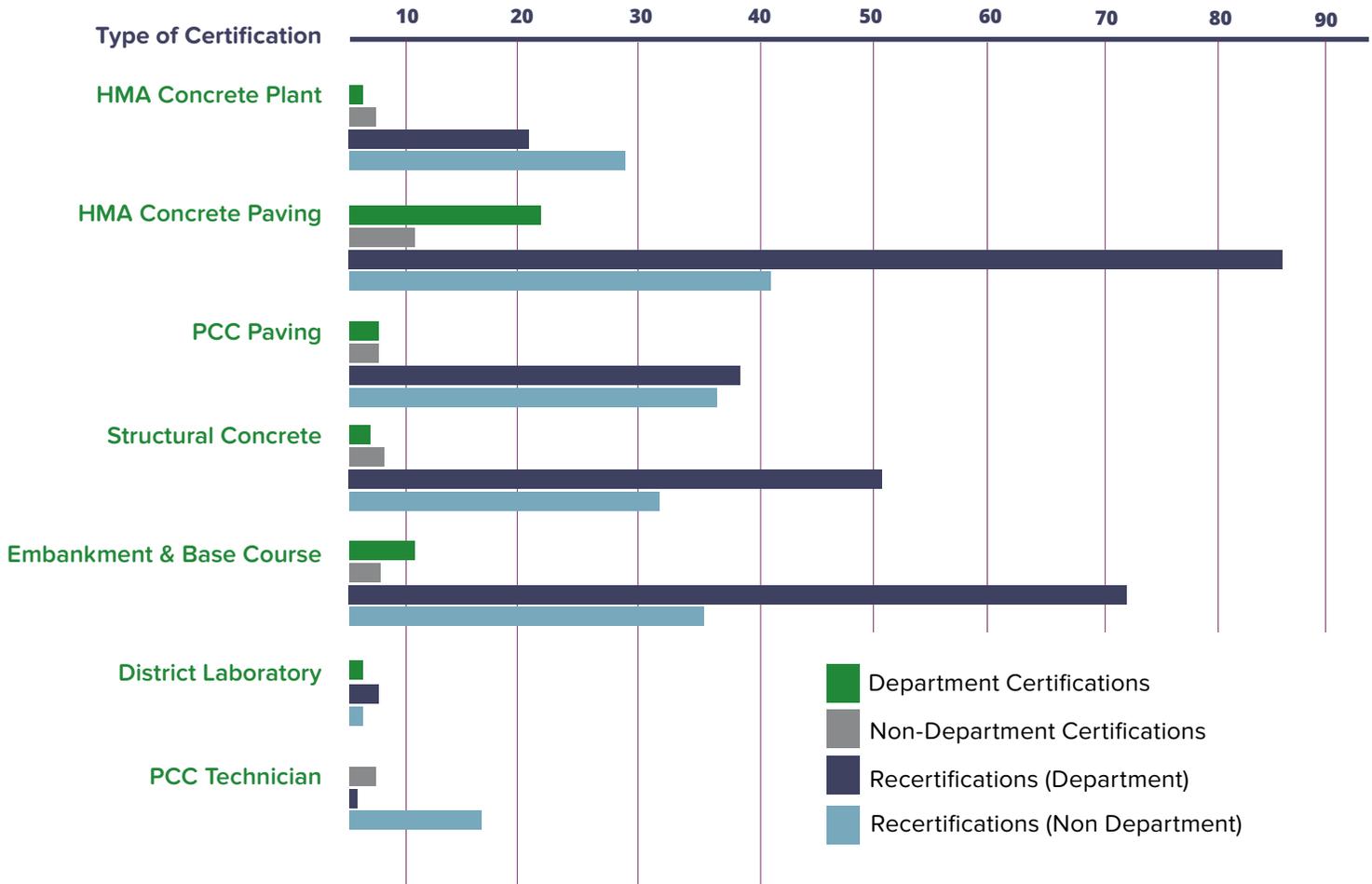
The DOTD Structured Training Program is a department-sanctioned, progressive training curriculum that requires specific work-related training be completed at each level of an employee's career path. DOTD supports and promotes an environment of continual learning and feels that training is a necessary component and an integral part of career advancement. Structured training can involve professional development, technical skills training, continuing education, hands-on, and on-the-job training. The program manages the workforce development for personnel in construction, maintenance, and supervisory/leadership positions. The program also provides liaison assistance to headquarters personnel and district training personnel for policy interpretation and compliance decisions.

The Construction and Materials Training Program manages the Inspector/Technician Certification Program for DOTD and the Louisiana transportation industry. This program develops Construction and Materials training materials and coordinates the training, testing, authorization, certification, and re-certification of inspectors and technicians on a statewide level in each area of construction.

The Maintenance Training Program focuses on the development of new job-specific courses related to job functions, work processes, and safe operation of equipment used by maintenance field personnel. These courses promote an awareness of safe practices and attitudes needed for maximum job performance. This training program also assists with the Equipment Operation Certification Program to standardize and improve equipment training for maintenance functions.

# Workforce Development

## Certification Actions for Fiscal Year 2015-16 Department & Non-department



## Presentations and Classes

- *Basic Flagging Procedures* (4 classes 4)
- *Traffic Control Through Maintenance Work Areas* (1 class)
- *Power Line Safety* (1 class)
- *Superpave Mix Design and Analysis* (1 class)
- *Highway Plan Reading Volume I* (2 classes)
- *Highway Plan Reading Volume II* (2 classes)
- *Highway Plan Reading Special Topics Course for Real Estate Section* (1 class)
- *Construction Math Review* (2 classes)
- *Project Management* (4 classes)
- *Facilitation Skills classes* (4 classes)
- *Structural Concrete Inspection* (1 class)
- *Properly Diagramming a Performance Problem* (2 concurrent sessions at LTC 2016)
- *Presentation Skills 101* (2 concurrent sessions at LTC 2016)
- *They're Leaving! What Do We Do Now? (The Next Workplace Culture)* (2 concurrent sessions at LTC 2016)
- *An Inside-Out Approach to Handling Conflict* (2 concurrent sessions at LTC 2016, 1 class for AIA-Baton Rouge)

# Workforce Development

## Course Development

*There were 15 courses/projects developed or revised during this time period.*

### Construction Training Course/Projects Completed

- *Introduction to Standard Specifications for Roads and Bridges* course revision
- Revision of *Application of Quality Assurance for Portland Cement Concrete and Structures*
- Revision of *Application of Quality Assurance for Asphaltic Concrete Mixtures*
- Revision of *Application of Quality Assurance for Embankment and Base Course*
- *Location and Design Algebra* course revision
- *Location and Design Geometry and Trigonometry* revision

### Maintenance Courses/Projects Completed

- *Maintenance Planning Manual* revision
- *Small Signs and Sign Maintenance Field Guide*
- *Practical Electricity Series 1*

### Other Projects Completed

- Revision and consolidation of all Structured Training Programs
- *Budgeting for Managers* Training Manual
- *How DOTD Works* web course
- *Basic Business Math*
- *Facilitation Skills* – manual revision
- *Presentation Skills for Non-presenters* ILT course



*There are 25 projects current/on-going.*

### Construction Current/On-Going Projects

- Revision of *Structural Concrete Inspection Volumes I and II* manuals
- *PCC Paving Inspection* manual and supporting materials
- *PCC Plant Inspection* manual and supporting materials
- *PCC Mix Design* manual and supporting materials
- Profiler Authorization Program
- Numerous lab procedure instructional training videos
- Updating Specialty Area and Recertification tests
- Aggregate Tester Program (Spec Delays)
- Revision of Pre-Stressed Concrete Inspection course
- Creation of Structural Steel Welding Inspection course
- Soil Identification course for soil boring crews
- Management of the Inspector/Technician Certification Program for DOTD and the Louisiana Transportation Industry

### Maintenance On-Going Projects

- Equipment Operator Certification Program
- Basic Flagging Update
- Traffic Control Through Maintenance Work Areas Update
- Dangerous Insects/Poisonous Plants Course
- IRF Videos and Supplements Update
- *Practical Electricity Series 2 – 4*
- *Bearings: Preference and Preservation*
- *Duties of Personnel Assigned to Moveable Bridges and the Bridge Operator's Notebook* revision

### Other Projects On-Going

- *How to Prepare an Annual Budget* (see completed)
- Web-based Grammar courses
- Training Section Newsletter
- Road Design Manual training course
- Site Manager for LPA training

# Workforce Development

## Management Development Program

This program oversees several mandatory supervisory, management development, and career development training programs: the Management Development Training program, a structured training program for DOTD employees in a professional job series; the Engineering Technician Supervisory Training program, a supervisory training program for DOTD Engineering Technicians; and the Civil Service Supervisory training program for supervisors.

There were 994 employees in the Management Development Program: 235 completed their course programs in FY 2015-2016; 284 are not yet complete yet have more time; 89 are not yet complete and past due. There were 871 employees in the CPTP Civil Service Supervisory Group Training Program (including completes and incompletes); 185 of them completed their course programs in FY 2015-2016 and 214 are not yet complete, most having more time to complete their programs.

## Headquarters Training Program

This program assists Section Heads and designated Section Training Coordinators in providing their employees the training prescribed by the training programs governing their employees' positions. This program provided the following for the Headquarters sections:

- Orientation – Monthly presentation at new employee orientation. This year provided 124 new employees information about respective training programs and how to fulfill individual training requirements.
- Exception reports – If an employee's training is incomplete at the time of a proposed personnel action, such as a merit increase or promotion, an exception may be allowed if it is the result of circumstances over which the employee has no control, such as scheduling or unavailability. Training records of 22 employees were reviewed and exceptions granted this year.
- Testing – Testing sessions are held three times a month for self-study courses. Employees were given 190 tests for different courses this year.
- Training – This year classes were conducted to train 90 employees in topics to include: Basic Flagging; Lockout/Tagout; Hand and Power Tool Safety; Poisonous Plants; Traffic Control through Maintenance Traffic Areas; Basic Flagging and Hazardous Communications; and various safety topics.

## Workforce Development Program

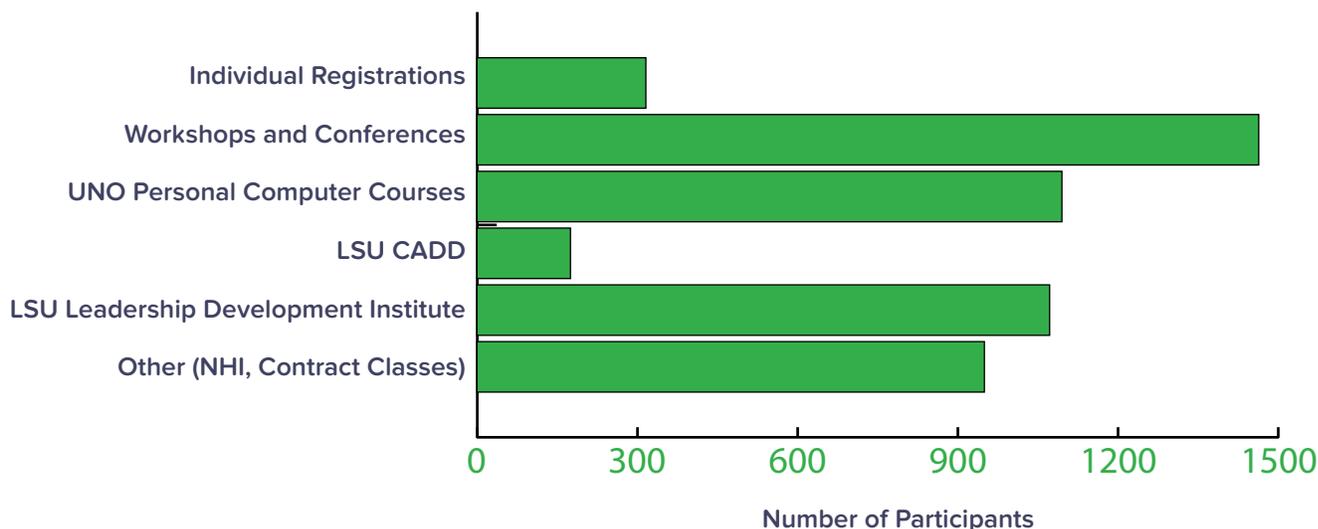
This program serves as liaison to LTRC Transportation Curriculum Council (TCC) as outlined in PPM 47 and collaborates specifically with District Administrators and Section Heads to support staff development, training, and planning.

The purpose of the LTRC Transportation Curriculum Council (TCC) is to advise and assist LTRC in the identification, prioritization, development, evaluation, and implementation of transportation related technology transfer, training, work development, and educational services for DOTD and its public and private transportation industry partners. New training and process and procedures are approved by the TCC prior to implementation. The Workforce Development program has the responsibility of helping to schedule and facilitate subcommittee meetings, distribute the meeting minutes to the appropriate individuals, and provide any support services needed by the subcommittee. The TCC held four meetings this fiscal year.

# Workforce Development

LTRC is committed to being a leader in workforce development. As LTRC's research section continues to focus on the future of transportation technology, the technology transfer and training section maintains its roots in the present—in making practical application of research's technological innovations and transferring them to the transportation community through aggressive implementation, training, and educational activities. Central to all of our training programs is the External Training Program, which is dedicated to the delivery of transportation training, professional development opportunities, continuing education, and technology transfer to engineers, technicians, and other professionals from Louisiana's public and private sectors.

## Overview of Participation in External Training Program Activities



## Support for Higher Education

The LADOTD CO-OP Program is a cooperative endeavor between LADOTD and Louisiana universities, providing practical experience to civil, mechanical, environmental, electrical, industrial, and chemical engineering students through employment in public sector transportation engineering work. The LADOTD CO-OP program is intended to enhance the educational process by providing opportunities for participants to explore their interest in transportation engineering through practical experience. The program also provides opportunities for LADOTD to evaluate participants as potential employees. Undergraduate students (juniors or seniors) are employed year round in positions related to their major engineering field of study: civil, mechanical, environmental, electrical, industrial, biological, or chemical engineering.

The LADOTD also has an engineering training program for recent college graduates that is managed and facilitated at LTRC, known as the Engineering Rotational Development Program (ERDP), which provides new engineers with an invaluable introduction to LADOTD employment. The ERDP is a 30-week rotation program designed to offer entry-level engineers an opportunity to experience several engineering functional areas within the Department and provide a comprehensive view of the Department and its objectives prior to placement. After orientation at LTRC, new hires spend 1 to 3 weeks in 19 different sections.

# Workforce Development

The following are brief overviews of External Training Program activities managed at LTRC:

## National Highway Institute Program:

The National Highway Institute Program covers 14 programmatic areas that are offered statewide to DOTD employees, municipal employees, private engineering firms, and other transportation partners. These areas include, but are not limited to, the following:

- Construction and Maintenance
- Design and Traffic Operations
- Environment
- Financial Management
- Freight and Transportation Logistics
- Geotechnical
- Highway Safety
- Hydraulics
- Intelligent Transportation Systems (ITS)
- Pavement and Materials
- Real Estate
- Structures
- Transportation Performance Management
- Transportation Planning



**CADD/MicroStation Structured Training Program:** Through the DOTD CADD/MicroStation Structured Training Program, this has developed the Department's current process for obtaining surveying information that utilizes Microstation, Inroads, and Inroads Survey. This process of coding and capturing data continues to evolve as departmental and federal regulations change. Microstation and Inroads are the software backbones for the department's plan development.

It is imperative that the Department identifies where trends are going and how newer software reacts to the current data collection processes. The Department is required to train and test new versions of the software to not only give guidance to DOTD staff but the consultants who work for the Department as well. DOTD is one of the few state departments that utilize this product series, and the only industry around that uses these products are the companies that work for DOTD.

**Work Zone Safety Program:** Through the DOTD Work Zone Safety Program, the following Louisiana specific courses are required for departmental employees and any other non-departmental entity that will work on a departmental project: Louisiana Traffic Control Technician; Louisiana Traffic Control Supervisor; Louisiana Traffic Control Design Specialist; Louisiana Guardrail Installation Training; and Louisiana Nighttime Traffic Control.

*cont. on next page*

# Workforce Development



*External Training, cont. from previous page*

Work Zone Safety classes are required for contractors, consultants, and DOTD personnel. This is to inform workers about safety procedures and improve worker knowledge in order to avoid injury during their daily employment activities. Through these efforts, this also enables highway workers to provide for the safety of motorists, workers, and pedestrians.

**District Sign Specialists' Certification Program:** The DOTD District Sign Specialists' Certification Program plays a critical role in Traffic Operations. Not only must these

employees perform manual labor and operate equipment, they must know, understand, and apply critical traffic engineering principles and details of sign installation as outlined in the *Manual on Uniform Traffic Control Devices*. In addition, District Sign Specialists are required to testify in court, and this ATSSA certification covers trial and deposition testimony.

**Nuclear Gauge and Radiation Program:** The DOTD Nuclear Gauge and Radiation Program is a vital program that assists departmental employees' who are authorized to use a nuclear gauge for density testing on Louisiana's highway construction projects. It is one of the most important Quality Assurance tools an inspector has to ensure that the foundation of the road will perform as designed. The use of any device containing nuclear material requires compliance with the federal Nuclear Regulatory Commission regulations and safety precautions, enforced by the Louisiana Department of Environmental Quality and DOTD. To ensure that overexposure to radiation does not occur, DOTD monitors over 450 nuclear gauge operators with a dosimeter badge. DOTD is also concerned with the public's exposure to radiation from Department-owned nuclear gauges. To ensure the public is not exposed to more than 100 mrem/year, a biannual survey of the storage area(s) is completed by the District Radiation Safety Officer and submitted to the DOTD Materials Lab Radiation Safety Officer.

**ArcGIS Program:** The DOTD ArcGIS Program is federal regulations based. These regulations and Map 21 are moving state transportation agencies into a GIS-based environment for asset management, performance management, inventory, and operations. Transportation-related GIS technologies rely on a linear referencing method to associate legacy data systems with GIS technologies. DOTD has GIS uses in almost all of its engineering and business sections.

*cont. on next page*

# Workforce Development

*External Training, cont. from previous page*

**PC/Microsoft Structured Training Program:** The DOTD PC/Microsoft Structured Training Program is strategically mapped to various employee category structured training programs. These courses are required for departmental engineers, engineering technicians, administrative staff, and support personnel. The course requirements vary by employee category.

**Customized Training Programs:** All specialized Title 48 and 39 programs are managed via contract with various vendors through the External Programs. A small listing of the contracts that are directed through the DOTD External Programs is included here:

- Highway Safety Manual (Cambridge Systematics) – Required by DOTD for Consultants who are submitting a Request for Qualifications (RFQ). When advertising for engineering consultant services or a RFQ for safety studies, DOTD requires that the consultant has available “One Professional Civil Engineer registered in the State of Louisiana who has been trained in the use of the Highway Safety Manual, or will be trained in the use of the Highway Safety Manual at the time of contract execution. Acceptable courses are the 2 ½-day workshops conducted by the FHWA Resource Center, NCHRP 17-38, or equivalent as approved by DOTD.”
- Complete Streets (Institute of Transportation Engineers) – Required by DOTD policy for all transportation projects. This course provides planners, engineers, and other members of the professional design community with technical complete streets design implementation tools, and the foundation necessary to more routinely create complete streets networks that serve all users.
- PTV Vision Traffic Suite (PTV America, Inc.) – These workshops provide planners, engineers, and other members of the professional engineering community with technical knowledge of the PTV Vision Traffic Suite and the methods for implementation. This custom training provides Louisiana-specific training on the use of the PTV Vision Traffic Suite.

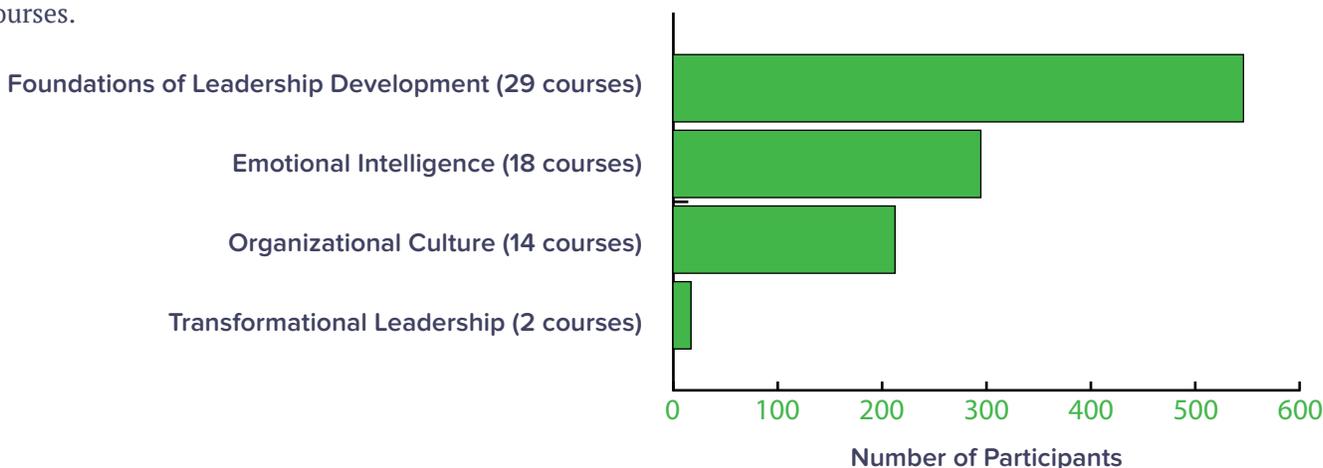


# Workforce Development

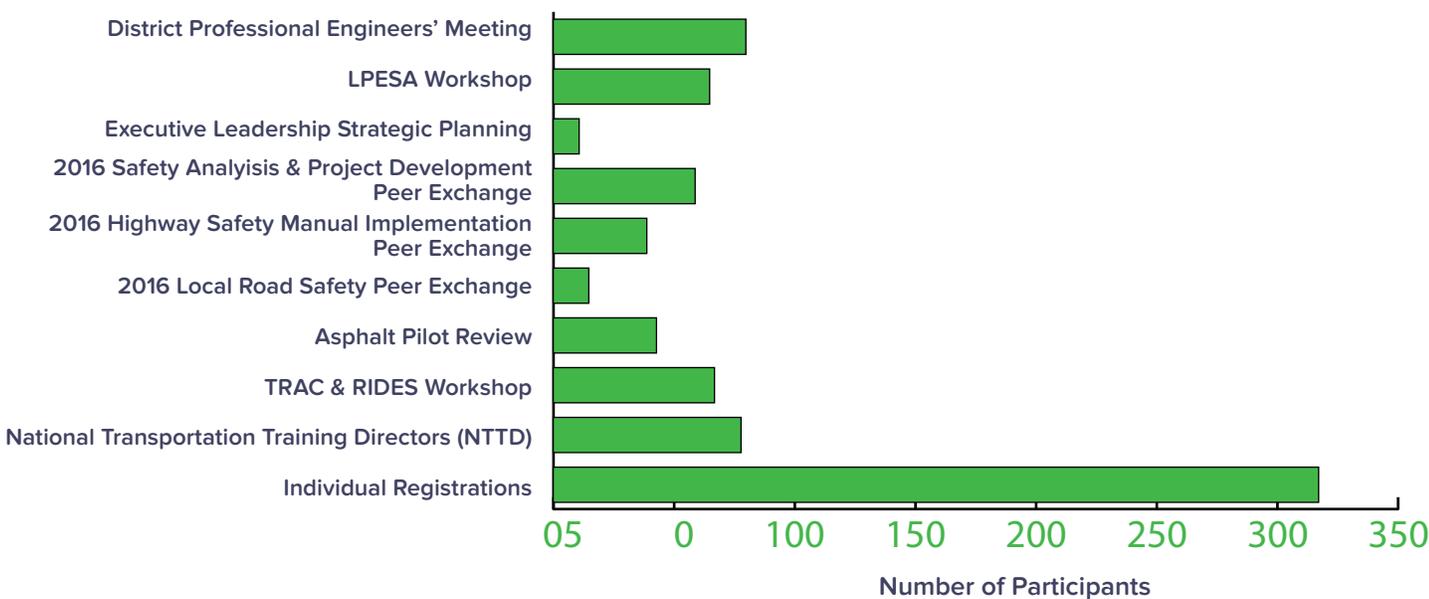
## Leadership Development Program

The Leadership Development Program (LDP) provides participants a process of continuous learning and the ability to apply the leadership methods discussed. In addition, the Leadership Development Program aims for everyone within the Department of Transportation and Development to adopt new behaviors and beliefs toward effective leadership and extend them to the highest levels of achievement.

The goal of this program is to introduce and promote competencies that will empower participants to recognize and improve their leadership skills. Emphasis will be on leadership competencies such as Excellence in Behavior, Communication, Relationships, Innovation, and Operational Agility. These competencies are essential to getting extraordinary things done in organizations. Leadership concepts and approaches will be introduced throughout the courses.



## Workshop and Seminar Attendance

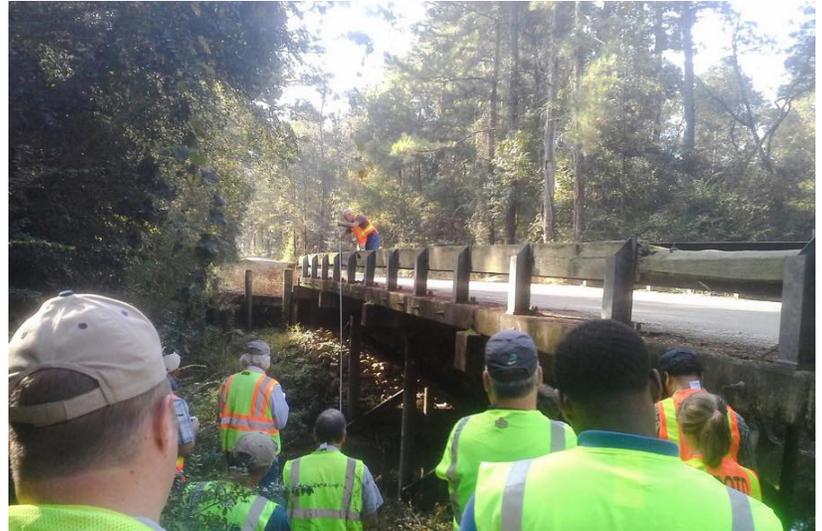


# LTAP

LTAP resumed its role as coordinator for the Louisiana Local Road Safety Program in support of the DOTD led Strategic Highway Safety Plan (SHSP). New activities included an aggressive program to compile and analyze local road safety crash data and present it in a user friendly format as Parish Safety Data Profiles. The new information was presented at local and regional meetings across the state and more detailed workshops were initiated to help local agencies make the best use of the data. Concentrating on the top 20 parishes with the highest traffic deaths and serious injuries, LTAP is working to build capacity for local agencies to implement life-saving countermeasures by making local roads safer for all drivers.

The LTAP Program Manager also provided statewide leadership to the SHSP as co-chair of the State Infrastructure Emphasis Area Team with the DOTD Highway Safety Office. This team sets the direction for the Highway Safety Improvement Program for the entire state. In an effort to promote more local involvement and implement a more data driven and strategic approach to safety, LTAP coordinated participation of local representatives at a Road Safety Data Peer Exchange funded by FHWA in Seattle. LTAP also worked with the FHWA Headquarters Office of Safety to pilot a new class, Road Safety 365, which was then rolled out nationally and also taught by LTAP in Louisiana.

Louisiana's local agencies own and maintain 5,000 of the 13,000 bridges in Louisiana. Approximately 1,000 of these locally-owned bridges are timber and almost half of these are over 50 years old. These timber bridges, as well as other local bridges, require extensive maintenance and frequent repairs. LTAP worked closely with the DOTD Bridge Inspection and Maintenance Section to update, pilot, and present the Road Scholar #4 Bridge Inspection and Maintenance class statewide in eight locations. The new class included



*Roads Scholar #13: Inspection of Local Bridges participants in Covington complete the field exercise.*

proven techniques to repair and maintain Louisiana's aging bridge inventory and also highlighted preventive maintenance.

LTAP promoted a proactive approach to planning for emergency situations for public works responders. This year's outreach included workshops for nearly 600 employees in the Capital Region focused on personal and family preparedness before emergencies. Reviews of past emergency situations have shown how critical public works and transportation is during a response and recovery. Critical employees are often impacted personally by storms and other emergencies. The workshops were presented in May in partnership with the local American Public Works Association to celebrate Public Works Week. The Flood of 2016 further proved that the outreach was effective with positive feedback from individuals and the local Public Works Departments. Many employees were forced from their homes, but they had their "plan and kit" ready to go.

Preventive maintenance of equipment was the topic of another class presented statewide by

*cont. on page 23*

# Tech Transfer

As LTRC's formal research program continues to investigate solutions to transportation problems, the technology transfer program serves the wider transportation community by implementing these research findings and technological innovations. Whether through technical assistance on DOTD projects, publications, videos, seminars, or workshops, technology transfer's ultimate goal is to disseminate practical knowledge to municipalities, parishes, and the transportation industry at large.

## Louisiana Transportation Conference



(l to r): U.S. Secretary of Transportation Anthony Foxx, John Bel Edwards, Governor, and DOTD Secretary Dr. Shawn Wilson

Approximately 1,800 people from across the nation attended the 2016 Louisiana Transportation Engineering Conference. This year's theme was "Transportation: Making Connections That Matter" and was held February 28-March 2, 2016, at the Baton Rouge River Center. With 72 technical sessions (including three workshops) and 8 professional development sessions, transportation professionals, industry partners, and academics exchanged new ideas and methods and discussed changes happening within the industry.

The conference's general session included key speeches by the Honorable John Bel Edwards, Governor, State of Louisiana and General Richard "Dick" Burleson, vice president of one of the largest engineering firms in the US, Neel-Schaffer. The session also included addresses and welcomes by DOTD Secretary Dr. Shawn

Wilson and Frederick "Bud" Wright, AASHTO Executive Director. In addition, U.S. Secretary of Transportation Anthony Foxx conducted a special separate plenary session.

Over 200 speakers contributed to the conference as a whole and led discussions during the four-day conference on a variety of topics from automated vehicles, 3D modeling, to the 2016 (New) LADOTD Standard Specifications for Roads and Bridges.

Certain topics stood out from the rest, attracting a couple hundred attendants. The first and highest attended session was the Construction Roundtable, where a Q & A was held with representatives from DOTD and from industry (AGC, LAPA, & CAAL). The second half of the session served as a Project Engineer/Area Engineer meeting with DOTD HQ construction engineers.

The second session featured Traffic Engineering, which focused on DOTD updating its design guidelines based on the 2011 AASHTO Green Book, context sensitive solutions, and its complete streets policy. The presentation focused on the guideline-revision process as well as the direction DOTD will take regarding selection and documentation of geometric and roadway design criteria for future projects. In addition, roundabouts were also discussed, highlighting an overview of DOTD's updated design guidance for roundabout projects.

# Tech Transfer

*Louisiana Transportation Conference, cont. from previous page*

And the final high-attendance session was Session 39: Bridge Painting and More. Presentations discussed the cleaning, repair, and painting of US 190 Mississippi River Bridge as well as a peek inside what inspectors look for, issues, and resolutions in terms of painting Louisiana’s bridges. The session also included the construction update of I-49 North, Segment K (I-220 to Martin Luther King Drive) Interchange Project.

Lastly, an awards luncheon closed the four-day conference on Wednesday, March 2. There, DOTD officials recognized special achievements in engineering and construction projects, handing out awards to the “best of the best” projects, students, and employees that demonstrate dedication to providing the highest quality in transportation infrastructure.



*LTAP, cont. from page 21*

LTAP. Local agencies can save significant amounts of money and time in both the short-and long-term by implementing routine preventive maintenance programs such as the ones presented in the LTAP class.

LTAP continued to concentrate on improving the efficiency of the DOTD partnership with local agencies through the Local Public Agency training program; participation on the State Transportation Innovation Council; the Traffic Records Coordinating Council; Safety and Data improvement teams; and many other activities. LTAP will celebrate its 30th year serving Louisiana’s local communities and the DOTD in 2017.



# Tech Transfer

## Publications

Technology transfer's ultimate goal is to disseminate practical knowledge to municipalities, parishes, and the transportation industry at large. LTRC's Publications and Digital Media Development Program meets DOTD's informational and training needs through newsletters, brochures, annual reports, capsules, web development, and video production/photography. During 2015-2016, LTRC published 23 final reports, 20 technical summaries, 23 project capsules, 2 technical assistance reports, and 4 Technology Today newsletters. In addition to in-house publications, LTRC research was featured in 54 journal articles and in 94 presentations at professional conferences and meetings throughout the world.

## Final Reports and Technical Summaries

LTRC No. (Final Report No.)	Title
11-2GT (562)	Field Instrumentation and Testing to Study Set-up Phenomenon of Piles Driven into Louisiana Clayey Soils
10-3P (563)	LED Traffic Signal Management System
14-1TIRE	Improvements to Highway Guardrail Assemblies
14-1GT (561)	Calibration of Region-Specific Gates Pile Driving Formula for LRFD
06-3GT (555)	Field Evaluation of Roller Integrated Intelligent Compaction Monitoring
98-1B (410)	Performance Evaluation of Louisiana Superpave Mixtures
11-3B (536)	Testing and Analysis of LWT and SCB Properties of Asphaltic Concrete Mixtures
10-5B (500)	Mechanistic Evaluation of Asphalt Mixtures Containing Thiopave Additives
12-3ST (552)	Repair of Morganza Spillway Bridge Bent Pile Cap Using Carbon Fiber Reinforcement (CFR)
14-3C (559)	Evaluation of the Fatigue and Toughness of Fiber Reinforced Concrete for use as a New Highway Pavement Design
07-4ST (517)	Integral Abutment Bridge for Louisiana's Soft and Stiff Soils
10-4B (558)	Development of Performance-based Specifications for Louisiana Asphalt Mixtures
12-5P (554)	Evaluation of LADOTD Aggregate Friction Rating Table by Field Measurements
13-2SS (557)	Travel Time Estimation Using Bluetooth
14-2GT (546)	Testing Protocol for Predicting Driven Pile Behavior within Pre-bored Soil
15-4SS (549)	Assessment of Sedimentation Affecting Riverine Ports in Louisiana
14-2TIRE	Hurricane Hazard Mitigation in Traffic Light Support Structures
12-4P (551)	Development of DARWin-ME Design Guideline for Louisiana Pavement Design
14-4SS (556)	Identifying Local Transit Resources for Evacuation
12-4SS (545)	Development of Minimum State Requirements for Local Growth Management Policies--Phase 1
14-3SA (548)	Developing a Method for Estimating AADT on All Louisiana Roads
10-3GT (521)	Design Values of Resilient Modulus for Stabilized and Non-Stabilized Base
14-2PF (543)	Real Time Driver Information for Congestion Management

## Technical Assistance Reports

LTRC No.	Title
15-01TA-C	Evaluation of Cores from I-10 between Acadian Thruway and College Drive
14-01-TA-P	Joor Road Noise Level Assessment

# Tech Transfer

## Project Capsules

LTRC No.	Title
14-2P	Assessment of Structural Capacity Indicators from Rolling Wheel Deflectometer Data Collection in Louisiana
16-3SA	Evaluating Cell Phone Data for AADT Estimation
16-6GT	Incorporating the Site Variability and Laboratory/ In-situ Testing Variability of Soil Properties in Geotechnical Engineering Design
13-2ST	Live Load Monitoring for the I-10 Twin Span Bridge
16-6P	Quality Management of Cracking Distress Survey in Flexible Pavements using LTRC Digital Highway Data Vehicle
13-5GT	Monitoring of In-Service Geosynthetic Reinforced Soil (GRS) Bridge Abutments in Louisiana
15-2SA	Development of a Simulation Test Bed for Connected Vehicles using the LSU Driving Simulator
14-3SS	Development of a Mode Choice Model to Estimate Evacuation Transit Demand
15-2SS	Cost and Time Benefits for Using Subsurface Utility Engineering in Louisiana
13-3GT	Finite Element Analysis of the Lateral Load Test on Battered Pile Group at I-10 Twin Span Bridge
16-5GT	Corrosion Map for Metal Pipes in Coastal Louisiana
15-3ST	Rehabilitation of Deteriorated Timber Piles using Fiber Reinforced Polymer (FRP) Composites
16-5SS	Diverted Traffic Measurement
16-1PF	Development of a Guidebook for Determining the Value of Research Results
15-1PF	Prep-ME Software Implementation and Enhancement
16-4B	Evaluation of Non-SBS Modified Binders using the Multiple Stress Creep Recovery Test
15-1GT	pLog Enterprise-Enterprise GIS-Based Geotechnical Data Management System Enhancements
15-3SA	Investigating Safety Impact of Centerline Rumble Strips, Lane Conversion, Roundabout and J-Turn Features on Louisiana Highways
14-2ST	Development of Sustainable UHPC Bridge Deck for Movable Bridges
15-1SA	Exploring Naturalistic Driving Data for Distracted Driving Measures
15-1B	Evaluation of Crumb Rubber Modification of Louisiana Mixtures
14-5C	DOTD Support for UTC Project: Development of Rapid PCC Pavement Repair Materials and Construction Techniques
14-5PF	Design and Analysis Procedures for Asphalt Mixtures Containing High RAP Contents and/or RAS

For a complete listing of publications and presentations by all LTRC personnel, please visit [www.ltrc.lsu.edu/15\\_16publications.pdf](http://www.ltrc.lsu.edu/15_16publications.pdf)



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To download LTRC Mobile, search "LTRC" in the App Store (iPhone) or Google Play Store (Android)

## Video Productions for Fiscal Year 15-16

- *LTRC 30 Years*
- *Traffic Management Center-ITC*
- *Katrina Videos- Removal of Debris, The Human Element, Paths to Progress, Planning and Evacuation, Twin Spans-Rebuilt and Reborn*
- *Litter on the Highways*
- *Road Rules- 4 Way Stop*
- *DOTD Sign Shop*
- *Speed Studies*
- *Surveying*
- *TRAC™ and RIDES*

# Professional Memberships

## Transportation Research Board Committees/Panels

- AFP40 – Full-Scale Accelerated Pavement Testing
- AFP10 – Pavement Management Systems
- AFP80-Strength and Deformation Characteristics of Pavement
- AFN30 – Durability of Concrete (Chair)
- AFN10 – Basic Research and Emerging Technologies Related to Concrete
- AFN20 – Properties of Concrete (Communication Coordinator)
- AFN40 – Concrete Materials and Placement Techniques
- AFD10 – Pavement Management Systems
- AFD40 - Committee on Full-Scale Accelerated Pavement Testing
- AFD60 – Flexible Pavement Design Committee
- AFD90 – TRB Pavement Surface Properties and Vehicle Interaction
- AFK00 – Asphalt Materials
- AFK10 – General Issues on Asphalt Technology (Chair)
- AFK20 – Standing Committee on Characteristics of Asphalt Materials
- AFK30 – Standing Committee on Characteristics of Nonasphalt Components of Asphalt Paving Mixtures
- AFK40 – Characteristics of Bituminous-Aggregate Combinations to Meet Surface Requirements
- AFK50 – Characteristics of Bituminous Paving Mixtures to Meet Structural Requirements
- AHD20 – Pavement Maintenance Committee
- AFP30 – Soil and Rock Properties
- AFP50 – Seasonal Climatic Effects on Transportation Infrastructure
- ABG30 – Technology Transfer Committee
- AFD20 – Pavement Monitoring, Evaluation and Data Storage
- AFD80 – Strength and Deformation Properties of Pavement Sections
- AFP60 – Engineering Behavior of Unsaturated Soils
- AFP20 – Committee on Exploration and Classification of Earth Materials
- AFS60 – Standing Committee on Subsurface Drainage
- AFS20 – Committee on Exploration and Classification of Earth Materials
- AFS60 – Standing Committee on Subsurface Drainage
- AFS80 – Committee on Cementitious Stabilization
- AFS10 – Transportation Earthworks
- AFS30 – Foundations of Bridges and Other Structures (Committee Communication Coordinator)
- AFS70 – Committee on Geosynthetics
- AFF40 – Field Testing and Nondestructive Evaluation (NDE) of Transportation Structures
- AFF80 – Structural Fiber Reinforced Plastics Research and Technology Coordinating Committee
- NCHRP Project Panel 15-62 – Access Management and Design Guidelines for Truck Routes
- NCHRP 20-89 – Intellectual Property Stewardship Guide for Transportation Departments (Chair)
- NCHRP 46-03 – Performance Based Specifications (PBS) for Asphalt Mixtures
- NCHRP 20-07/Task 340 – National Training: Challenges and Opportunities
- NCHRP Project Panel 20-102(07) – Implications of Automation for Motor Vehicle Codes
- NCHRP Project Panel 20-102(09) – Providing Support to the Introduction of CV/AV Impacts into Regional
- NCHRP Project 01-52 – “Calibrated Mechanistic-Based Models for Top-Down Cracking of Hot-Mix Asphalt Layers”
- NCHRP Project 01-53 – “Proposed Enhancements to Pavement ME Design: Improved Consideration of the Influence of Subgrade and Unbound Layers on Pavement Performance” (Panel Chair)
- NCHRP 18-17 – Entrained Air void System for Durable Highway Concrete
- Data Analysis Working Group Steering Committee
- State Representative Advisory Panel
- TRB Sub-Committee on Behavioral Processes: Qualitative and Quantitative Methods

## Training Memberships

- Southeast Task Force on Technician Training and Qualification
- Construction Certification Committee
- Association for Talent Development
- LATOD – Louisiana State Workers Trainers Group
- National Transportation Training Directors
- NCHRP 20-07/Task 340 – National Training: Challenges and Opportunities
- Transportation Curriculum Coordination Council
- SHRM- Society of Human Resource Management

# Professional Memberships

- Equipment Operation Certification Committee
- DOTD Work Zone Task Force
- ITI Technical College, Construction Management Curriculum Council
- TRB Standing Committee on Technology Transfer, ABG30
- TRB Standing Committee on Transportation Education and Training, ABG20
- AASHTO TRAC and RIDES Advisory Board
- President of National Transportation Training Directors;
- TRB Transportation Research Thesaurus Subcommittee, B0002(1)
- Eastern Transportation Knowledge Network; Special Libraries Association, Transportation Division.
- AASHTO Transportation Curriculum Coordination Council
- LSU Communication across the Curriculum, Engineering Advisory Council
- Engineering Geology and Site Characterization Committee, Geo-Institute
- Engineering Geosynthetics Committee, Geo-Institute
- Engineering Deep Foundation Committee, Geo-Institute
- US Universities Council on Geotechnical Engineering Research (USUGGER)
- Gulf Region Intelligent Transportation Society (GRITS)
- American Institute of Chemical Engineers
- American Concrete Institute (Committee 123 – Research and Current Developments, Committee 239 – Ultra High Performance Concrete, Committee 239C – Structural Design on UHPC, Committee 423 – Prestressed Concrete, Committee 440 – Fiber Reinforced Polymer Reinforcement, Committee 343 – Concrete Bridge Design)

## ASTM International Memberships

- ASTM Subcommittee D04.20 on Empirical Tests of Bituminous Mixtures
- ASTM Subcommittee D04.22 on Effect of Water & Other Elements on Bituminous Coated Aggregates
- ASTM Subcommittee D04.24 on Bituminous Surface Treatments
- ASTM Subcommittee D04.25 on Analysis of Bituminous Mixtures, Chair
- ASTM Subcommittee D04.26 on Fundamental / Mechanistic Tests
- ASTM Subcommittee D04.44 on Rheological Tests
- ASTM Subcommittee D04.45 on Specifications for Modified Asphalt
- ASTM Subcommittee D04.46 on Durability & Distillation Tests
- American Society of Engineering Education (ASEE)
- Association of Asphalt Paving Technologists (AAPT)
- Traffic Safety Culture Transportation Pooled Fund Executive Board
- International Association for Bridge and Structural Engineering Transportation Research Board
- American Association for Wind Engineering
- American Society of Aeronautics and Astronautics
- American Academy of Mechanics
- FHWA Technical Working Group on Sustainable Pavements
- AASHTO Standing Committee on Research
- AASHTO Research Advisory Committee
- AASHTO Standing Committee on Highway Traffic Safety (SCOHTS)
- International Steering Committee for Travel Survey Conferences
- LA Strategic Highway Safety Plan Implementation Team
- Partnership for the Transformation of Traffic Safety Culture
- Strategic Highway Safety Plan (SHSP) Occupant Protection Emphasis Area Team
- AASHTO Standing Committee on Highway Traffic Safety (SCOHTS)
- Public Relations Association of Louisiana Precast/Prestressed Concrete Institute
- American Institute of Steel Construction
- Structural Stability Research Council (SSRC)

## Other Memberships

- Infocomm International
- Society of Government Meeting Professional (SGMP)
- Louisiana Engineering Society
- National Society of Professional Engineers
- American Society of Civil Engineers
- ASCE Geo-Institute
- ASCE Bituminous Materials Committee (BMC)
- Chi Epsilon – Civil Engineering Honor Society
- Tau Beta Pi, College of Engineering Level Honor Society
- Phi Kappa Phi, University Level Honor Society

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Md. Nafiul Haque, Ph.D., Postdoctoral Researcher

## Materials Research

Samuel B. Cooper III, Ph.D., P.E.,  
Materials Research Administrator

## Asphalt Research

David Mata, Engineer Intern 2  
Kristi Goetting, Engineering Technician 5  
Jeremy Icenogle, Engineering Technician DCL

## Concrete Research

Amar Raghavendra, P.E., Concrete Research Engineer  
Zachary Collier, Engineer Intern 2  
Norris Rosser, Engineering Technician DCL  
Leon Goudeau, Engineering Technician 4  
Austin Gueho, Engineering Technician 2

## Engineering Materials Characterization Research Facility (EMCRF)

Louay Mohammad, Ph.D., Professor, EMCRF Manager  
Minkyum Kim, Ph.D., Research Associate 5  
Wei Cao, Ph.D., Research Associate 5  
Tae Sun You, Research Associate 5  
Eugene Laphand, Lab Tech

## Structures Research

Walid Alaywan, Ph.D., P.E.,  
Senior Structures Research Engineer

## Special Studies

Kirk M. Zeringue, P.E.,  
Senior Special Studies Research Administrator

## Planning/Intermodal

Chester Wilmot, Ph.D., Professor  
Ravindra Gudishala, Ph.D., P.E., Research Associate 5

## ITS & Traffic Research

Julius A. Codjoe, Ph.D., ITS/Traffic Research Associate 5

## Louisiana Center for Transportation Safety

Dortha Cummins, Director  
Rudynah E. Capone, Safety Initiatives Manager  
Elisabeta Mitran, Ph.D.,  
Research & Technical Assistance Manager  
Ashley M. Smithers, Research & Administrative Assistant

## Technology Transfer & Training

Mary Leah Coco, Ph.D., Associate Director,  
Technology Transfer & Training  
Paul Hendricks, Computer Manager

### Technology Transfer

Michael Boudreaux, P.E., Technology Transfer Engineer

### Publications & Digital Media Development

Jenny Speights, Public Information Director  
Jenny Gilbert, Technical Writer  
Emily Wolfe, Multi Media Specialist  
Chris Melton, Photographer/Videographer

### Structured Training Programs

Cindy Twiner, DOTD Structured Training Director  
Ted Ball, Management Development Program Manager  
Rex Ransome, Headquarters Training Program Manager  
Candy Cardwell, Workforce Development  
Planning Officer  
John Dean, Construction and Materials  
Training Program Manager  
Keith Beard, District Training Liaison/PCC/  
Structural Training  
Patrick Frazier, Asphalt Concrete Training  
Kelvin Stone, Maintenance Training Program Manager  
Richard W. Black, DOTD Program Specialist 3  
Angela Rovaris, Teaching Associate

### External Educational Resources

Allison Landry, NHI/Individual Registration/  
Special Event Program Manager  
Melissa Lee, Microsoft/CADD/Special Training  
Program Manager  
Rebecca Rizzutto, Training and Development  
Program Coordinator  
Garrett Wheat, Teaching Associate,  
DOTD Leadership Development Institute  
Sandy Brady, Librarian  
Brenda Wolfe, Administrative Assistant  
Patrick Mehaffey, Audio Visual Manager  
Joyce Brignac, ERDP and Co-Op Coordinator

### Local Technical Assistance Program

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Bob Breaux, LTAP Office Manager  
Steve Strength, LTAP Program Manager  
Courtney Dupre, Training Program Coordinator

## LTRC Policy Committee

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Sam Cooper, Ph.D., P.E.  
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