



○ | ○ | ○  
2013-2014 ANNUAL REPORT  
LOUISIANA TRANSPORTATION RESEARCH CENTER





**Sherri H. LeBas, P.E.**  
Secretary



**F. King Alexander, Ph.D.**  
Chancellor

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-term 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.

To enhance the center as the focus for transportation-related research, technology transfer, and education in Louisiana, the LTRC Foundation, a non-profit organization, has been established. 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.

### **For additional information**

LTRC  
4101 Gourrier Avenue  
Baton Rouge, Louisiana 70808  
[www.ltrc.lsu.edu](http://www.ltrc.lsu.edu)



This publication is a report of the transportation research, technology transfer, education, and training activities of the Louisiana Transportation Research Center for July 1, 2013–June 30, 2014. The center is sponsored jointly by the Louisiana Department of Transportation and Development and Louisiana State University.



# TABLE OF CONTENTS

Director's Message		5
Completed Research		6
Active Research		8
Technical Assistance		13
Education & Training		14
TTEC		18
LTAP		19
Tech Transfer		20
Organizations & Committee Memberships		24
LTRC Staff & Policy Committee		26



(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 its 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 and offices are also included.

LTRC has identified research areas of strategic importance and has developed expanded capabilities for concentration in several areas: the Engineering Materials Characterization and 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™).

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 is a budget entity 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

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

LTRC continues its strong focus of solving transportation problems. We are sponsoring one of the largest programs since LTRC was created with 62 active formal research studies. Part of this is related to our partnership in the National Center for Intermodal Transportation for Economic development Competitiveness (NCITEC) a Tier 1 University transportation Center housed at Mississippi State University. You will note that seven of the UTC projects in the freight and safety areas are coming to fruition and have been published. These projects were presented at a UTC conference held at MSU in October. Similarly, our partnership in the Southeast Transportation Consortium, a pooled fund collaborative effort with the twelve SASHTO states, has produced four synthesis studies in areas of common interest.

This year, Louisiana hosted the annual meeting of the American Association of Transportation and Highway Officials' Research Advisory Committee in Baton Rouge. This is a premier technology transfer activity for state research managers. Two recently completed LTRC research projects were recognized as Sweet Sixteen High Value Research Projects by the AASHTO RAC at the meeting. The two studies, Safety Improvement from Edge Lines on Rural Two-Lane Highways and A Comprehensive Study on Pavement Edge Line Implementation, are highlighted in this report.

LTRC partnering with private industry is also recognized through several news studies at the Pavement Research Facility in Port Allen. LTRC has recently purchased a new accelerated testing, heavy vehicle load simulation device called the ATLaS. This expands our capability to testing concrete pavements. The Concrete and Aggregate Association of Louisiana (CAAL) and Rollcon of Houston TX donated manpower and equipment to build several sections of Roller Compacted Concrete at the PRF site. These donations were accomplished through the LTRC Foundation, Inc. This partnership helped LTRC save over \$250,000 in construction costs.

We have also established further partnerships in the academic area. LTRC and Baton Rouge Community College have developed a Highway Engineering Technology curriculum to meet workforce requirements of both DOTD and industry. A new training lab housed at the DOTD Materials Lab, adjacent to the BRCC campus, will provide direct hands-on training in materials testing such that graduates can be hired at higher levels and be immediately ready to work. This lab also will be used to train DOTD construction employees.

Finally, we would like to highlight several in-house developed curricula -Leadership Development and Local Public Agency. The Leadership Development curriculum, requested by Secretary LeBas, consists of four core courses for the department's manager and administrators. The LPA training, developed by DOTD and LTRC personnel, provides training for local transportation agencies to assist them in developing and constructing projects using federal funding.

Respectfully submitted,



Harold "Skip" Paul, P.E., Director

# Completed Research

LTRC #	Project Title	Principal Investigator	Agency
13-2GT	Implementation of Slag Stabilized Blended Calcium Sulfate (BCS) in a Pavement Structure	Gavin Gautreau	LTRC
13-8GT	Bayou Corne Sinkhole: Control Measurements of State Highway 70 in Assumption Parish, Louisiana	Joshua Kent	LSU
13-3SS	DOTD Support for UTC Project: Development of Performance Measurement for Freight Management	Peter Kelle	LSU
13-8SS	DOTD Support for the UTC Project: The Impact of Modifying Jones Act on the US and Louisiana	Asaf Ashar	UNO
05-1GT	Field Demonstration of New Bridge Approach Slab Designs and Performance	Murad Abu-Farsakh	LTRC
13-1TIRE	A Smart Asphalt Sealant	Qinghao Meng	Southern University
13-2TIRE	Assessment of the Mechanical Properties of Structural Composites from Algae-Based Binders	William Chirdon	ULL
13-3TIRE	Development of Nanostructured, Functionalized Catalysts for Production of Long Chain Asphalt Binders from Renewable Biomass	Daniel Hayes	LSU
13-4TIRE	Video Analytics for Effective Traffic Operations	Supratik Mukhopadhyay	LSU
13-7SS	DOTD Support for UTC Project: Use of Containers to Carry Bulk and Breakbulk Commodities and its Impact on Gulf Region Ports and International Trade	James Amdal	UNO
12-1ST	Data Collection and Evaluation of Continuity Detail for John James Audubon Bridge #2	Ayman Okeil	LSU
12-4PF	Regional Implementation of Warm Mix Asphalt	Ronnie Clark Graves	KTC
13-6SS	DOTD Support for UTC Project: Economic Impact Analysis of Short Line Railroads in the State of Louisiana	Jared Llorens	LSU
13-1SA	DOTD Support for UTC Project: Distracted Driving and Associated Crash Risks	Sherif Ishak	LSU
11-3P	The Rideability of a Deflected Bridge Approach Slab (LTRC Project 02-2GT Continuation: Phase II)	Mark Martinez	LTRC

# Completed Research (Publication Pending)

LTRC #	Project Title	Principal Investigator	Agency
12-2PF	Asphalt Surface Treatments for Pavement Preservation	Hesham Ali	FIU
07-4ST	Integral Abutment Bridge for Louisiana's Soft and Stiff Soils	George Z. Voyiadjis	LSU
11-2B	Evaluation of Dynamic Shear Rheometer Tests for Emulsions.	Nazimuddin M Wasiuddin	LTU
10-3GT	Design Values of Resilient Modulus of Stabilized and Non-stabilized Base	Khalil Hanifa	LTRC
07-1B	Evaluation of Warm Mix Asphalt Technology in Flexible Pavements	Louay Mohammad	LTRC
13-2SA	DOTD Support for UTC Project: Developing a Highway Safety Fundamentals Course	Xiaoduan Sun	ULL
11-1B	Validity of Multiple Stress Creep Recovery Test for DOTD Asphalt Binder Specification	Md. Sharear Kabir	LTRC
11-4B	Modulus Based Construction Specification of Earthwork and Unbound Aggregate	Louay Mohammad	LTRC
10-4ST	Development of Wave and Surge Atlas for the Design and Protection of Coastal Bridges in South	D. Max Sheppard	Ocean Engineering Associates, Inc.
10-4P	Development of Cost-Effective Pavement Treatment Selection and Treatment Performance Models	Mohammad Jamal Khattak	ULL
11-3B	Testing and Analysis of LWT and SCB Properties of Asphaltic Concrete Mixtures	Samuel B. Cooper	LTRC
13-5SS	DOTD Support for UTC Project: Improving Freight Crash Incident Management	Chester Wilmot	LTRC
08-2ST	Monitoring Bridge Scour Using Fiber Optic Sensors	Steve C.S. Cai	LSU
12-3SA	DOTD Support for UTC Project: Calibration of the Louisiana Highway Safety Manual	Brian Wolshon	LSU
12-5C	Comparison of Conventional and Self-Consolidating Concrete for Drilled Shaft Construction	Tyson Rupnow	LTRC
12-2ST	Field Performance of Timber Highway Bridges: A National Study	Vijaya Gopu	LTRC

ULL: University of Louisiana at Lafayette  
 LSU: Louisiana State University  
 LTU: Louisiana Tech University  
 UNO: University of New Orleans  
 FIU: Florida International University  
 KTC: Kentucky Transportation Center  
 OSU: Oklahoma State University

# Active Research

LTRC #	Project Title	Principal Investigator	Agency
06-3GT	Field Evaluation of Roller Integrated Intelligent Compaction Monitoring	Gavin Gautreau	LTRC
08-3GT	Support Study to Structure 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
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
13-5GT	Monitoring of In-Service Geosynthetic Reinforced Soil (GRS) Bridge Abutments in Louisiana	Murad Abu-Farsakh	LTRC
13-6GT	Development of LADOTD Standards for GPS Elevation Accuracy	Joshua Kent	LSU
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
14-1GT	Calibration of Region-Specific Gates Equation for LRFD	Ed Tavera	GeoStellar Engineering, LLC
14-2GT	Testing Protocol for Predicting Pile Behavior within Pre-Bored Soil	Malay Ghose Hajra	UNO
12-11P	Field Validation of Equivalent Modulus for Stabilized Subgrade Layer	Mark Martinez	LTRC
10-3P	LED Traffic Signal Lifetime Management System	Leticia Courville	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
12-4P	Development of DARWin-ME Design Guideline for Louisiana Pavement Design	Zhong Wu	LTRC
12-5P	Evaluation of DOTD Aggregate Friction Rating Table by Field Measurements	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
10-1B	Field versus Laboratory Volumetrics and Mechanical Properties	Louay Mohammad	LTRC
10-4B	Development of Performance Based Specifications for Louisiana Asphalt Mixtures	Louay Mohammad	LTRC
12-1B	Evaluation Of Asphalt Mixtures Containing Recycled Asphalt Shingles	Louay Mohammad	LTRC

LTRC #	Project Title	Principal Investigator	Agency
12-3B	Chemical Characterization of Asphalts Related to Their Performance	William H. Daly	LSU
12-4B	Performance of WMA Technologies: Stage II – Long-term Field Performance	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
07-1ST	Structure Health Monitoring of the I-10 Twin Span Bridge Over Lake Pontchartrain	Murad Abu-Farsakh	LTRC
10-5ST	Developing Prestressed Girder Transportation Guidelines	Jonathan McGormley	Wiss, Janney, Elstner Associates, Inc.
12-3ST	Morganza Floodway Bridge Bent Repair using Carbon Fiber Reinforced Polymers (CFRP)	Vijaya Gopu	UNO
13-2ST	Live Load Monitoring of the I-10 Twin Span Bridge	Steve C.S. Cai	LSU
13-4ST	I-10 Girder Repair Using Post-Tensioned Steel Rods and Carbon Fiber Composite Cables (CFCC)	Ching Tsai	LTRC
14-1ST	Evaluating Louisiana New Continuity Detail for Girder Bridges	Ayman Okeil	LSU
14-2TIRE	Hurricane Hazard Mitigation in Traffic Light Support Structures	Aly Mousaad Aly	LSU
14-3TIRE	A Novel Magnetostriction Based Sensing Technology for Rapid Condition Assessment of Bridge Decks	Arun Jaganathan	LTU
13-10SS	Economic Evaluation of Applicants to the Port Construction and Development Priority Program	James Richardson	LSU
12-4SA	DOTD Support for UTC Project: Development of a Tool for Documenting, Tracking, Recording, and Analyzing Improvements to Intersection Sites and Roadway	Helmut Schneider	LSU
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
14-3SA	Developing a Method for Estimating Traffic Volumes on Local Roads in Louisiana	Xiaoduan Sun	ULL
10-6SS	Establishing an Intelligent Transportation Systems (ITS) Lab at LTRC (Phase II)	Sherif Ishak	LSU
12-1SS	DOTD Support for UTC Project: Traffic Counting using Existing Video Detection Cameras	Sherif Ishak	LSU
12-2SS	History of the Implementation of AASHTO and Louisiana DOTD Road Design Standards	Sherif Ishak	LSU
12-4SS	DOTD Support for UTC Project: Development of Minimum State Requirements for Local Growth Policies	John Renne	UNO
13-2SS	DOTD Support for UTC Project: Travel Time Estimation Using Bluetooth	Chester Wilmot	LTRC

# Active Research

LTRC #	Project Title	Principal Investigator	Agency
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
14-4SS	Feasibility of using Local Public Transit Resources for Evacuations and Other Unscheduled Needs	Chester Wilmot	LTRC
14-4TIRE	User Sentiment Analysis with Louisiana Social Media Data for Better and Effective Crash Countermeasures	Xiaoduan Sun	ULL
12-4C	Evaluation of Portland Cement Concrete with Internal Curing Capabilities	Tyson Rupnow	LTRC
13-1C	Evaluation of MIT-SCAN-T2 for Thickness Quality Control for PCC and HMA Pavements	Tyson Rupnow	LTRC
13-2C	Laboratory Evaluation of 100% Fly Ash Cementitious Systems	Tyson Rupnow	LTRC
14-1C	Evaluation of Dowel Bar Alignment and Effect on Long Term Performance of Jointed Concrete Pavements	Tyson Rupnow	LTRC
14-3C	Laboratory Fatigue Evaluation of Continuously Fiber Reinforced Concrete Pavement	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
12-1PF	Traffic and Data Preparation for AASHTO MEPDG Analysis and Design	Kelvin Wang	OSU
14-1PF	Best Practices for Achieving and Measuring Pavement Smoothness	David Merritt	The Trans-tec Group
14-2PF	Real time Driver Information for Congestion Management	Sherif Ishak	LSU
14-3PF	Transportation Funding Sources and Alternatives in the Southeastern States Now and in the Future	James Brian Gibson	KTC
14-4PF	Mitigation Strategies for Reflective Cracking in Pavements	Mostafa Elseifi	LSU

ULL: University of Louisiana at Lafayette  
 LSU: Louisiana State University  
 LTU: Louisiana Tech University  
 UNO: University of New Orleans  
 FIU: Florida International University  
 KTC: Kentucky Transportation Center  
 OSU: Oklahoma State University

## LTRC Recognized by AASHTO for High Value Research



Locations before and after edge lines implementation (pictures taken from different travel direction)

Two LTRC studies, Safety Improvement from Edge Lines on Rural Two-Lane Highways (07-7P) and A Comprehensive Study on Pavement Edge Line Implementation (13-2P) were recently recognized by the AASHTO Research Advisory Committee (RAC) and awarded a spot on its 2014 Sweet Sixteen High Value Research Projects list. Each year, RAC collects High Value Research highlights from member states across the nation. These highlights showcase projects that are providing transportation excellence through research.

Reducing the number of run-off-road (ROR) crashes is a top priority for the 5,600 miles of narrow, rural two-lane highways (pavement width less than 22 ft. and bigger than or equal to 20 ft.) in Louisiana. An inexpensive countermeasure was investigated to reduce the higher percentage of crashes and fatalities associated with this type of highway. The original study and follow up implementation study compared the crash difference before and after edge line placement. The research concluded that: (1) Placing pavement edge lines on rural two-lane highways in Louisiana not only changes vehicle lateral positions but also reduces crashes. (2) Based on the Empirical Bayes method, the most reliable Crash Modification Factor (CMF) for edge lines on narrow, rural two-lane highways is 0.85, which means there is a 15% expected crash reduction in edge line implementation on nar-

row, rural two-lane highways. (3) The crash reduction is consistent in all crash types and particularly significant in single vehicle crashes. Most of single vehicle crashes are ROR crashes. (4) The benefits overwhelmingly offset the cost associated with edge line implementation. The most conservative estimation for benefit and cost ratio is 19 to 1.

The studies recommend the use of edge lines on narrow rural two-lane highways whenever it is financially and operationally feasible. The recommendation helped DOTD plan for safety improvements on rural two-lane highways. Based on the study results, the Traffic Engineering Management section of DOTD is seeking more safety funds for each district to conduct systematic edge line striping projects on narrow rural two-lane highways due to its high benefit. The DOTD Pavement Marking standards and safety management procedures have been updated to add this safety measure and crash reduction factor.

## Private Industry Continues Support for LTRC Research

LTRC has recently expanded its accelerated pavement testing capabilities by investing in a new testing device, called the ATLaS 30, at the DOTD Pavement Research Facility (PRF), located in Port Allen, La. As a heavy vehicle load simulation device, the ATLaS 30 is able to conduct accelerated pavement testing, such as carrying capacity and structural performance, on concrete roads.

The first project to utilize the new device is an LTRC-sponsored study titled "Roller Compacted Concrete (RCC) over Soil Cement under Accelerated Loading." The purpose of this study is to evaluate the performance of RCC surfacing over a soil cement base under accelerated pavement testing. The project will determine appropriate thicknesses of RCC for application as well as assist in the development of a more refined design procedure for the thinner RCC sections. Properly designed RCC mixes can achieve outstanding compressive strength values despite low cement content. The initial construction cost of RCC is comparable to that of asphalt concrete base but lower than conventional concrete.

The construction of the test lanes for the project was carried out with the assistance from industry partners in the concrete field. The CAAL organization, under the direction of Executive Director Bill Temple, was instrumental in arranging industry support for this project through donations to physically construct the test sections. Gilchrest Contractors donated the manpower and equipment necessary to layout and construct the subgrade and base course layers of the RCC test lanes. Rollcon out of Houston, Texas also donated their time and their specialized High Density paving equipment to construct the test lanes. Cemex donated the manpower to setup and operate the specialized mixing equipment to produce the concrete mixture used in the RCC test lanes. Through these elaborate combined efforts of LTRC, CAAL, and the concrete construction industry, LTRC was able to save the DOTD over \$250,000 in construction costs.

The testing of these sections began in May 2014, and researchers predict that the results from this research study will provide a cost-effective and durable RCC-surfaced pavement design option for low-and/or high-volume roads in Louisiana, which can be directly implemented by the Department. A showcase was held July 8, 2014, attracting 75 attendees from public agencies and private industry. According to project lead Dr. Tyson D. Rupnow, LTRC Senior Concrete Research Engineer, initial findings are very promising, showing that the RCC fatigue equation used to estimate percent remaining life is very conservative.



ATLaS Model 30 is a tool designed to apply a rolling load of up to 30,000 lb. to a pavement surface, through either dual truck tires or a super single tire over a longitudinal distance of 40 ft. at a top speed of 6 mi/hr. It is constructed around a steel frame consisting of two parallel I-beams and is 65-ft. long, spanning the length of a test section. The two beams are connected by a steel support structure at each end, with the load being applied by hydraulic cylinders reacting against the static weight of the machine.

# 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.

## 2013-14 Highlights

### Joor Road Noise Level Assessment

Joor Road (La 946), located in Baton Rouge, is an urban 5-lane Portland cement concrete (PCC) roadway. Since opening in 2009, residents have complained about the high noise levels emanating from the roadway. In February 2014, LADOTD Secretary Sherri LeBas requested that LTRC investigate this section of Joor Road to determine the source(s) of the high noise levels and develop abatement methods. There are many sources of noise generated by light and heavy vehicles. The amount of noise varies depending on vehicle type and its travel speed. In higher speed situations, the tire-road contact may account for as much as 80 percent of the noise being generated. Specific to PCC pavement surfaces, depth of tine, width of tine, spacing between tines, and randomness of spacing between tines all affect sound generation.

A comprehensive assessment was conducted on the PCC surface, and noise level measurements were taken using the Pass-by method and on board sound intensity (OBSI) method. Sound level measurements based on the Pass-by method indicated the sound levels were excessive when compared to DOTD's Highway Traffic Noise Policy for residential areas. Sound level measurements from the OBSI assessment also indicated that sound levels generated by the tire/road contact were excessive with values as high as 110.6 dBA. Tine parameter analysis implied that the sources of excessive noise level emissions were due to excessive tine widths, non-randomness of spacing between tines, and the spacing intervals between the tines.

### I-10, Effect of Skidabrasion on Asphaltic Concrete Pavement

This section of I-10 had limestone in the wearing course, which in some instances can polish over time resulting in reduced friction characteristics. An experiment was conducted to determine the change in friction characteristics due to the

Skidabrasion process. A control section where no skidabrasion took place as well as treated section where skidabrasion took place on this section of I-10 was established and tested periodically over a 39 month period.

The results of the testing indicated that friction numbers in the treated section were generally in the satisfactory friction range and larger than the friction numbers in the control section. Based on the test results, it can be implied that the skidabrasion process was effective in improving the friction characteristics of the AC surface on this project.

### LA 21, Concrete Pavement Assessment

LA 21 has been in service for 20-plus years in St. Tammany and Washington Parishes. The District was considering several rehabilitation alternates for this project, including a thin asphaltic concrete overlay. LTRC was asked to assess the condition of the Portland cement concrete pavement to determine if it was a good candidate for that treatment.

An in-depth assessment of the concrete pavement was conducted using the high speed profiler and falling weight deflectometer (FWD). The results from profiler testing indicated that the project had IRI values ranging from 222 to 283. Joint faulting was significant as well, with the percentage of joints with faulting greater than 0.2 in. ranging from 21.5 to 66.9. Such values indicate that the project was rough and that faulting at the joints requires mitigation. FWD testing results indicated that only 41.8 percent of the joints had good load transfer. The remaining 58.2 percent are not good candidates for concrete pavement restoration techniques such as asphaltic concrete overlays since service life reduction or premature failures are likely to occur at those locations. This project was showing signs of severe distress; therefore, major rehabilitation such as pavement replacement or rubblization may be warranted.

cont. on pg. 27

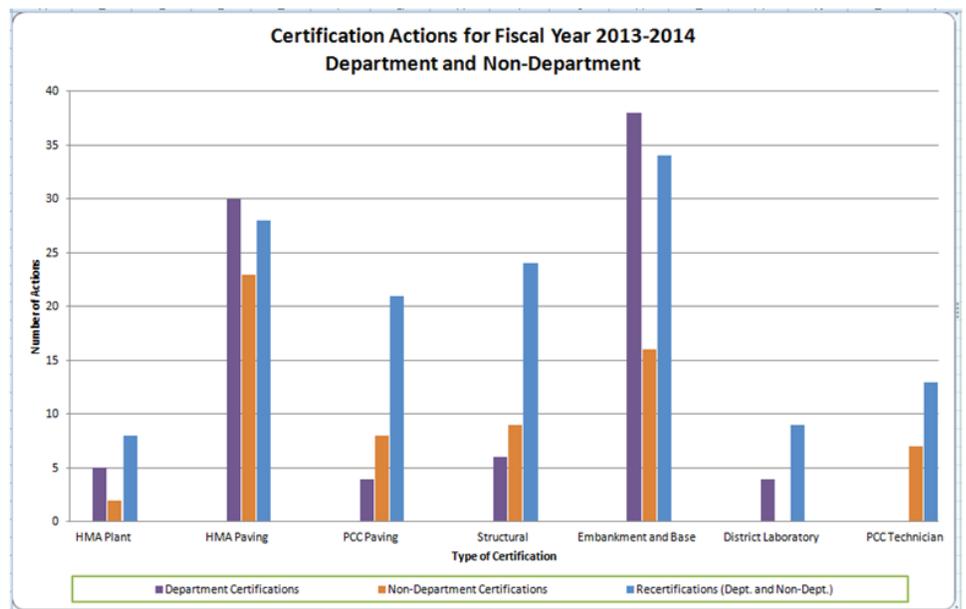
# Education & Training

Because training is a necessary component of career advancement, 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 the individual working in the transportation industry.

LTRC manages DOTD's Structured Training Program; develops maintenance and construction 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.

## DOTD Structured Training Unit

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 work force 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.

- Awarded 153 new construction certifications – processed 142 re-certifications

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.

## Course Development

There were 18 courses/projects developed or revised during this time period.

### Construction Training Course/Projects Completed

- *Introduction to Pile Driving Inspection* manual
- *Introduction to Base Course Inspection* - On-line Course
- *Introduction to PCC paving Inspection* - On-line Course
- *Introduction to Structural Concrete Inspection* On-line Course
- *Introduction to Embankment and Base Course Inspection* - On-line Course
- *Mathematics for Construction Personnel Volume 1* – revision
- Revision of Asphalt Plant training program and Asphalt Plant Accreditation program
- Aggregate Tester Program
- Training Laboratory

### Maintenance Courses/Projects Completed

- Motor Grader SOCL revision
- Crawler Tractor (Bulldozer) SOCL
- Utility Terrain Vehicle SOCL
- Track Backhoe SOCL
- Revised STP for District Sign Specialists

### Other Projects Completed

- *Facilitation Skills* - Revision
- *EEO Biennial Meeting* – Web based course
- *LEO/LSO User Manual*
- *LaGov Training Coordinator Instruction Manual*

## Presentations/Classes

- 3 Basic Flagging Procedures
- 1 Traffic Control Through Maintenance Work Areas classes
- 1 Superpave Mix Design and Analysis classes – 12 students
- 4 Highway Plan Reading Volume I class
- 1 Highway Plan Reading Volume II class
- 7 Project Management Classes
- 3 Email Etiquette classes
- 1 Facilitation Skills
- Process Mapping
- Aerial Lift/Scaffolding/Personal Fall Arrest Systems
- 4 Discover the Power of Workplace Trust and Respect
- 4 LTAP Site Manager classes

### On-Going Projects

There are 23 training course projects current/on-going.

### Construction Current/On-Going Projects

- Revision of *Structural Concrete Inspection Volumes I and II* manual
- *PCC Paving Inspection* manual and supporting materials
- *PCC Plant Inspection* manual and supporting materials
- *PCC Mix Design* manual and supporting materials
- Numerous lab procedure instructional training videos
- Introduction to Standard Specifications for Roads and Bridges–2013 edition
- Updating Specialty Area and Recertification tests
- Revision of *Application of Quality Assurance for Asphaltic Concrete Mixtures*
- Revision of *Application of Quality Assurance for Portland Cement Concrete and Structures*
- Revision of *Application of Quality Assurance for Embankment and Base Course*
- Management of the Inspector/Technician Certification Program for DOTD and the Louisiana Transportation Industry
- *Math for Construction Personnel Volume 2* - revision

### Maintenance On-Going Projects

- Revision of *Maintenance Planning Manual* and development of instructor-led course for Maintenance Planning
- Revisions/updates for current equipment Safe Operating Checklists
- Training Upgrade Proposal for District Sign Specialists
- Development of in-house training to replace TPC manuals
- Revisions/Updates to IRF courses
- *Maintenance of Signs and Sign Supports Manual*
- *Practical Electricity Series*

### Other Projects On-Going

- *Basic Business Math*
- *How to Prepare an Annual Budget*
- *How DOTD Works*
- *Project Management Handbook*

## LTRC Transportation Curriculum Council

The purpose of the committee and related subcommittees is to advise and assist LTRC in the identification, prioritization, development, evaluation, and implementation of transportation related technology transfer, training, workforce development, and educational services for DOTD and its public and private transportation industry partners.

The LTRC Transportation Curriculum Council (TCC) held its first meeting on September 1, 2010 and continues to meet quarterly. It has an active council consisting of 12 members from Louisiana State University, transportation partners and DOTD management. There are six subcommittees from: Engineering, Operations, Multimodal Planning, Management and Finance, Core Skills and Leadership and Outreach.

Over the last year, the TCC, with the assistance of the LTRC training team, reviewed and approved revisions to all Headquarters section's Structured Training Programs (STP), as well as several district training programs. During the 2013-14 fiscal year, 68 STPs were revised and 4 STPs were deleted. New training and process and procedures are approved by the TCC before implementation.

## 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 126 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 51 employees were reviewed and exceptions granted this year.
- Testing – Testing sessions are held 3 times a month for self-study courses. Employees were given 152 tests for different courses this year.
- Training – This year classes were conducted to train 139 employees in topics to include: Basic Flagging; Lockout/Tag out; Traffic Control through Maintenance Work Areas; ABC's Work Zone Safety; Duties of Personnel Assigned to Movable Bridges; and various safety topics.

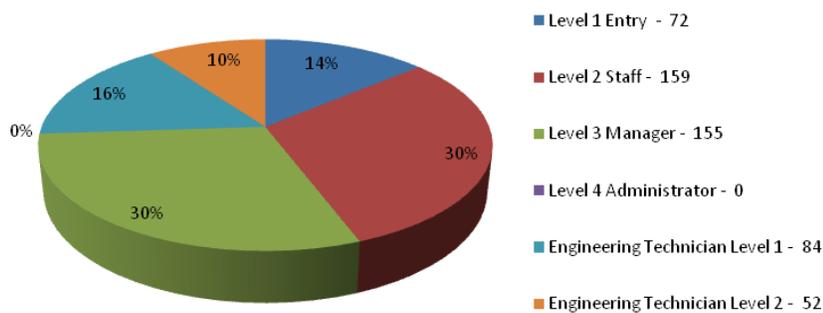
## Management Development Training Program

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 not covered by other DOTD training programs.

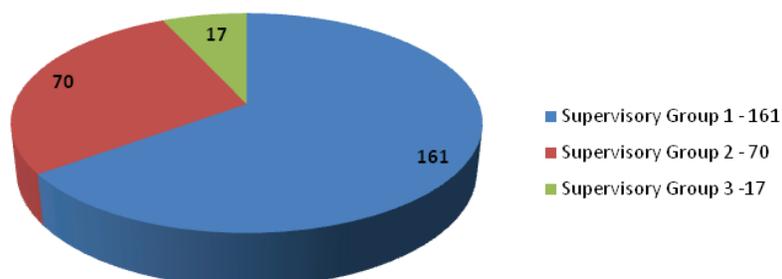
During Fiscal Year 2013-2014, courses for these training programs were delivered through several sources: the Civil Service Comprehensive Public Training Program (CPTP); the DOTD Human Resources Section; and in-house training courses developed by LTRC.

There were 522 employees actively participating in the Management Development Training Program in FY 2013-2014. There were 248 employees actively participating in the CPTP Civil Service Supervisory Group Training Program in FY 2013-2014.

**Management and Development Structured Training Program**



**Civil Service CPTP Supervisory Groups**



# Transportation Training & Education Center

The Transportation Training and Education Center (TTEC) 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. Through this facility, LTRC is expanding the scope and availability of training, thereby serving a larger population.

TTEC's strategy is to assist and enable workforce development using principles of strategic human capital improvement. The goals of this strategy are to: create and provide sound training, transition current classes/training into the distance learning environment where appropriate, and incorporate instructional design concepts, utilizing the talents of formally trained designers to update and modernize courses.

## Active Projects

- Continued research & development of the Leadership Development Institute Classes
- Transformational Leadership class
- External course contract management (e.g. Pavia Systems, Inc.; NE Roundabouts; Deighton Associates)
- TRAC and RIDES Program Implementation and Evaluation
- Technology upgrades for classrooms
- UNO Computer classes contract
- LSU CADD classes contract
- ATSSA Work Zone contract
- ATSSA Sign Installation Pilot Class
- RFP's for ArcGIS, Confined Spaces, Nuclear Gauge & Radiation and Mechanic's classes
- Management of the Individual Registration Fund
- Scheduling National Highway Institute (NHI) Training
- Assisting in the conference planning/management of NTTD 2014 to be held September October 26 – 30, 2014 in Florence, AL



## Completed Projects

- Leadership Development Institute—Completed course 3 and completed pilot of course 4
- Emotional Intelligence course completed
- TRAC and RIDES training workshop hosted and completed; TRAC and RIDES packages distributed to 18 area schools.
- 88 UNO Computer classes with an attendance of 1011 Students
- 29 MicroStation classes with an attendance of 270 Students
- NHI Course Offerings - 10 Course Offerings; Total of 180 Participants; 253 Contact Hours
- Conference planning/management of the Southeastern Association of State Highway Transportation Officials (SASHTO) 2014 Conference (August 2014, New Orleans)
- Individual Registrations – 464 individuals processed
- Workshops and Conferences – 9 Workshops/Conferences/Seminars; Total of 690 Participants
  - *Research Advisory Committee/TRB State Representative Annual Meeting (July 2013)*
  - *LA Statewide Transportation Plan Update (July 9-11, 2013)*
  - *LA Statewide Transportation Plan Update (July 23-25, 2013)*
  - *Secretary LeBas' Executive Retreat (October 2013)*
  - *LA Statewide Transportation Plan Update (October 1-2, 2013)*
  - *National Transportation Training Directors (NTTD) Conference (October 2014)*
  - *Sustainable Pavement Working Group (November 2013)*
  - *LA Statewide Transportation Plan Update (January 22-23, 2014)*
  - *2014 Transportation Safety Summit*

# LTAP

The Louisiana Local Technical Assistance Program (LTAP) is one of 58 centers operating nationally to serve the local and tribal transportation agencies. Louisiana LTAP serves DOTD and Louisiana's local agencies by providing technical training, safety training, technical assistance, and technology transfer. To achieve our objectives, LTAP works in direct partnership and cooperation with our national, state, and local partners to identify needs, develop materials, and implement programs.

LTAP continued its strong partnership with DOTD to provide expanded services and technical assistance to Louisiana's local transportation agencies. This collaboration included development and delivery of additional modules of the Local Public Agency Training Program. These classes are designed to assist the agencies that utilize federal transportation funds for local road projects as they begin the process from the idea and application stage through the final project inspection and closeout. This major effort required the input and participation of numerous offices across DOTD that interact in the project development and delivery process. The initial classes, the Core Training for LPA's and the Construction, Engineering, and Inspection class, were rolled out beginning in 2012. The third class, Project Planning, Feasibility and Application Development, was presented statewide in the spring of 2014. The final class in the series, Project Design & Delivery: Developing an LPA Project for Bidding, is set to debut in early 2015. Feedback from participants has been overwhelmingly positive with many attendees suggesting ideas for more training on this important topic.

Local bridges is another area that has always received significant attention from local agencies and DOTD. Louisiana has thousands of bridges owned and managed by local agencies. A combination of aging infrastructure and new performance metrics has brought this issue to the forefront across the country. LTAP has been working with local stakeholders and the DOTD Bridge Inspection and Maintenance and Bridge Design Sections to identify the most critical issues and develop approaches to meet federal and state mandates. Plans include a process for data development and compilation; investigation of bridge repair and rehabilitation techniques; enhanced training on bridge inspection and management; and increased communication between all stakeholders. In addition, LTAP has worked with the Louisiana Parish Engineers and Supervisors Association (LPESA) to identify statewide needs and organize the parishes to participate in implementing the new initiatives.



NACE delegates enjoyed the tour of the John James Audubon Bridge during their conference in April



Instructors from DOTD's Sign Shop and LTAP discussed lead a session of Roads Scholar course Basic Sign Installation

cont. on page 21

# Tech Transfer

As LTRC's formal research program continues to investigate solutions to Louisiana's 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.

## LTRC Opens New Training Lab Near BRCC



As part of the newly integrated Highway Engineering Technology curriculum carried out by LTRC and Baton Rouge Community College, an 892-square-ft. space has recently been transformed into a premier, state-of-the-art training laboratory for DOTD and BRCC students.



Because of a greater demand for diversity in technician training as well as a demand for workers that can begin jobs as trained employees, LTRC recently partnered with BRCC to create a curriculum that leads to an Associate Degree or a Certificate

While DOTD and BRCC do have available classroom space, there were no laboratory facilities that could be dedicated for this training. Fortunately for the program, space was available at the DOTD Materials Laboratory, which sits on the edge of BRCC's campus. This space was ideal because it is within walking proximity to BRCC, and there is a classroom down the hall from the space. Once approval was given to build the laboratory, Michael Elliott, a department engineering technician assigned to training, began designing and equipping it for students.

"With the training, students who finish this program can be hired at a higher level and for higher pay. These students would also be provided with the means to work during school, to give them the necessary field experience," says Twiner. "The laboratory will be accredited, has distance learning capabilities, and the ability to film testing procedures for training purposes and broadcasting. The laboratory has all the equipment needed to perform all aspects of asphaltic concrete testing."

Training in this lab will be performed by subject matter experts. Currently, Elliott will run the training lab and teach classroom and lab sessions for asphalt as needed. Because the facility was funded by LTRC and is on DOTD property, this lab will also be used to train department and industry personnel to become asphaltic concrete plant inspectors and technicians. This training would be part of the current Construction Certification Program already in place.

and allows students to take all of the necessary courses for construction certification in order to have the training needed before beginning work at DOTD or in the industry. However, in order to successfully train a student to become a successful technician, students need to obtain laboratory testing training as well.

Structured Training Director Cindy Twiner explains, "It was decided that a new, centrally located facility was needed since most of the construction training DOTD provides to its employees and to the construction industry has traditionally been taught out of the district training offices. This does not allow for hands-on laboratory training due to space constraints in the district as well as disruption to ongoing operations. Plus, BRCC students would not be able to travel to the districts."

## Support for Higher Education

LTRC coordinates the statewide DOTD Engineer Resource Development Program (ERDP), which provides structured rotational training for entry-level engineers. LTRC also manages the Cooperative Education Program for engineering students, a cooperative endeavor between DOTD and universities within Louisiana to employ full-time university students to perform engineering work and receive practical experience in the field of civil and transportation engineering. During 2013-2014, 5 people participated in the ERDP and 34 participated in the Cooperative Education Program. In addition, 56 graduate students were supported through LTRC research projects during 2013-2014.

LTRC also facilitates the DOTD Support Program for Civil Engineering Studies, a cooperative endeavor between DOTD and Louisiana state universities with civil engineering programs. It provides practical experience to civil engineering students who select transportation-related topics among their engineering design courses. DOTD supports this program financially, and universities grant academic credit to its participants. The senior design capstone projects are transportation-related and are included in courses for which senior-level students receive a grade. At the end of the senior design project, participants provide copies of the final report to LTRC and give a 15-20 minute presentation. Two universities participated in this program during 2013-2014: Louisiana Tech and the University of Louisiana at Lafayette.

## LTAP (continued)

LTAP's partnership with LPESA was fully evident when the National Association of County Engineers (NACE) Annual Conference came to Baton Rouge in April 2014. LTAP provided extensive support to LPESA and NACE to plan the technical program, the technical tours including the new Mississippi River Audubon Bridge, and on-site registration and logistics. LTAP's Director, Marie Walsh and a partner from LTRC's training section led a general session on An Inside – Out Approach to Improving Performance, which was rated as one of the most popular and effective of the whole conference. LTRC's event planning staff also provided support for this event.

LTAP continued its strong presence and leadership in the Louisiana traffic safety community through the Local Road Safety Program (LRSP) and as a member of the Louisiana Strategic Highway Safety Plan (SHSP) Implementation Team. The Local Road Safety Program provided local road data analysis and problem identification as well as project development and delivery to local agencies. Further technical assistance was provided to the Infrastructure Teams for the five Regional Safety Coalitions as well as extensive support during the formation of the newest safety Coalition in the Capital area. Many of these enhanced services were made possible by the newly hired LRSP Manager.

LTAP's traditional training program over the year included work zone safety classes, basic supervisory skills, safety for the public works employee and a new class for supervisors and team leaders entitled, "Creating a Safety Work Environment." LTAP also hosted numerous webinars and virtual training opportunities and coordinated with DOTD and other stakeholders on professional development opportunities across the state.

# 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 2013-2014, LTRC published 20 technical summaries and final reports, 21 project capsules, 1 technical assistance report, and 4 Technology Today newsletters. For a complete listing of publications and presentations by all LTRC personnel, please visit our Web site at [www.ltrc.lsu.edu/pdf/13\\_14publications.pdf](http://www.ltrc.lsu.edu/pdf/13_14publications.pdf).

## Final Reports & Tech Summaries

LTRC No.	Title
13-8SS (525)*	The Impact of Modifying the Jones Act on US Coastal Shipping
05-1GT (520)	Field Demonstration of New Bridge Approach Slab Designs and Performance
10-1SS (502)	Evaluation of Knowledge Transfer in an Immersive Virtual Learning Environment for the Transportation Community
13-2P (508)	A Comprehensive Study on Pavement Edge Line Implementation
04-6B (499)	Characterization of Louisiana Asphalt Mixtures Using Simple Performance Tests and MEPDG
10-5SS (503)	Developing Inexpensive Crash Countermeasures For Louisiana Local Roads
05-5ST (472)	Development and Performance Evaluation of Fiber Reinforced Polymer Bridge
12-3PF (512)*	STC Synthesis of Best Practices for Determining Value of Research Results
12-5PF (511) *	STC Synthesis of Research Results for Water Quality Management at Construction Sites
13-8GT (514)	Bayou Corne Sinkhole: Control Measurements of State Highway 70 in Assumption Parish, Louisiana
10-6B (505)	Implementation of GPC Characterization of Asphalt Binders at Louisiana Materials Laboratory
04-4B (453)	Development of a Design Methodology for Asphalt Treated Mixtures
10-1ST (509)	Load Distribution and Fatigue Cost Estimates of Heavy Truck Loads on Louisiana State Bridges
03-2GT:ALF-4 (475)	Accelerated Loading Evaluation of Foamed Asphalt Treated RAP Layers in Pavement Performance
09-5C (493)	Evaluation of Non-Destructive Technologies for Construction Quality Control of HMA and PCC Pavements in Louisiana
10-3SS (510)	LTRC Automated Enforcement and Highway Safety
11-2SS (507)	Measuring the Effectiveness of Ramp Metering Strategies on I-12
04-5B (513)	Evaluation of Open Graded Friction Course (OGFC) Mixtures
08-3SS (506)	Developing Louisiana Crash Reduction Factors
05-1B (432)	Evaluation of Superpave Mixtures Containing Hydrated Lime

\*Indicates no accompanying Technical Summary

Visit [www.ltrc.lsu.edu/publications.html](http://www.ltrc.lsu.edu/publications.html) to download any of our reports, summaries, or capsules.



## Technical Assistance Report

LTRC No.	Title
03-01-TA-B	Evaluation of Rutting Distresses on I-20 near Mound to Delta Scales

## Project Capsules

LTRC No.	Title
12-1B	Evaluation of Asphalt Mixtures Containing Recycled Asphalt Shingles
14-4C	Evaluation of Bonded Concrete Overlays over Asphalt under Accelerated Loading
14-3SA	Developing a Method for Estimating Traffic Volumes on Local Roads in Louisiana
14-3PF	STC Synthesis of Transportation Funding Sources and Alternatives in the Southeastern States Now and in the Future
14-1GT	Calibration of Region-Specific Gates Equation for LRFD
14-1PF	Best Practices for Achieving and Measuring Pavement Smoothness, a Synthesis of State-of-Practice
14-2PF	STC Synthesis of Real-time Driver Information for Congestion Management
14-2SS	DOTD Support for UTC Project: A Simulation Model for Intermodal Freight Transportation in Louisiana
14-4SS	Identifying Local Transit Resources for Evacuation
14-2GT	Testing Protocol for Predicting Driven Pile Behavior within Pre-bored Soil
13-6GT	DOTD Standards for GPS Data Collection Accuracy
14-4PF	Mitigation Strategies for Reflective Cracking in Pavements
12-1SS	DOTD Support for UTC Project: Traffic Counting Using Existing Video Detection Cameras
14-1SS	DOTD Support for UTC Project: Development of an Optimal Ramp Metering Control Strategy for I-12
13-2SS	DOTD Support for UTC Project: Travel Time Estimation Using Bluetooth
14-1SA	DOTD Support for UTC Project: Drugged Driving in Louisiana
14-3C	Laboratory Fatigue Evaluation of Continuously Fiber-Reinforced Concrete Pavement
14-1C	Evaluation of Dowel Bar Alignment and Effect on Long-term Performance of Jointed Concrete Pavement
13-2C	Laboratory Evaluation of 100% Fly Ash Cementitious Systems Containing Ekkomaxx
13-4ST	I-10 Girder Repair Using Post-Tensioned Steel Rods and Carbon Fiber Composite Cables (CFCC)
13-4SS	Highway for Life Demonstration Project: LA 511 (70th Street)



Find us on Facebook at  
[www.facebook.com](http://www.facebook.com)  
Search "Louisiana Transportation Research Center"

Follow us at  
[www.twitter.com/LTRC\\_Updates](http://www.twitter.com/LTRC_Updates)

# Organization & Committee Memberships

## Transportation Research Board Committees/Panels

- TRB Committee AFP40 - Full-Scale Accelerated Pavement Testing
- TRB Committee AFN30 – Durability of Concrete (Chair)
- TRB Committee AFN10 – Basic Research and Emerging Technologies Related to Concrete
- TRB Committee AFN20 – Properties of Concrete (Communication Coordinator)
- TRB Friend Committee AFN40 – Concrete Materials and Placement Techniques
- TRB Friend Committee AFD10 – Pavement Management Systems
- TRB Section AFK 00 – Asphalt Materials
- TRB Committee AFK 40 on Characteristics of Bituminous-Aggregate Combinations to Meet Surface Requirements
- TRB Committee AFK 50 on Characteristics of Bituminous Paving Mixtures to Meet Structural Requirements, Member
- TRB Committee AHD 20 on Pavement Maintenance Committee
- TRB Committee on Soil and Rock Properties (AFP30)
- ANB80T Task Force on Emergency Evacuations
- ABG30 Technology Transfer Committee
- ABG20 Education and Training Committee
- TRB Committee AFD80 Strength and Deformation Properties of Pavement Sections
- TRB Committee AFP60 –Engineering Behavior of Unsaturated Soils
- TRB Committee AFP20 – Committee on Exploration and Classification of earth Materials
- TRB Committee AFS80 – Committee on Cementitious Stabilization.
- TRB Committee AFS10 –Transportation Earthworks
- TRB Committee AFS30 – Foundations of Bridges and Other Structures
- TRB Committee AFS70 – Committee on Geosynthetics
- TRB Committee AFF40 – Field Testing and Nondestructive Evaluation (NDE) of Transportation Structures

- TRB Committee AFK10 – General Issues on Asphalt Technology (Chair)
- TRB Committee A0000 – Technical Activities Council
- TRB Committee A0020T – Special Task Force on Climate Change and Energy
- TRB Committee ABG05T – Task Force on Mastering the Management of Transportation Research and Training Programs
- Research and Technology Coordinating Committee
- 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 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)
- State Representative Advisory Committee

## 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



Recognized for his leadership and distinguished service to the Transportation Research Board (TRB), Harold “Skip” Paul was the 2013 recipient of the W.N. Carey, Jr., Distinguished Service Award. Paul, recognized for his outstanding service to transportation research and to TRB, received the award at the TRB 93rd Annual Meeting in Washington, D.C.

## Training Memberships

- Southeast Task Force on Technician Training and Qualification
- American Society for Training and Development
- National Transportation Training Directors
- TRAC & RIDES National Board Member
- American Educational Research Association
- United States Distance Learning Association
- American Society of Training and Development
- National Council on Measurement in Education
- National Defense Industrial Association

## Library Memberships

- SLA (Special Libraries Association), Transportation Division
- ETKN (Eastern Transportation Knowledge Network)
- Transportation Library Connectivity and Development Pooled Fund Study, TPF-5(237)
- Friend of the TRB-LIST (ABG40) The Committee on Library and Information Science for Transportation
- AASHTO-RAC TKN Task Force

## 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
- 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 (USUCGER)
- Gulf Region Intelligent Transportation Society (GRITS)
- American Institute of Chemical Engineers
- American Concrete Institute
- American Society of Engineering Education (ASEE)
- Association of Asphalt Paving Technologist (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 (Vice-Chair) & Research Advisory Committee (Chair)

# LT'RC Staff

## Office of the Director

Harold "Skip" Paul, P.E., Director  
Toni Daigle, Executive Services Assistant  
Theresa Rankin, Administrative Manager  
Tina Blanchard, Accountant

### External Programs

Vijaya (V.J.) Gopu, Ph.D., P.E., Associate Director

## Research and Development

Mark Morvant, P.E., Associate Director, Research  
Bridget LeBlanc, Executive Services Assistant

### Pavement and Geotechnical Research

Zhongjie "Doc" Zhang, Ph.D., P.E.  
Pavement & Geotechnical Research Administrator

### Pavement Research

Kevin Gaspard, P.E., Pavement Research Engineer Manager  
Mark Martinez, P.E., Pavement Research Engineer Manager  
Mitchell Terrell, Pavement Technician 5  
Shawn Elisar, Pavement Technician 4  
Terrell Gorham, Engineer Technician 3

### Pavement Research Facility - ALF

Zhong Wu, Ph.D., P.E., Assistant Professor - Research  
Accelerated Pavement Research Program Manager  
George Crosby, C.P.C., Pavement Research Facility Manager  
Keith Gillespie, Pavement Research Specialist 3  
Brandon Janet, Pavement Research Specialist 1  
Leticia Courville, Ph.D., E.I., Research Associate 4  
Danny Xiao, Research Associate 4

### Geotechnical Research

Gavin Gautreau, P.E., Senior Geotechnical Research Engineer  
Khalil Hanifa, E.I., Geotechnical Research Engineer  
Douglas Hinton, Geotechnical Technician 2  
Patrick Frazier, Engineering Technician DCL

### Geotechnical Engineering Research Laboratory

Murad Abu-Farsakh, Ph.D., P.E., Associate Professor,  
Research, GERL Manager  
Qiming Chen, Ph.D., Research Associate 4  
Xinbao Yu, Ph.D., Research Associate 3  
Benjamin Comeaux, Research Specialist

### Materials Research

William "Bill" King, Jr., P.E., Materials Research Administrator

### Asphalt Research

Samuel B. Cooper III, P.E., Asphalt Research Engineer  
William Gueho, Senior Asphalt Technician  
Kristi Goetting, Asphalt Technician 5  
Jeremy Icenogle, Asphalt Technician 4  
David Mata, Engineer Intern I

### Concrete Research

Tyson Rupnow, Ph.D., P.E., Concrete Research Manager  
Greg Tullier, Senior Engineering Technician  
Craig Johnson, Engineer Tech 4  
Norris Rosser, Engineer Tech 4  
Zachary Collier, Engineer Intern I

### Engineering Materials Characterization Research Facility (EMCRF)

Louay Mohammad, Ph.D., Professor, EMCRF Manager  
Amar Raghavendra, P.E., Applications Engineering Manager  
Minkyum Kim, Ph.D., Research Associate  
Marcelo Medeiros, Ph.D., Research Associate

### Structures Research

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

### Planning/Intermodal

Chester Wilmot, Ph.D., Associate Professor

### Special Studies

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

## Technology Transfer & Training

Sam Cooper, MSCE, P.E., Associate Director,  
Technology Transfer & Training

David Jumper, IT Technical Support

Angela Benn, Administrative Program Specialist

### Publications & Digital Media Development

Jenny Speights, Public Information Director

Nick Champion, Audio and Video Production

Jenny Gilbert, Technical Writer

Emily Wolfe, Multi Media Specialist

### Technology Transfer

Michael Boudreaux, P.E., Technology Transfer Engineer

## TECHNICAL ASSISTANCE cont. from pg. 13

### Asphalt Group

Major changes have been made to the new Part V Louisiana's Standard Specifications. LTRC's involvement has been paramount, with numerous man hours being spent on the specifications and QA/QC manual development. Mainly, section 502, Asphaltic Concrete Mixtures, received a complete overhaul allowing contractors to conduct their own acceptance of produced and placed asphalt mixtures.

To evaluate and verify these newly developed specifications, six pilot projects were selected to be constructed throughout the state. Full evaluation and testing was conducted on the produced asphalt mixtures and compared to the field cores sampled during the construction process. Results of the evaluation proved that the new specifications were sufficient to ensure the expected performance would be equal or better than current specifications.

### Dowel Bar Alignment

The concrete group provided ongoing technical assistance for dowel bar alignment issues on I-49 and other locations throughout the state. Dowel bar locations are measured using the MIT-SCAN BT. Currently, measurements have been recorded on a selection of joints on nearly every DOTD owned pavement that is over 15 years of age. This evaluation should be completed by this February 2015.

### Structured Training Programs

Cindy Twiner, DOTD Structured Training Director

Karen Cordell, Construction and Materials Program Manager

Rex Ransome, Headquarters Training Program Manager

Candy Cardwell, Training & Development Program Manager,  
Workforce Development Planning

Ted Ball, Training & Development Program Manager

Mike Elliott, Engineering Technician DCL

Keith Beard, Engineering Technician DCL

Kelvin Stone, Training and Development Specialist

Richard W. Black, Training and Development Specialist

John Dean, LSU Teaching Associate

### External Educational Resources

Mary Leah Coco, Ph.D., Transportation Training and Education Center Director

Allison Landry, Training and Development Program Manager

Melissa Lee, Training and Development Specialist

Candace Vallery, Training and Development Program Coordinator

Garrett Wheat, Teaching Associate

Sandy Brady, Librarian

Brenda Wolfe, TTEC Administrative Assistant

Marty Mumphy, Audio Visual Consultant

### Local Technical Assistance Program

Marie Walsh, Ph.D., Director, LTAP

Bob Breaux, LTAP Office Manager

Steve Strength, LTAP Program Manager

Courtney Dupre, Training Program Coordinator

Rudynah E. Capone, Local Road Safety Program Manager

Rick Holm, P.E., Local Road Safety Program Contractor

### Alkali-Carbonate Reactions

The concrete group continued its work on the Alkali-Carbonate Reactions (ACR) issue assisting the pavement group. ACR appeared once again on I-20 near the Mississippi River approach. In addition, several paving and structural projects across Louisiana have also been identified. LTRC is working with the Bridge Maintenance section and Materials Lab section to ensure that all sections have been properly identified are being properly monitored. As a result of these investigations, specifications have been developed and adopted to reduce the risk of an ACR susceptible aggregate being used in concrete applications again.

# LTRC Policy Committee

**Janice Williams, P.E.**

Chief Engineer, DOTD

**Norma Jean Mattei, Ph.D., P.E.**

Chair, Civil and Environmental  
Engineering, University of New Orleans

**Ernest Walker, Ph.D., P.E.**

Dean, College of Engineering,  
Southern University

**Dimitris Dermisis, Ph.D., P.E.**

Assistant Professor, Department of Civil  
Engineering, McNeese State University

**Brian Wolshon, Ph.D., PE, PTOE**

Associate Professor, Louisiana State  
University

**Eric Kalivoda, Ph.D., P.E.**

Deputy Secretary, DOTD

**Kirk Gallien, P.E.**

Deputy Assistant Secretary, Office of  
Operations, DOTD

**Ken McManis, Ph.D., P.E.**

Professor and Head of Department  
of Civil Engineering, University of  
Louisiana at Lafayette

**Nazimuddin "Wasi" Wasiuddin,  
Ph.D., P.E.**

Assistant Professor of Civil Engineering &  
Science, Louisiana Tech University

**Bob Bruce, Ph.D., P.E.**

Catherine and Henry Boh Chair in  
Civil Engineering, School of Science and  
Engineering, Tulane University

**Harold R. Paul, P.E., ex officio**

LTRC Director

**Brandon Buckner, observer**

Federal Highway Administration