LOUISIANA TRANSPORTATION RESEARCH CENTER

LTRC ANNUAL REPORT

2018/19

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 broader 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, environmental studies, safety, ITS, and technology transfer.

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.

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Shawn D. Wilson, Ph.D.
Secretary

LSU

F. King Alexander, Ph.D.
LSU President

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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, 2018–June 30, 2019. The center is sponsored jointly by the Louisiana Department of Transportation and Development and Louisiana State University.

LTRC MAIN BUILDING & LAB FACILITIES

TRANSPORTATION TRAINING & EDUCATION CENTER

PAVEMENT RESEARCH FACILITY

FACILITIES

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 Administration 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.

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 the ATLaS30 for testing rigid pavements.

LTRC is a budget division of the Louisiana Department of Transportation and Development. Funding is a combination of 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 as well as technology transfer and training activities. In addition, you will find completed and active research projects, training accomplishments, 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 completed 21 research projects and has 62 active on-going research projects. Louisiana continues to be the lead state in the Southeast Transportation Consortium and the "Design and Analysis Procedures for Asphalt Mixtures Containing High-RAP Contents and/or RAS" pooled-fund studies. These pooled-fund studies are a collaborative effort between the Federal Highway Administration (FHWA) and state departments of transportation.

LTRC is also committed to leading the Department to the forefront of technology-based applications. In regards to electronic field data collection, one such initiative is the collection of construction inspection records management. Traditionally, inspection records are captured on paper. Doing so can lead to insufficient data collection, time delays, inaccurate data, etc. LTRC embarked on exploring the possibilities of replacing paper-based inspection records with an electronic-based technology called HeadLight. This research was a success and HeadLight was implemented statewide by the Department on July 1, 2019. Within this document, you will find more details concerning this initiative.

Additional highlights of the 2018-2019 LTRC annual report are as follows:

- LTRC conducted research to explore the usage of non-destructive testing (NDT) to determine roadway density during construction. The goal of this research was to improve safety, determine if NDT density determination was as accurate or better than traditional destructive testing, and its economic feasibility.
- Workforce Development completed 19 projects and has 25 on-going projects.
- External Training Program impacted almost 4,000 individuals (departmental, state, local, and transportation community partners) through over 250 programmatic initiatives. The Louisiana Local Technical Assistance Program (LTAP) impacted over 1,800 individuals through various training opportunities this program year.

In the area of technology transfer, LTRC published six final reports and technical summaries, 16 project capsules, two technical assistance reports, and four *Technology Today* newsletters. In addition, LTRC filmed and produced 12 DOTD informational videos and two *Transportation Talk* videos featuring the DOTD Secretary, and edited several other LTRC videos.

Please feel free to follow LTRC's latest news via our website, www.ltrc.lsu.edu, and through social media.

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

COMPLETED RESEARCH

The LTRC research program emphasizes applied research and technology transfer to further knowledge in the field of transportation and to solve transportation problems encountered by DOTD and the general transportation community. Input for research programs is solicited from state and local government, universities, and private industry.

PAVEMENT

12-1P: Assessment of Pavement Distresses Caused by Trees on Rural Highway
Principal Investigator: Kevin Gaspard, LTRC

17-3P: A Decision-Making Tool for Incorporating Sustainability Measures into Pavement Design
Principal Investigator: Marwa Hassan, Louisiana State University

CONCRETE

18-1C: DOTD Support for UTC Project: Evaluation of the Performance and Cost-Effectiveness of Engineered Cementitious Composites (ECC) Produced form Region 6 Local Materials
Principal Investigator: Gabriel Arce, Louisiana State University

18-2C: DOTD Support for UTC Project: Self-Healing Microcapsules as Concrete Aggregates for Corrosion Inhibition in Reinforced Concrete
Principal Investigator: Marwa Hassan, Louisiana State University

BITUMINOUS

15-2B: Support Study for Evaluation of Crumb Rubber Modification of Louisiana Mixtures
Principal Investigator: Willam H. Daly, Louisiana State University

17-2B: Evaluation of Non-Destructive Density Determination for QA/QC Acceptance Testing
Principal Investigator: David Mata, LTRC

18-1B: DOTD Support for UTC Project: Development of a Standard Test Method for Characterization of Asphalt Modifiers and Aging-Related Degradation Using an Extensional Rheometer
Principal Investigator: Nazimuddin Wasiuddin, Louisiana Tech University

18-2B: DOTD Support for UCT Project: Improving Durability and Extending the Service Life of Asphalt Pavements Through the Use of Innovative Light Induced Self-Healing Material
Principal Investigator: Marwa Hassan, Louisiana State University

18-3B: DOTD Support for UTC Project: Development of Self-Healing and Rejuvenating Mechanisms for Asphalt Mixtures Containing Recycled Asphalt Shingles
Principal Investigator: Marwa Hassan, Louisiana State University

GEOTECHNICAL

11-3GT: Accelerated Load Testing of Geosynthetic Base Reinforced Pavement Test Sections
Principal Investigator: Murad Abu-Farsakh, LTRC

18-2GT: DOTD Support for UTC Project: Prediction and Rehabilitation of Highway Embankment Slope Failures in a Changing Climate
Principal Investigator: Navid Jafari, LSU

18-3GT: DOTD Support for UTC Project: Synthesis of Fault Traces in SE Louisiana Relative to Infrastructure
Principal Investigator: David Culpepper, Consultant

SPECIAL STUDIES

16-5SS: Diverted Traffic Measurement
Principal Investigator: Ravindra Gudishala, LTRC

17-4SS: Dredging Louisiana's Navigable Waterways - A Statewide Systematic Approach to Meeting Dredging Needs
Principal Investigator: Mohan Menson, GIS Engineering, LLC

17-6SS: Evaluation of HeadLight: An E-Construction Inspection Technology
Principal Investigators: Mary Leah Coco and Tyson Rupnow, LTRC

18-2SS: DOTD Support for UTC Project: Recruiting, Retaining, and Promoting for Construction Careers at Transportation Agencies
Principal Investigator: Chao Wang, LSU

18-1SS: DOTD Support for UTC Project: Promoting Economic Development in the Baton Rouge Area, LA: Improving the Performance of the Transportation System through Supply-Oriented, Demand-Oriented and Economic Measures for Mitigating Traffic Congestion
Principal Investigator: Ravindra Gudishala, LSU

STRUCTURES

18-2ST: DOTD Support for UTC Project: Bridge Inspection with Unmanned Aerial Vehicles
Principal Investigator: Paul Darby, ULL

18-1ST: DOTD Support for UTC Project: A Comprehensive Framework for Corrosion Damage Monitoring and Reliability-Based Repair Design of Reinforced Concrete Structures
Principal Investigator: Ayman Okeil, Louisiana State University

SAFETY

16-1SA: Highway Construction Work Zone Safety Performance and Improvement in Louisiana
Principal Investigator: Helmut Schneider, LSU

18-1SA: Economic Effect of Restricted Crossing U-Turn Intersections in Louisiana
Principal Investigator: Helmut Schneider, LSU

ACTIVE RESEARCH

BITUMINOUS (ASPHALT)

15-1B	Evaluation of Crumb Rubber Modification of Louisiana Mixtures	Saman Salari	LTRC
17-1B	Field Implementation of Handheld FTIR Spectrometer for Polymer Content Determination and for Quality Control of RAP Mixtures	Nazimuddin Wasiuddin	LTU
17-4B	Development of a 4.75-mm Asphalt Mixture Design	Saman Salari	LTRC
18-4B	Effect of Increased Asphalt Pavement Density on its Durability	Louay Mohammad	LTRC/ LSU
18-5B	Evaluation of Asphalt Rubber and Reclaimed Tire Rubber in Chip Seal Applications	Mostafa Elseifi	LSU

CONCRETE

14-4C	Evaluation of Bonded Concrete Overlays over Asphalt under Accelerated Loading	Zhong Wu	LTRC
14-5C	DOTD Support for UTC Project: Development of Rapid PCC Pavement Repair Materials and Construction Techniques	Hak-Shul Shin	Southern University
17-1C	Effect of Clay Content on Alkali-Carbonate Reactive (ACR) Dolomitic Limestone	Jose Milla	LTRC
18-6C	Influence of Internal Curing on Measured Resistivity	Jose Milla	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
19-1PF	Synthesis on Documenting and Tracking Research Implementation	Husam Sadek	LSU
19-2PF	Synthesis on the Contributing Factors and Effective Countermeasures for Low Volume Roadway Fatality Rates in the Southeast	Nikiforos Stamatiadis	Univ. of Kentucky Research Foundation
19-3PF	Synthesis on the Best Practices for State DOTs to Determine Project Delivery Time, Project Management, and Ratio of Consultant to In-House Design	Amirhosein Jafari	LSU

GEOTECHNICAL

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
13-9GT	CORS 911: Continuously Operating Reference Stations for the Bayou Corne Sinkhole	J. Anthony Cavell	LSU
15-1GT	pLog Enterprise - Enterprise GIS-Based Geotechnical Data Management System Enhancements	Scott Deaton	Dataforensics, LLC
16-1GT	LADOTD Geotechnical Design Manual	Ed Tavera	GeoStellar Engineering, LLC
16-6GT	Incorporating the Site Variability and Laboratory/In-situ Testing Variability of Soil Properties in Geotechnical Engineering Design	Murad Abu-Farsakh	LTRC
17-2GT	Update the Pile Design by CPT Software to Incorporate Newly Developed Pile-CPT Methods and Other Design Features	Murad Abu-Farsakh	LTRC
18-1GT	Analysis of Driven Pile Capacity within Pre-bored Soil	Shengli Chen	LSU
18-4GT	Geotechnical Asset Management for Louisiana	Gavin Gautreau	LTRC
19-2GT	Quality Control/Assurance on Base Course and Embankment with the Dynamic Cone Penetrometer	Nick Ferguson	LTRC
19-1GT	Maintenance of Roadway Edge Drop-Off Utilizing Readily Available Materials	Gavin Gautreau	LTRC

STRUCTURES

14-1ST	Evaluating Louisiana New Continuity Detail for Girder Bridges	Ayman Okeil	LSU
15-3ST	Rehabilitation of Deteriorated Timber Piles using Fiber Reinforced Polymer (FRP) Composites	Hota GangaRao	West Virginia University
16-1ST	Retrofit of Existing Statewide Louisiana Safety Walk Bridge Barrier Railing Systems	William Williams	Texas A&M (TTI)
16-2ST	Field Monitoring and Measurements Education: A Model for Civil and Environmental Engineering	Vijaya Gopu	LTRC
16-4ST	Overheight Impact Avoidance and Incident Detection System	George Voyiadjis	LSU
18-4ST	Load Rating of Existing Continuous Stringers on Louisiana's Bridges	C. Shawn Sun	Louisiana Tech University
18-5ST	Investigating Available State-of-the-Art Technology for Determining Needed Information for Bridge Rating Strategies	Afshin Karshenas	FDH Infrastructure Services, LLC

ACTIVE RESEARCH, *CONTINUED*

SAFETY

16-5SA	Highway Work Zone Construction Safety Research and Training: A Driving Simulator Study	Yimin Zhu	LSU
17-1SA	Evaluating the Effectiveness of Regulatory and Warning Signs on Driver Behavior near Highway/Rail Crossings	Julius Codjoe	LTRC
18-2SA	Louisiana's Alcohol-Impaired Driving Problem: An Analysis of Crash and Cultural Factors	Eva Shipp	Texas A&M Transportation Institute
18-4SA	Intersection on Horizontal Curves: Problems and Potential Solutions	Xiaoduan Sun	ULL
18-5SA	Evaluating Pedestrian Crossings on High Speed Urban Arterials	Julius Codjoe	LTRC
19-1SA	Evaluation of Counting Device for Pedestrians and Bicyclists	Yasser Isamail	Southern University

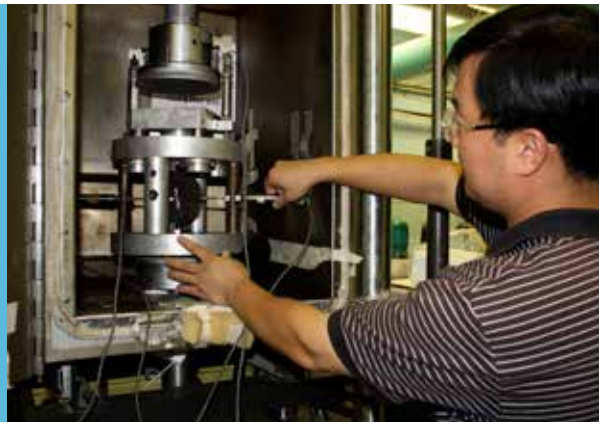
SPECIAL STUDIES

10-6SS	Establishing an Intelligent Transportation Systems (ITS) Lab at LTRC (Phase II)	Julius Codjoe	LSU
14-3SS	Development of a Mode Choice Model to Estimate Evacuation Transit Demand	Chester Wilmot	LTRC
15-2SS	Cost and Time Benefits for using Subsurface Utility Engineering in Louisiana	Kirk Zeringue	LTRC
17-1SS	Economic Evaluation of Applicants to the Port Construction and Development Priority Program	James Richardson	LSU
17-3SS	Hurricane Evacuation Modeling Package	Chester Wilmot	LSU
17-5SS	Development of Guidelines for Ramp Metering Implementation and Performance Evaluation on I-12	Osama Osman	LSU
18-3SS	Evaluation of DOTD's Existing Queue Estimation Procedures	Julius Codjoe	LTRC
18-4SS	Trip Generation Modification Factors for Louisiana	Chester Wilmot	LTRC
18-6SS	An Assessment of LADOTD'S Consultant Plan Development and Performance Rating Process	Ron Hamilton	Dye Management Group
19-4SS	The Impact of the Louisiana Rail Infrastructure: A System Analysis and Plan	Bethany Stich	UNO
19-2SS	Determining Louisiana's Roundabout Capacity	Julius Codjoe	LTRC

PAVEMENT

12-2P	Assessment of Environmental, Seasonal, and Regional Variations in Pavement Base and Subgrade Properties	Kevin Gaspard	LTRC
12-11P	Field Validation of Equivalent Modulus for Stabilized Subgrade Layer	Mark Martinez	LTRC
14-2P	Assessment of Structural Capacity Indicators from Rolling Wheel Deflectometer Data Collection in Louisiana	Mostafa Elseifiw	LSU
16-2P	Transportation Infrastructure Asset Damage Cost Recovery Correlated with Shale Gas/Oil Recovery Operations in Louisiana	Zhong Wu	LTRC
16-5P	Pavement Service Life Extension Due to Asphalt Surface Treatment Interlayer	Mohammad Khattak	ULL
16-6P	Quality Management of Cracking Distress Survey in Flexible Pavements Using LTRC Digital Highway Data Vehicle	Zhong Wu	LTRC
17-1P	Improving the Use of Crack Sealing to Asphalt Pavement in Louisiana	Mostafa Elseifi	LSU
18-1P	Exploration of Drone and Remote Sensing Technologies in Highway Embankment Monitoring and Management	Zhongjie Zhang	LTRC
18-2P	Mitigating Joint Reflective Cracks using Stone Interlayers: Case Study on Louisiana Highway 5, Desoto Parish	Kevin Gaspard	LTRC
18-3P	Best Practices for Assessing Roadway Damages Caused by Flooding	Minjiang Tao	WPI
18-4P	Cost-Effective Detection and Repair of Moisture Damage in Pavements	Mostafa Elseifi	LSU
19-1P	Application of Mechanistic-Empirical Pavement Design Approach into RCC Pavement Thickness Design	Zhong Wu	LTRC
19-2P	Mechanistic Characterization of Asphalt Overlays for Pavement Rehabilitation and Preservation using Pavement ME Approach	Zhong Wu	LTRC

During fiscal year 2018-19, 59 students (undergraduate and graduate) were supported by LTRC research projects. LTRC staff and contract researchers published 65 journal articles and completed over 50 presentations at national and international conferences.



RESEARCH HIGHLIGHTS

RESEARCH LEADS TO DEPARTMENT-WIDE IMPLEMENTATION OF ELECTRONIC FIELD DATA COLLECTION

Project inspection and delivery are challenging, resource-intensive jobs; however, the quality and accuracy of collected field data is crucial. As the world continues to move toward digital solutions and paperless environments, researchers at LTRC explored possibilities of replacing paper inspection with a new e-construction technology, HeadLight.

This technology allows project inspectors and engineers to see how collecting real-time project data assists with communication and minimizing risk. With the use of a tablet, photo/video capabilities, equipment/personnel tracking, automatic geolocation, and timestamping can be stored digitally and made available to all parties during the life of the project.

Across the state, DOTD has relied on a primarily paper-based process for field data collection, but researchers believed that electronic collection and utilization of data from the beginning to end of a construction project could be more efficient and economical. Benefits would include increased quality and accuracy of inspection data, reduced claims risk, and increased field-inspection productivity.

Over 50 construction projects were involved in piloting HeadLight; they were selected based on the research team's consultation with DOTD construction personnel. HeadLight was utilized through leased equipment and set up to match DOTD reporting requirements for materials and pay items. Extensive training on how to use the equipment was delivered throughout the state, and other micro-tutorials and technical support were available at all times. The amount of time spent on field inspection, the timeliness of daily report submissions, the quality of collected data, and the abatement of claims risk were all evaluated through this research, in addition to an examination of past performance of HeadLight e-construction technology applications in other states.

Lester Fletcher, DOTD Engineering Technician 5, experienced how HeadLight can help him to take his construction inspection to the next level. "The ability to add images and video to my daily work reports gives me a stronger position for my observations in the field. The ability to add annotations to the images proved to be a huge benefit to my projects," Fletcher explained. "I am able to add dimensions and plan data to the images—this information can be tagged and recalled with a built-in search feature. The ability to recall past observation data has made my job much more efficient."

DOTD Area/Site Manager Engineer Matt Jones explained, "Field personnel have already stated that they are able to spend more

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RESEARCHERS EXPLORE SAFER DENSITY MEASURING OPTIONS

New non-destructive methods prove to cut costs, increase safety, and show same or better accuracy in determining a road's density

The density of soil and asphalt layers is often considered the most important component in the construction of durable, long-lasting roads. To meet density requirements, contractors and transportation agencies follow quality control (QC) and quality assurance (QA) procedures to ensure specifications are met, and performance is achieved. However, many contractors and DOTD personnel have voiced concerns over the unsafe, expensive, and time-consuming issues regarding the current density measures. As a result, local geotechnical and asphalt research groups came together to find solutions. LTRC researchers David Mata, P.E., Nicholas Ferguson, E.I., and Saman Salari launched a study to test new non-destructive methods, making LTRC one of the first research departments to initiate this type of study and approve the use of non-nuclear density gauges for asphalt density testing.

"The goal here was to implement a novel, safe, and quick method to replace the current ways to distinguish the density of the roads. It is very important to determine the densities of the roads in order to pay the contractors for the work they have done," explained Salari.

The current methods used to measure density include placing a nuclear density gauge (NDG) on a pavement or taking asphalt cores from new pavement. However, these procedures typically show problems such as nuclear radiation, decreased safety, additional training requirements, special storage and handling, damage to the fresh pavement, long testing times, and small sample sizes.

Ferguson explained, "Non-destructive methods are trying to fix these issues. In the geotechnical group's point of view, research was to see if we could use a device that reduces the utilization of radiation."

Researchers explored the potential of non-destructive methods (low- to non-nuclear gauges) to overcome the disadvantages of the current NDG and core sample method. "Low- to non-nuclear gauge methods offer advantages of economic savings, faster data measurement, no intense federal regulations, lesser safety concerns, no extra licensing and intense training, improved calibration techniques, non-destructive testing, faster testing times, and increased density measurements throughout the entire paving project," explained Mata.

To compare the current methods against the new non-destructive methods, a validation study was conducted. The geotech and asphalt groups evaluated two types of density gauges along with typical coring (for asphalt) and density measurements. For asphalt, the density gauges were nuclear and non-nuclear (electric pulses), and for geotech, the density gauges were nuclear and low nuclear (smaller gamma source).

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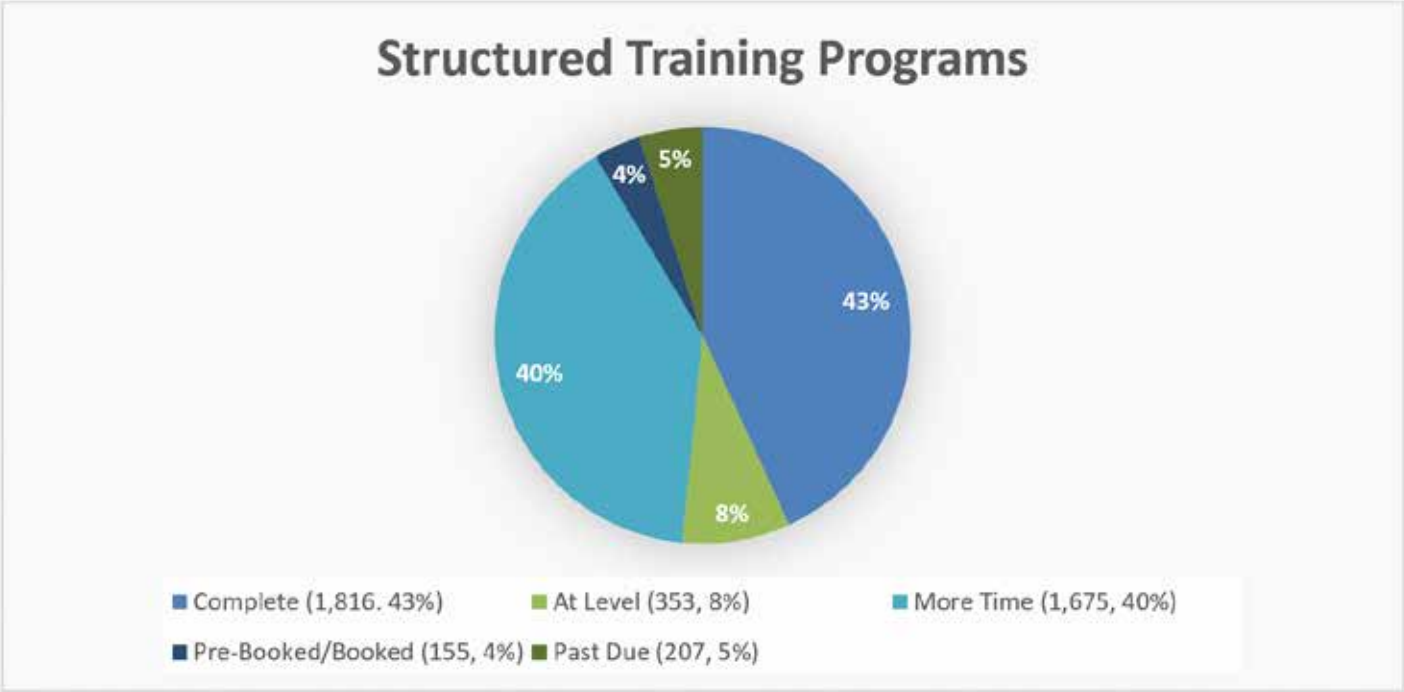
WORKFORCE DEVELOPMENT

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. 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 STRUCTURED TRAINING UNIT

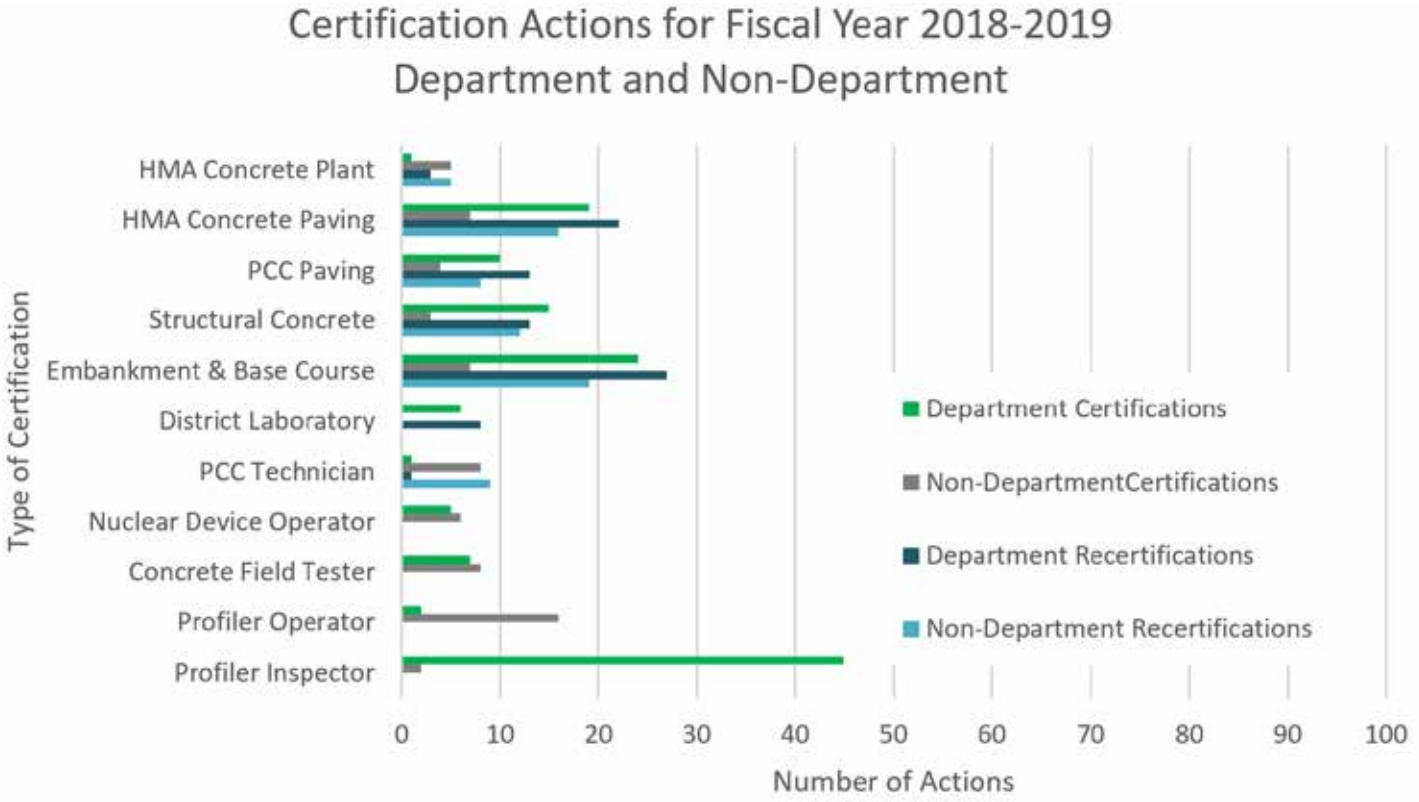
The DOTD Structured Training Program is a department-sanctioned, progressive training curriculum that requires specific work-related training be completed at each level of an employee's career path. DOTD supports and promotes an environment of continual learning and feels that training is a necessary component and an integral part of career advancement. Structured training can involve professional development, technical skills training, continuing education, as well as 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.



CONSTRUCTION AND MATERIALS TRAINING PROGRAM

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 110 new construction certifications
- Processed 156 re-certifications
- Processed 69 requests for new certifications



MAINTENANCE TRAINING PROGRAM

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 PROGRAM

This program functions to:

~Serve as liaison to LTRC Transportation Curriculum Council (TCC) as outlined in PPM 47.

~Act as a liaison between LTRC and the HQ sections to provide assistance with conformance to structured training requirements.

The LTRC Transportation Curriculum Council (TCC) held its first meeting on September 1, 2010. It has an active council consisting of 13 members from Louisiana State University, transportation partners and DOTD management. There are six subcommittees from: Engineering, Operations, Multimodal, Management and Finance, Core Skills, and Leadership and Outreach. 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, work development, and educational services for DOTD and its public and private transportation industry partners.

This program also assists section heads and designated section training liaisons 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 presentations are given at new employee orientation. This year, 451 new employees were provided 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 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 28 employees were reviewed and exceptions granted this fiscal year.
- Testing – Testing sessions are held three times a month for self-study courses. Employees were given 180 tests for different courses this fiscal year.
- Training – This fiscal year classes were conducted to train employees in various topics which include: Basic Flagging and Traffic Control through Maintenance Work Areas.

MANAGEMENT DEVELOPMENT TRAINING PROGRAM

This program oversees several mandatory supervisory, management development, and career development training programs: 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.

During fiscal year 2018-2019, 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 980 employees subscribed to the Management Development Program, and there were 510 employees subscribed to the Management Development Technician Program. A total of 216 completed their course programs in FY 2018-2019.

DOTD supervisory employees are also required to participate in the CPTP Supervisory Programs and take Continuing Education each year after the Supervisory Programs are completed.

Number of employees in CPTP Supervisory Group Programs FY 2018-2019:

CPTP Supervisory Group 1	592
CPTP Supervisory Group 2	237
CPTP Supervisory Group 3	65

Number of employees who completed their programs FY 2018-2019:

CPTP PES Supervisory Group	67
CPTP Core Supervisory Group	62
CPTP Supervisory Group 1	76
CPTP Supervisory Group 2	19
CPTP Supervisory Group 3	1

Number of employees who completed continuing education in FY 2018-2019: 526

PRESENTATIONS/CLASSES

- 3 Basic Flagging Procedures classes
- 1 Traffic Control Through Maintenance Work Areas class
- 5 Project Management classes
- 2 Highway Plan Reading Volume I classes
- 1 Hot Mix Asphalt 1 & 2 class
- 1 Superpave Mix Design and Analysis class
- 2 Structural Concrete Inspection classes
- 1 Embankment and Base Course Inspection class
- 3 Facilitation Skills classes

COMPLETED PROJECTS

Construction
- Updated all Construction Certification Specialty Area and Recertification tests and loaded them into Test.com
- Qualified Aggregate Tester Authorization program
- PCC Paving Inspection manual and supporting materials
- Asphalt Plant Inspection Level 1
- Qualified Profiler Operator
- Radiation Safety WBT
- Radiation Safety Refresher WBT
- Paving Manuals 1 & 2 updated
- Hot Mix Asphalt 1 & 2 ILT courses

Maintenance
- Creation of test questions for 16 International Road Federation videos
- Transformers and AC Circuits manual revision
- Electrical Safety and Protection manual revision
- Basic Electricity and Electronics manual revision
- Maintenance manual revision

Other Projects
- Authorized Profiler Operator WBT and performance evaluations
- Authorized Profiler Inspector WBT and proctored exam
- Road Design Manual Workbook
- ProVAL Tutorial Series (5 mini-tutorials)
- Density Video

ON-GOING/CURRENT PROJECTS

Construction
- Revision of Structural Concrete Inspection Volumes I and II manuals
- Revision of all construction training manuals to the 2016 Standard Specifications
- PCC Plant Inspection Manual and supporting materials
- PCC Mix Design Manual and supporting materials
- Numerous lab procedure instructional training videos
- Revision of Pre-Stressed Concrete Inspection course
- Creation of Structural Steel Welding Inspection course
- Management of the Inspector/Technician Certification Program for DOTD and the Louisiana Transportation Industry

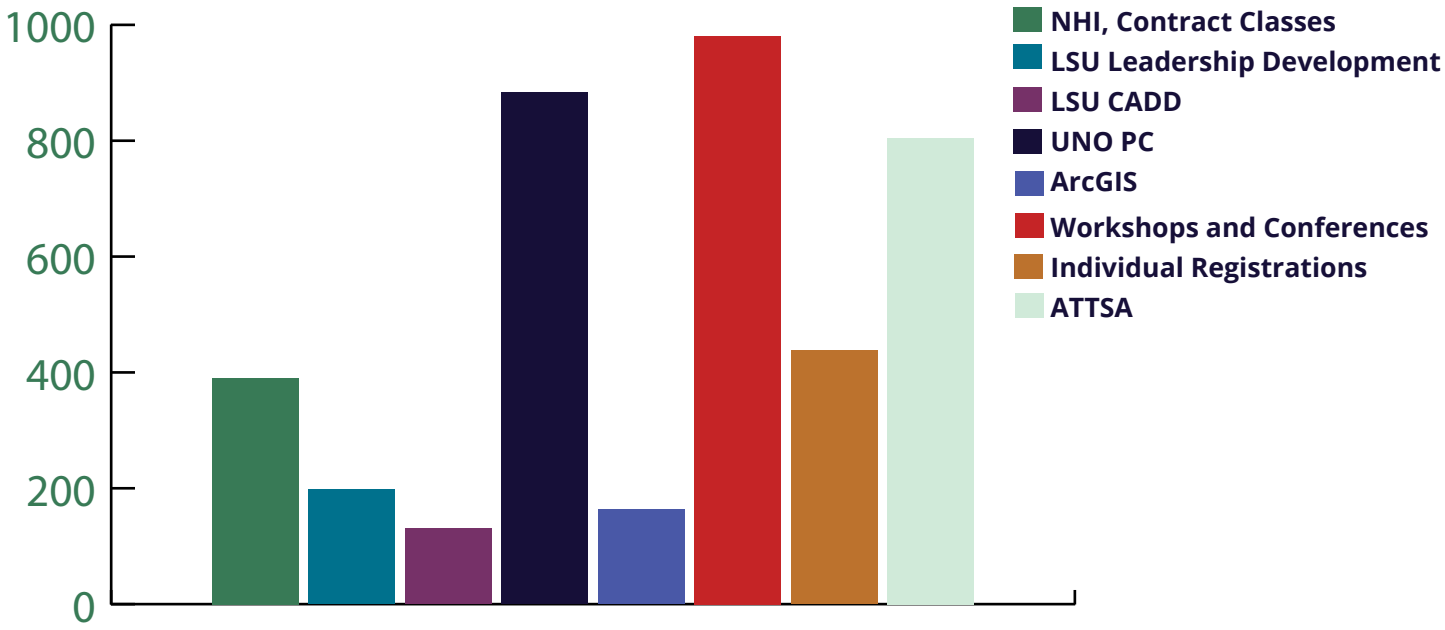
Maintenance
- Equipment Operator Certification Program
- Traffic Control Through Maintenance Work Areas Handbook Update
- Traffic Control Through Maintenance Work Areas ILT course revision
- JLG 600S Boom Lift Equipment Operator Certification
- Maintenance of Small Traffic Signs
- Single-Phase Motors manual revision
- Creation of new CDL course materials
- Maintenance Traffic Control Handbook revision

Other Projects
- Update of PPM #59, Workforce Development
- Update of various manuals
- Project Management ILT course development
- Mathematics for Construction Personnel 1 WBT course development
- Mathematics for Construction Personnel 2 WBT course development
- Grammar 3 to web-based format
- Site Manager for LPA training
- LTRC's Test.com E-Testing System management
- LEO and DTRN support and training

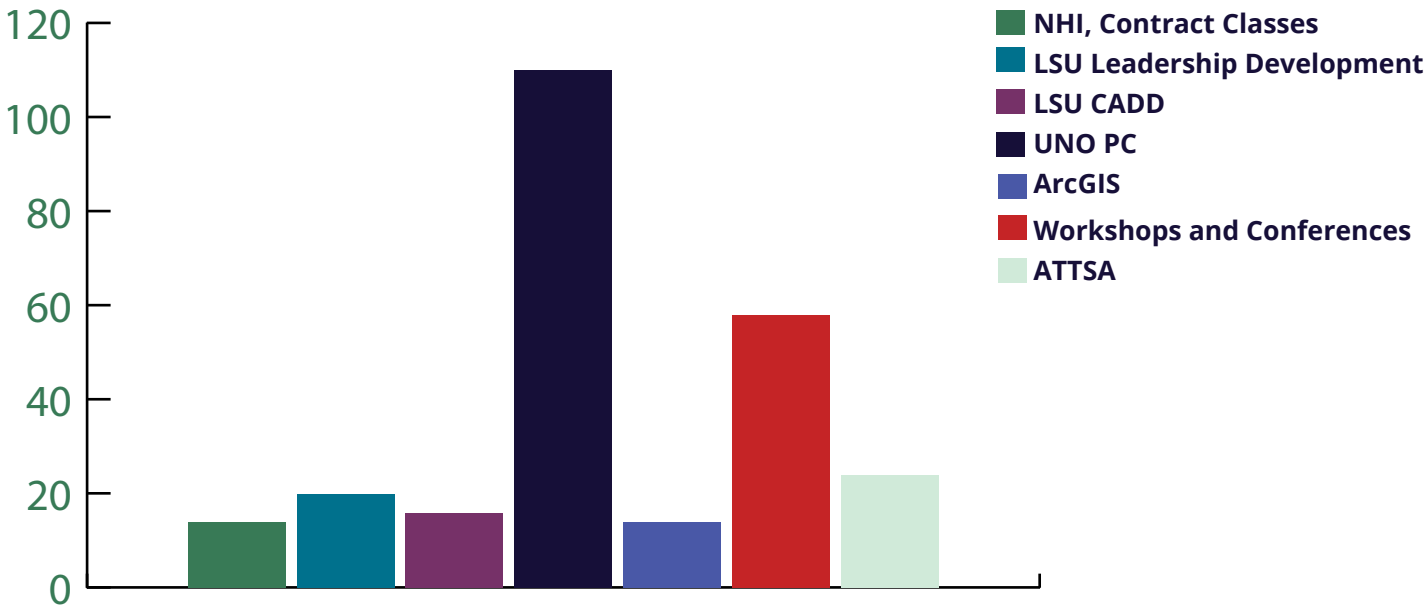
EXTERNAL TRAINING PROGRAM ACTIVITIES OVERVIEW

In fiscal year 2018 – 2019, the DOTD External Programs impacted over 3,900 individuals (departmental, state, local, and transportation community partners) through over 250 programmatic initiatives.

NUMBER OF PARTICIPANTS



NUMBER OF COURSES



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

NATIONAL HIGHWAY INSTITUTE

The National Highway Institute Program covers the 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:

- Asset Management
- Business, Public Administration and Quality
- Construction and Maintenance
- Design and Traffic Operations
- Environment
- Freight and Transportation Logistics
- Geotechnical
- Highway Safety
- Hydraulics
- Intelligent Transportation Systems (ITS)
- Pavement and Materials
- Real Estate
- Transportation Planning
- Structures

This program has various courses that are required in departmental structured training programs. A sample listing of these required courses are as follows, but not limited to: *Bridget Inspection Refresher, Fracture Critical Inspection of Steel Bridges, Managing Highway Contract Claims, Safety Inspection of In-Service Bridges,* and Writing Highway Construction Specifications. These courses address Louisiana-specific material while also incorporating the necessary federal guidelines as well. ***During fiscal year 2018-19, 352 participants attended 14 courses.***

CADD/MICROSTATION STRUCTURED TRAINING

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 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. ***During fiscal year 2018-19, 131 participants attended 16 courses.***

WORK ZONE SAFETY

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.*

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. In contract documents for the contractors and consultants, the verbiage specifically states they must have Louisiana-specific training as it relates to the MUTCD, and the DOTD Work Zone Safety Program provides this specific training through a contract with ATSSA, the only organization that offers this Louisiana-specific training. The contract for services contains language on the Louisiana Standard Specifications, the Special Provisions, the Supplemental Specifications, and the Louisiana Specific Traffic Control Details. Also within

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the contract, there are specific requirements and consequences for the contractor not having Louisiana specific training. ***During fiscal year 2018-19, 805 students participated in 24 classes.***

DISTRICT SIGN SPECIALISTS' CERTIFICATION

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. ***During fiscal year 2018-19, 80 students participated in 2 sessions.***

ARCGIS

The DOTD ArcGIS Program is guided by Map 21 and 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. ***During fiscal year 2018-19, 165 students participated in 14 classes.***

CO-OP

The DOTD Co-op Program is a cooperative endeavor between DOTD and seven Louisiana universities with engineering departments. The Co-op program provides practical experience to civil, mechanical, environmental, electrical, industrial, and chemical engineering students through employment in public sector transportation engineering work. The DOTD 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 DOTD to evaluate participants as potential employees.

To participate in the program, the students must have the endorsement of their university and be classified as a junior or senior. The students must give a 15 to 20 minute presentation at the end of each semester. The students are employed year round in positions related to their major engineering field of study. ***During fiscal year 2018-19, 26 students participated in the Co-op Program.***

ENGINEERING ROTATIONAL DEVELOPMENT

DOTD also has an engineering training program for recent college graduates that is managed and

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Students present their Co-op Program final presentations for the spring semester of 2019.

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facilitated at LTRC through the DOTD External Programs initiatives. This program is the Engineering Rotational Development Program (ERDP), which provides new engineers with an invaluable introduction to DOTD employment.

The ERDP is a 32-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. To be employed through the ERDP, the employee has to have successfully passed the Fundamentals of Engineering (FE) exam and hold an active FE certification. On occasion, an engineer intern applicant who is waiting for their FE certification to be issued will be employed through ERDP. Professional engineers are not employed through this program. ***During fiscal year 2018-19, 8 new hires participated in the ERDP, with 6 hired by the department.***

PC/MICROSOFT STRUCTURED TRAINING

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. ***During fiscal year 2018-19, 745 students participated in 98 classes.***

OTHER 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 are included here:

- Mobile Crane Training
- Highway Capacity Analysis
- Traffic Engineering Fundamentals

LEADERSHIP DEVELOPMENT

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 are introduced throughout the courses. ***During fiscal year 2018-19, 199 students participated in 20 courses.***

OTHER COURSE OFFERINGS

A total of 901 students participated in the following courses:

- *Traffic Engineering Process & Report* (Modules 1-3)
- *Highway Capacity Analysis*
- *ProVal*
- *Mobile Crane* - Rigging/Signaling and Operator
- *Aimsun Software*
- CPR/AED Certification
- *TRAC* and *Rides*
- *Dynameq*
- *PE Review*
- *LTRC Seminar Series: Durable Asphalt*
- *Traffic Engineering Fundamentals*
- *Professionalism and Ethics*

PUBLICATIONS

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. Fiscal year 2018-19 accomplishments include:

- Published four Tech Today Newsletters
- Published 2018-19 Annual Report
- Implemented and managed online registration management sytem for all LTRC events (19 general training/15 LTAP)
- Maintained LTAP website
- Maintained the LTRC website; launched mobile-friendly re-design
- Re-designed and launched website for 2020 Louisiana Transportation Conference
- Photographed all LTRC events
- Filmed and produced 12 DOTD informational videos
- Filmed and produced seven sessions CEI/LTAP Local Public Agency Qualification Program
- Filmed and produced two Transportation Talk videos featuring Secretary Wilson
- Edited five LTRC videos
- Published 16 Project Capsules
- Published two Technical Assistance Reports
- Published six Final Reports and Technical Summaries
- Implemented new report template for online accessibility requirements

LTRC PUBLICATIONS DEPARTMENT CAPABILITIES

With 45 years of combined experience, the LTRC Publications Department is proud to be the voice of LTRC through editing, publishing, photography, multimedia development, and video productions.

- Jenny Kirkland serves as our Director of Public Information, with 17 years devoted to LTRC. She supervises her team in creating annual reports, logos, training documents, research reports, and videos in addition to managing LTRC's e-commerce and online registration efforts.
- Emily Wolfe has a total of 14 years at LTRC and serves as Multi-Media Specialist. Wolfe maintains the LTRC website, LTAP website, and LTRC's social media presence. She also designs print projects and other special web projects as needed by LTRC, DOTD, AASHTO, TRB, and others.
- Next, with 10 years at LTRC as Editor/Technical Writer is Jenny Gilbert. She edits research reports, technical summaries, capsules, and fact sheets. Gilbert is the expert behind most content for our newsletter, Tech Today. Gilbert also assists with the layout of many of our design projects.
- For 4 years, Chris Melton has served as LTRC's Multi-Media Producer. A talented illustrator and artist, his expertise on video editing, graphic design, illustration, and motion graphics is an asset to LTRC. Melton manages LTRC's YouTube channel and has published dozens of videos, assisting DOTD in winning "Best YouTube Video Channel" at the AASHTO awards.

You can request the assistance of the publications department any time through the Training Needs Request Form at www.ltrc.lsu.edu.

LOCAL TECHNICAL ASSISTANCE PROGRAM

(top to bottom): Group exercise in Intersection Basics: Safety, Operations & Accessibility; the Hammond session of Maintenance of Asphalt Roads; LTAP booth at APWA Equipment ROADeo

- Sponsored two Louisiana Parish Engineers and Supervisors Association Statewide technical conferences for over 200 participants
- Hosted the annual National LTAP Association Conference in New Orleans
- Co-hosted Emergency Disaster Recovery Process for Transportation Assets in cooperation with FHWA, GOHSEP, DOTD, LTAP, LMA, FEMA at 10 locations across the state for 440 participants
- Presented nine ***LTAP Intersection Basics: Safety, Operations & Accessibility*** workshops across the state to 164 participants
- Piloted and delivered newly revised ***Roads Scholar #2: Maintenance of Asphalt Roads*** class in 9 locations and presented to 240 attendees
- Delivered one ***LPA Qualification Core Training Module*** to 40 people
- Delivered one ***LPA Project Development and Design Process for the LPA Responsible Charge Modules*** to 40 people
- Delivered two ***CEI Training Modules*** to 60 people
- Conducted 11 sessions of ***Basics of Work Zone Safety*** to over 246 local agency participants
- Presented ***Basics of Road Maintenance*** mini-workshop in onelocation to 25 participants
- Hosted one FHWA ***EDC-4 Pavement Preservation-How? Peer Exchange*** at one location to 50 people
- Co-hosted an ***Extreme Winter Weather Planning & Response: South Louisiana Style*** workshop in conjunction with DOTD and APWA at one location to 30 participants; co-hosted on-site demonstration with DOTD for 20 participants
- Presented two ***Roads Scholar #4: Temporary Traffic Control*** classes for local agencies in Shreveport and Lake Charles to 90 attendees
- Hosted two FHWA grant classes in Baton Rouge and Monroe – ***Implementing Safe Work Zone Operations Strategies Training Course*** and ***Instructing the Implementing Safe Work Zone Operation Strategies Training Course*** to 100 participants
- Delivered eight sessions of the newly revised ***Roads Scholar #7: Pavement Preservation & Road Surface Management*** class to 100 people
- Participated on STIC and EDC-4 Implementation Teams for Pavement Preservation, Community Connections, Safe Transportation for Every Pedestrian (STEP), and Data-Driven Safety Analysis (DDSA)
- Attended EDC-5 Summit and participated on EDC-5 Implementation Teams for STEP, Roadway Departure, Project Bundling, and Value Capture

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- Received, processed, and evaluated 10 Local Road Safety Project applications and provided recommendations for inclusion in Louisiana's Highway Safety Improvement Program or additional assessment as appropriate
- LTAP staff attended at least one Regional Safety Coalition meeting in each of the nine coalition areas to provide assistance on implementing strategies in the Louisiana Strategic Highway Safety Plan at the local road network
- Developed and conducted two Local Road Safety Plan webinars for our Louisiana Regional Safety Coalition Coordinators and the MPO technical support staff
- Reviewed numerous drafts of Local Road Safety Plans, making suggestions and recommendations. Currently there are 11 parishes with Local Road Safety Plans and nine more are under development that LTAP is providing technical assistance as needed
- LTAP and Local Road Safety Program staff provided training in the use of DOTD's Crash 3 Database including specialized data queries, analyses and interpretation to multiple local agencies and Regional Safety Coalition coordinators

LTAP LAGNIAPPE IN THE BIG EASY

Louisiana's summer heat and humidity didn't stop 160 transportation professionals across the nation from convening at this year's National Local Technical Assistance Program Association (NLTAPA) Conference held July 23-26, 2018, at the Hotel Monteleone in New Orleans. Surely, a lagniappe of fun and innovation was in store—not to mention, trying out fried alligator and crawfish tails for the first time, joining in the Second Line, and indulging in beignets and café au lait at Café De Monde. All of these great things became the talk of the LTAP community in the Big Easy that week.

"LTAP Lagniappe" was the theme for the four-day NLTAPA conference, so Louisiana added a great layer of fun by piloting the "Partnership Carousel" through a scavenger hunt using the GooseChase mobile app. Each attendee was randomly placed in a team upon registration, and then any member of the team had to complete any task listed on the app to earn points.

Throughout the conference, LTAPers engaged in stimulating discussions during the general sessions, workgroup meetings, and breakout sessions on topics such as transportation innovations, locally led local road safety plans, training providers and tools, technical partnerships, Safety Circuit Rider program, class materials, social media best practices, educating vs. presenting, overcoming barriers to innovation, and training resources.

The pre-conference session on "Safety Innovations" highlighted Federal Highway Administration's (FHWA) Every Day Counts (EDC) initiatives, including Safe Transportation for Every Pedestrian (STEP), Local Road Safety Plan (LRSP), Reducing Rural Roadway Departures, and Data-Driven Safety Analysis (DDSA). The LTAPers also shed light on issues facing local

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LTAP LAGNIAPPE IN THE BIG EASY

agencies such as staff turnover, lack of training, lack of communication of safety priorities, and the insufficient funding. FHWA is working closely with each of the state Department of Transportation (DOT) offices and LTAP centers to ensure the integration of local road safety planning and data-driven decision-making efforts in the overall implementation of the Strategic Highway Safety Plan (SHSP), which all states are federally mandated to have. Local participation in the development of the SHSP is critical, and that's where LTAP centers take the lead on. Louisiana LTAP is engaged as a team lead in the implementation of the SHSP Infrastructure and Operations (IO) Emphasis Area (EA) that include strategies addressing intersection, roadway departures, and bicycle and pedestrian safety. The implementation of low-cost safety projects funded through the Local Road Safety Program (LRSP) is an important component of Louisiana's IO Action Plan.

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ELECTRONIC FIELD DATA COLLECTION

time in the field observing the work being performed and able to leave at the end of the day. Previously they would need to go back to the office to input the daily work report. We have seen how field images have prevented disagreements with site conditions and performance or work items. We have been able to identify safety concerns from projects four hours away."

Louisiana technicians, inspectors, and engineers alike agreed on the benefits of implementing this technology state-wide. Fletcher explained, "I would like for all inspectors to have the abilities that this system has to offer. The long-term benefits in data collection, efficiency, and claim mitigation would be a huge benefit to the Department." Jones added, "It will make our workforce more efficient. It will reduce claims on construction projects. There are no limits that I see to how we can use this technology."

As of July 1, 2019, HeadLight has been implemented statewide, and district training is now underway. DOTD anticipates full department-wide implementation within six to seven months.

SAFER DENSITY MEASURING OPTIONS

Researchers in the asphalt group determined that the non-destructive alternatives to measuring density (such as the non-nuclear gauges) are accurate and economically feasible. Mata explained, "Based on the results of the asphalt research, we recommend the use of the non-destructive testing for both QC and QA testing, provided the manufacturer's and AASHTO T-343's recommendation is followed to calibrate the device daily by applying a core-calibration offset."

However, while still hopeful of future technological improvements, the geotech group decided to continue with the conventional methods due to a problem with the low nuclear density gauge's probe depth and short life cycle.

PROFESSIONAL MEMBERSHIPS

TRANSPORTATION RESEARCH BOARD (TRB) AFFILIATIONS

Member

- ABG10T – Task Force on Knowledge Management
- ABG20 – Transportation Education and Training
- ABG30 – Technology Transfer
- ABG40 – Library and Information Sciences for Transportation
- AFF30 – Concrete Bridges
- AFF80 – Structural Fiber Reinforced Polymers
- AFP10 - Committee on Pavement Management Systems
- AFD40 - Committee on Full-Scale Accelerated Pavement Testing
- AFP80 - Committee on Strength and Deformation Characteristics of Pavement Sections
- AFP60 – Engineering Behavior of Unsaturated Geomaterials
- AFD80 – Pavement Structure Modeling and Evaluation
- AFP50 – Seasonal Climate Effects on Transportation Infrastructure
- AFS20 – Geotechnical Instrumentation and Modeling
- AFP30 – Committee on Soil and Rock Properties
- AFS30 – Foundations of Bridges and Other Structure
- AFK10 – Critical Issues and Emerging Technologies in Asphalt
- ABG10 – Conduct of Research
- AFN10 – Basic Research and Emerging Technologies Related to Concrete
- AFN30 – Durability of Concrete
- ADA50 – Transportation Programming and Investment Decision-Making
- B0002 – Information Services

Friend

- AFN30 – Durability of Concrete
- AFN10 – Basic Research and Emerging Technologies Related to Concrete
- AHD37 – Bridge Preservation
- AFH50 – Concrete Pavement Construction and Rehabilitation
- AFD50 – Design and Rehabilitation of Concrete Pavements
- AFD20 – Pavement Condition Evaluation
- AFN20 – Properties of Concrete
- AFN40 – Concrete Materials and Placement Techniques
- AFD90 – Pavement Surface Properties and Vehicle Interaction
- AFK20 – Characteristics of Asphalt Materials
- AFK30 – Non-Binder Components of Asphalt Mixtures
- AFK40 – Surface Requirements of Asphalt Mixtures
- AFK50 – Structural Requirements of Asphalt Mixtures
- AFH60 – Asphalt Pavement Construction and Rehabilitation

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) AFFILIATIONS

- Project 01-52: Calibrated Mechanistic-Based Models for Top-Down Cracking of Hot-Mix Asphalt Layers
- Project 01-53: Proposed Enhancements to Pavement ME Design: Improved Consideration of the Influence of Subgrade and Unbound Layers on Pavement Performance
- 20-07 Task 422: User Review of the AASHTO “Guide for the Local Calibration of the Mechanistic-Empirical Pavement Design Guide”
- Project 48-02: Tack Coat Specifications, Materials, and Construction Practices
- 20-07 Task 420: Road User Understanding of Bicycle Signal Symbol Indications
- Project 17-87: Enhancing Pedestrian Volume Estimation and Developing HCM Pedestrian Methodologies for Safe and Sustainable Communities
- Project 15-62: Design and Access Management Guidelines for Truck Routes
- Project 18-17: Entrained Air Void System for Durable Highway Concrete

- SN49-09: Synthesis of Concrete Technology for Transportation Applications
- Project 10-104: Recommendations for Revision of AASHTO M 295 Standard Specification to Include Marginal and Unconventional Source Coal Fly Ashes

OTHER MEMBERSHIPS

- AASHTO Committee of Knowledge Management
- AASHTO Research Advisory Committee
- AASHTO Standing Committee on Highway Traffic Safety (SCOHTS)
- AASHTO TRAC and RIDES Advisory Board
- American Association of Engineering Education
- American Concrete Institute
- American Institute of Steel Construction
- American Society of Civil Engineers (Bituminous Materials)
- Association for Talent Development
- Association of Asphalt Paving Technologists (AAPT)
- Association of Traffic Safety Information Professionals (ATSIP)
- CAAL Technical Committee
- Communications Coordinating Council (Team leader)
- Construction Certification Committee
- Deep Foundation Institute, DFI
- Deep South Institute of Transportation Engineers
- DOTD Work Zone Task Force
- Eastern Transportation Knowledge Network Member (ETKN)
- Engineering Research (USUCGER)
- Equipment Operation Certification Committee
- FHWA Expert Task Group R02 – Implementation of Precast Concrete
- FHWA Sustainable Pavements Technical Working Group
- Geo-Institute: Engineering Geology and Site Characterization Committee, Geosynthetics Committee, Deep Foundation Committee
- Gulf Region Intelligent Transportation Society (GRITS)
- International Association of Foundation Drilling
- International Steering Committee for Travel Survey Conferences
- ITI Technical College, Construction Management Curriculum Council
- LA Strategic Highway Safety Plan Implementation Team
- Louisiana Engineering Society
- LSU Public Administration Institute Student Association
- Management Curriculum Council
- National LTAP Association
- National Society of Professional Engineers
- National Transportation Knowledge Network (NTKN)
- National Transportation Training Directors, Emerging Technology Chair
- Occupant Protection Emphasis Area Team (Co-chair)
- Partnership for the Transformation of Traffic Safety Culture Transportation Pooled Fund Board Member
- Phi Kappa Phi, University Level Honor Society
- PIANC - Working Group 191 on Polymer Composites Applications for Hydraulic Structures
- Precast/Prestressed Concrete Institute
- Public Relations Association of LA, Baton Rouge Chapter
- Research Advisory Group of the National Stone, Sand, and Gravel Association
- Society of Government Meeting Professionals (SGMP)
- Society of Human Resource Management
- Southeast Task Force on Technician Training and Qualification
- Southeastern Asphalt User Producer Group
- Special Libraries Association (SLA), Transportation Division
- Strategic Highway Safety Plan (SHSP)
- Tau Beta Pi, College of Engineering Level Honor Society
- Traffic Records Coordinating Council
- Transportation Curriculum Coordination Council
- Transportation Division Member
- USDOT Transportation Disruption and Disaster Statistics (TDADS) Steering Committee
- US Universities Council on Geotechnical Engineering Research (USUCGER)
- Voluntary Protection Programs Participants' Association

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Patrick Frazier, Asphalt Concrete Training
Kelvin Stone, Maintenance Training Program Manager
Shirly Mamou, Training and Development Specialist
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