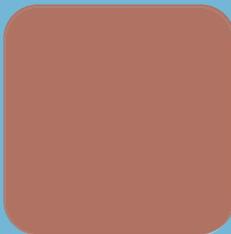


Louisiana Transportation 2007–2008 Annual Report **Research Center**



Louisiana Transportation Research Center



William D. Ankner, Ph.D.
Secretary



Michael V. Martin, 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 is brought to bear on the rapidly evolving challenges in the transportation field.

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.

In addition to its affiliation with LSU, LTRC fully participates with other universities in Louisiana. 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.

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.

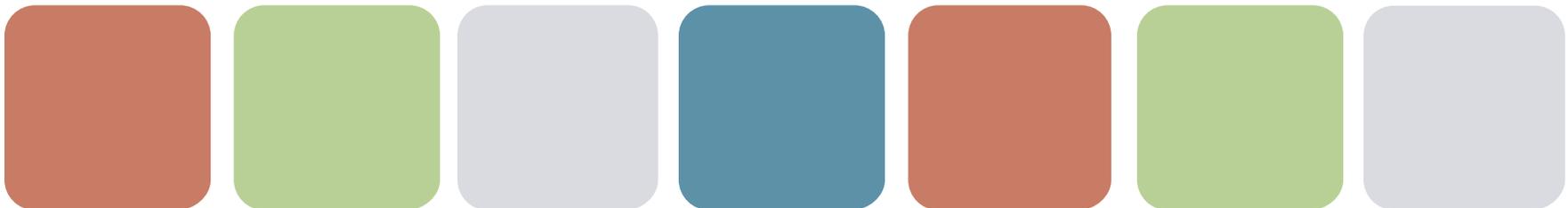
In these and other ways, LTRC is paving the way for more efficient and beneficial research and training, thanks to a combination of modern techniques, locally available resources, and a wide pool of support.

For additional information, contact
Louisiana Transportation Research Center
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Baton Rouge, Louisiana 70808
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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 January 1, 2007–June 30, 2008. The center is sponsored jointly by the Louisiana Department of Transportation and Development and Louisiana State University.

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Director's Message.....

To:

Dr. William D. Ankner
Secretary, DOTD

Dr. Michael V. Martin
Chancellor, LSU

Mr. William Temple, P.E.
Chief Engineer, DOTD

Dr. David Constant, P.E.
Interim Dean
College of Engineering, LSU

From:

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



It is a privilege to share with you the many accomplishments of LTRC reported herein. First, you will note that we have changed the period of the report from an annual year to a fiscal year basis. As a result, this report actually encompasses 18 months from January 2007 through June 2008. I will let the articles in this report speak for themselves and will draw your attention to a few items that I would like to highlight in this message.

I had the extraordinary opportunity to participate on an international scan tour which took me from Stockholm, Rotterdam, Brussels, and Paris on to Tokyo and Seoul before returning home. The nine-person team examined practices of Transportation Research Program Administration, focusing on the themes of Setting the Research Agenda; Partnership Models and Joint Research Activities; Conduct of Research: Performance, Quality and Value; and finally, Delivery: Getting the Research Results into Widespread Practice. There were wonderful lessons learned that will be applied here at home.

On a closer level, LTRC conducted a very successful Peer Exchange with peers from eight states participating either at LTRC or via video conference. Focus areas concentrated on growth opportunities for LTRC and the establishment of our new library.

The 2007 Transportation Engineering Conference sponsored by LTRC was attended by over 1,600 transportation professionals. Over 60 technical sessions were delivered in this very successful technology transfer event.

Finally, we welcomed Ms. Sandra Brady as our new librarian and look forward to expanding our vision in information management, and we recognize the leadership that Dr. Marie Walsh brought to the National LTAP Association while serving as their President from July 2007 through July 2008. It is always gratifying to see staff succeed at the national level.

Respectfully submitted,

Harold "Skip" Paul, P.E.

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 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 classroom, a conference room, and offices. The laboratories are used to conduct advanced research into asphalt materials, concrete, soils, pavements, and geotextiles. 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, which includes mobile equipment, including the mini-cone intrusion technologies for in-situ characterization of geomedia; and Pavement on the Move (POM), a

multi-use mobile laboratory for collecting data from field construction projects as well as research and training.

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) 100 percent federal, Surface Transportation Program (STP-federal), and external contracts and grants, such as the National Cooperative Highway Research Program, the U.S. Army Corps of Engineers, and the National Science Foundation.



Louisiana Transportation Research Center



Accelerated Loading Facility



Transportation Training and Education Center

Completed Research.....

Through its transportation-based science and technology program, LTRC's research section serves the transportation field by furthering knowledge and solving problems encountered by DOTD and the general transportation community. Input is solicited from DOTD, universities, and industry. In addition, a major portion of LTRC's budget is used to fund contract research studies with Louisiana universities. The research section is organized in two major groups—Materials, which incorporates asphalt, concrete, and structures research; and Pavements & Geotechnical. Other research areas include Management & Policy Analysis.

Air Void Analyzer for Plastic Concrete

Principal Investigator: John Eggers, P.E., LTRC

Analysis of Rainfall- Accident Relationships Using High Resolution Radar-Rainfall Data

Principal Investigators: Xiaoduan Sun, Ph.D., P.E., and Emad Habib, Ph.D., P.E., ULL

Combined Soil Moisture and Dynamic Cone Penetrometer (DCP)

Principal Investigators: Martin Feldman, Ph.D., Dooyoung Hah, Ph.D., and Ashok Srivastava, Ph.D., LSU

Development of Geotechnical Information Database – Computer Program to Expedite Soil Sub-grade Survey Data to Designers

Principal Investigators: Gavin Gautreau, P.E. and Pallavi Bhandari, Computer Analyst III, LTRC

Effect of Drainage in Unbound Aggregate Bases on Flexible Pavement Performance

Principal Investigators: Murad Y. Abu-Farsakh, Ph.D., and Mingjiang Tao, Ph.D., LTRC

Evaluating the Effects of Heavy Sugar Cane Truck Operations on Repair Cost of Low Volume Highways

Principal Investigator: Aziz Saber, Ph.D., P.E., LTU

Evaluation of Superpave Mixtures Containing Hydrated Lime

Principal Investigators: Louay N. Mohammad, Ph.D. and Sam Cooper, P.E., LTRC

Flexural Strength and Fatigue of Steel Fiber Reinforced Concrete (Hale Boggs Deck)

Principal Investigator: John Eggers, P.E., LTRC

An Innovative Framework for Unsaturated Soils Subjected to Cyclic Variations in Moisture

Principal Investigator: Radhey S. Sharma, Ph.D., LSU

Measurement of Elevations of Hurricane Protection System in Southeast Louisiana

Principal Investigator: Roy K. Dokka, Ph.D., LSU

A Novel Technique for Stiffening Steel Structures

Principal Investigator: Ayman M. Okeil, Ph.D., P.E., LSU

Performance Evaluation of Louisiana Superpave Mixtures

Principal Investigator: Louay N. Mohammad, Ph.D., LTRC

Strengthening of Bridge Girders using Fiber Reinforced Polymers

Principal Investigators: V. J. Gopu, Ph.D., P.E., LTRC, and Paul H. Ziehl, Ph.D., P.E., University of South Carolina

Tubular Steel Fender Units for Pier Protection Against Vessel Collision

Principal Investigator: George Voyiadjis, Ph.D., LSU

Update of Correlations between Cone Penetration and Boring Log Data

Principal Investigators: Khalid Alshibli, Ph.D., and Ayman Okeil, Ph.D., LSU

Use of Reinforced Soil Foundation (RSF) to Support Shallow Foundation

Principal Investigators: Murad Y. Abu-Farsakh, Ph.D., P.E., LTRC and Issaldin Al-Moh'dk, Ph.D., LSU

*LSU: Louisiana State University LTU: Louisiana Tech University
ULL: University of Louisiana at Lafayette*

Featured Research

Calibration of Resistance Factors Needed in the LRFD Design of Driven Piles

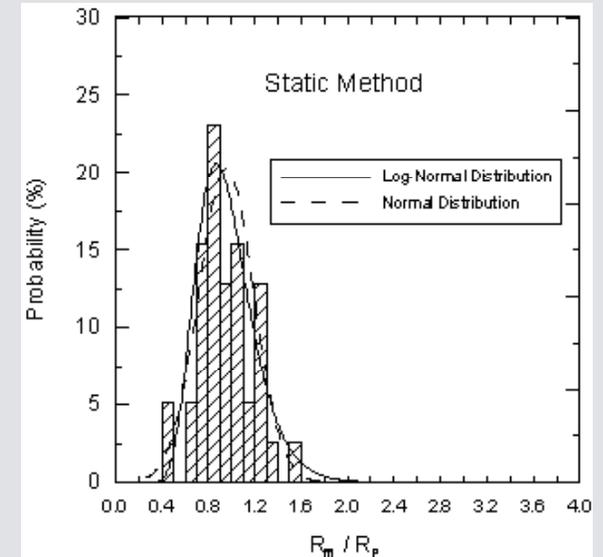
Principal Investigator: Dr. Murad Abu-Farsakh, Louisiana Transportation Research Center

Co-Principal Investigators: Dr. Ching Tsai, Louisiana Department of Transportation & Development and Dr. Sungmin Yoon, Louisiana Transportation Research Center

The main objective of this research project is to calibrate the resistance factors needed for implementing the LRFD design method for both driven piles and drilled shafts based on local soil database and Louisiana design experience.

For LRFD calibration of driven piles, forty-two square precast-prestressed concrete (PPC) piles that were tested to failure were included in this investigation. The predictions of pile resistances were based on static analysis, three CPT direct methods (Schmertmann method, De Ruiter and Beringen method, and Bustamante and Gianeselli [LCPC] method), and the average of three CPT methods. In addition, dynamic measurements with signal matching analysis of pile resistances using CAPWAP, which is based on the measured force and velocity signals obtained near the pile top during driving, were evaluated. The Davisson interpretation method was used to determine the measured ultimate load carrying resistances from pile load tests. The predicted ultimate pile resistances obtained using the different prediction methods were compared with the measured resistances determined from pile load tests. Statistical analyses were carried out to evaluate the capability of the prediction design methods to estimate the measured ultimate pile resistance of driven piles.

Reliability based analyses, using first order second moment (FOSM) method, first order reliability method (FORM), and Monte Carlo simulation method were conducted to calibrate the resistance factors for the different pile design methods used by DOTD. For each pile design method, the target reliability values and the corresponding resistance factors, as well as the efficiency factors, were determined and compared with AASHTO recommended values. The analysis for drilled shafts is in progress.



Histogram and probability density function of resistance bias factor

Featured Research

Modeling Evacuation Traffic

Principal Investigator: Dr. Brian Wolshon, Louisiana State University

Over the last decade, the Departments of Transportation in 12 coastal states threatened by hurricanes have developed plans for the implementation of contraflow traffic operations on freeways during evacuations. Contraflow involves the use of one or more inbound travel lanes for the movement of traffic in the outbound direction. It is a logical and cost effective strategy because evacuation traffic can be loaded into underutilized inbound lanes, thereby significantly increasing outbound capacity without the need to construct additional lanes.

This project involved two closely related studies which evaluated the implications of contraflow evacuations on freeways. The research focused on what are widely regarded to be the most critical locations of contraflow segments, the initiation and termination points. The termini configurations are important because they effectively dictate the capacity of these segments as they control how many vehicles can get in and out. In the research, traffic simulation models were developed to simulate the operation of planned configurations under varying levels of traffic demand to assess their operating characteristics. The results showed that many of the current designs of the initiation and termination points will likely restrict the ability of the segments to be used to their maximum effectiveness. Another key finding was the extent to which the spatial and/or temporal spreading of traffic demand can yield significant benefits to the overall effectiveness of contraflow freeway evacuations. With an increased awareness of these issues, the findings can be used to enhance the effectiveness of existing evacuation plans.

Impact of Edge Lines on Safety of Rural Two-Lane Highways

Principal Investigator: Dr. Xiaoduan Sun, P.E., University of Louisiana at Lafayette

Rural two-lane highways in Louisiana carry one-third of the total vehicle miles traveled (VMT) and have experienced a considerably high percentage of fatal crashes. Each year, more than half of all fatal crashes have occurred on this type of highway, where the dominant crash type is running-off-roadway (ROR).

Proper pavement marking would be an inexpensive countermeasure to reduce accidents. Marking edge lines is expected to provide a visual guide, which would help confine vehicles within the traveled lane. The effects of edge lines were documented in a number of past studies, and the Manual on Uniform Traffic Control Devices (MUTCD)



Contraflow traffic is a logical and cost-effective strategy.

..... Featured Research

provides the guidelines for edge line implementation. However, rural two-lane highways with narrower lane widths caused concern, namely the presence of edge lines would influence drivers to operate closer to the centerline, increasing the risks of head-on and sideswipe crashes. While DOTD makes efforts to comply with the updated MUTCD, concerns arise on the installation of edge lines on narrow rural two-lane highways. It has been widely suspected that edge lines on narrow roadways may make motorists operate vehicles closer to the centerline, and thus increase the risk of head-on and sideswipe collisions.

To address this concern, a project was conducted by a research team led by Dr. Xiaoduan Sun at University of Louisiana at Lafayette. The goal of this project was to determine if the implementation of edge lines on narrow rural roadways has any negative impact on driver behavior that affects highway safety. Specifically, the objectives were to investigate the impact of edge line marking on the wheel tracking of vehicles under various roadway alignment and traffic conditions, examine the potential tort liability arising from the implementation of edge line markings on narrow two-lane highways, and develop a recommended guideline for the application of edge line markings on two-lane highways in Louisiana.

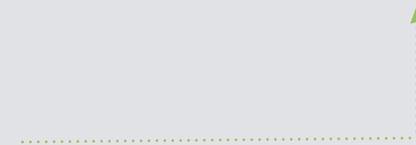
The study was conducted on the selected rural two-lane highways in Louisiana that are between 20 and 22 feet wide. The variables considered in the analysis were highway geometry (pavement width, pavement condition, and road alignment) and traffic conditions (traffic volume, operating speed, and percentage of heavy vehicles).

The before-and-after measurements at 10 sites (seven tangent sections and three curve sections) with about 20,000 vehicles show that the edge line has a positive impact on rural narrow two-lane highways in Louisiana particularly at night. With edge lines, centralization of vehicles' position is more apparent during nighttime, which reduces the risk of ROR and head-on collisions; edge line markings generally cause drivers to operate their vehicles away from the road edge, irrespective of the roadway alignment; magnitude of the impact of edge line markings is influenced by roadway width, time of the day, frequency of heavy vehicles, pavement condition, and traffic from the opposite direction. This study also found that edge lines have no or little effect on the average operating speed. Due to limited number of curved sections, the edge line impact on curved sections is not conclusive.

An implementation study is currently investigating the qualitative safety effect in terms of number of crashes before-and-after edge line as a continuation of this project.



Louisiana's narrow rural highways have experienced a considerably high percentage of fatal crashes.



Featured Research

Optimization of Tack Coat for HMA Placement

Principal Investigator: Dr. Louay Mohammad, Louisiana Transportation Research Center

Co-Principal Investigators: Joe Button, Texas Transportation Institute and James Scherocman, consultant

LTRC was awarded National Cooperative Highway Research Program (NCHRP) Project 9-40 to determine the optimum application methods, equipment type and calibration procedures, application rates, and asphalt binder materials for the various uses of tack coats and to recommend revisions to relevant AASHTO methods and practices related to tack coats. Asphalt tack coat is a light application of asphalt, usually asphalt diluted with water. It is used to ensure a bond between the surface being paved and the overlying course. A tack coat provides necessary binding between pavement surface layers to make sure that they act as a monolithic system to withstand the traffic and environmental loads. A strong tack coat binding between the layers of a pavement is critical in the transference of radial tensile and shear stresses into the entire pavement structure. On the other hand, insufficient bond decreases pavement bearing capacity and may cause slippage. Insufficient bonding may also cause tensile stresses to be concentrated at the bottom of the wearing course. Such concentrated stress may accelerate fatigue cracking and lead to total pavement failure. Few guidelines are available for proper selection of tack coat material type, application rate, and placement.

To meet the objectives of this study, two mechanical test devices were developed during this project. The first device characterizes the quality of the bond strength of tack coat materials in tension in the field, while the second one measures the interface shear strength of cylindrical specimens. A field test was conducted, which included various surface conditions and three types of emulsified tack coats—CRS-1, SS-1h, and Polymer modified “trackless” tack—considered at three application rates of 0.14, 0.28, and 0.70 l/m². The majority of the cases showed statistically significant difference between clean and dusty conditions. However, no significant difference was found between dry and wet conditions. Also, the researchers generally noted that the application rate related to measured shear strength (i.e., higher application rates yield higher shear strength). This ongoing study will also examine concrete surfaces and milled surfaces in the final report due to be complete in 2009.



Asphalt tack coat is a light application of asphalt, usually asphalt diluted with water.

Featured Research

Evaluating the Effect of Heavy Sugar Cane Truck Operations on Repair Cost of Low Volume Highways / Monitoring System to Determine Impact of Sugarcane Truckloads on Non-Interstate Bridges

Principal Investigators: Dr. Aziz Saber, P.E., and Dr. Freddy Roberts, P.E., Louisiana Tech University

This study assesses the economic impact of overweight permitted vehicles hauling sugar cane on Louisiana highways. The highway routes being used to haul these commodities were identified, and statistically selected samples were used in the analysis. Approximately 270 control sections on Louisiana highways are involved in the transport of this commodity. Three different gross vehicle weight (GVW) scenarios were selected for this study including: 80,000 lb., 100,000 lb., and 120,000 lb. The current maximum allowable GVW is 80,000 lb. while the maximum 100,000 lb. GVW is the permitted load for sugar cane trucks and is currently the highest load level permitted by Louisiana laws.

The methodology for analyzing the effect of these loads on pavements was taken from the 1986 AASHTO design guide and involves determining the overlay thickness required to carry traffic from each GVW scenario for the overlay design period. Differences in the life of an overlay were calculated for different GVW scenarios and overlay thickness and costs were determined for a 20-year analysis period. These costs were developed for samples taken from all the control sections included in the study. These net present worth costs from the samples were expanded to represent the cost for all control sections carrying sugar cane.

Results indicate that the damage to pavement overlay from each sugar cane truck with a GVW of 100,000 lb. costs about \$2,072/year; the damage to bridge fatigue costs about \$3,500/year. Therefore, the current sugar cane truck permit fee of \$100/year is not adequate and should be increased to recover these costs. The legislature should not consider raising the GVW level to 120,000 lb. because the pavement overlay costs increase two fold, and the bridge repair costs become very large. Moreover, the magnitude of the damage caused by the 120,000 lb. GVW for a FHWA Type 9 truck makes the risk of bridge damage and even bridge failure too significant to ignore.

The study recommends that the legislature keep the GVWs at the current level, but increase the permit fees sufficiently to cover the additional pavement and bridge costs or change the configuration of the axle on the trailer from a tandem to a triple, effectively changing the vehicle from a FHWA Type 9 to a Type 10 vehicle. Under these circumstances, the permit fee can be reduced to zero and a tax incentive of \$683 can be given to each truck for the conversion. It is recommended to allocate more highway funding for handling the extra damage caused by the increase of truck load limits.



Approximately 270 control sections on Louisiana highways are involved in the transport of sugar cane.

Active Research

Project No.	Agency	Principal Investigator	Title	Start Date	End Date
02-2GT	LTRC	Mark Martinez	The Rideability of a Deflected Bridge Approach Slab	1-May-2003	5-Nov-2008
03-7ST	LTRC	Walid Alaywan	Long-Term Monitoring of the HPC Charenton Bridge	1-Jun-2004	31-May-2009
04-4B	LTRC	Louay Mohammad	Development of a Design Methodology for Asphalt Treated Base Mixtures	1-Jan-2007	31-Dec-2008
04-5B	LTRC	Bill King	Implementation of New OGFC Specifications	1-Jul-2005	1-Dec-2008
04-5GT	LTRC	Murad Abu-Farsakh, Gavin Gautreau	Control of Embankment Settlement: Field Verification of PCPT Prediction Methods	1-Mar-2005	28-Feb-2009
04-6B	LTRC	Louay Mohammad	Characterization of Louisiana Asphalt Mixtures Using Simple Performance Tests and MEPDG	1-Jan-2008	30-Dec-2010
05-5GT	LTRC	Murad Abu-Farsakh	Evaluation of the Base/Subgrade Soil Behavior Under Repeated Loading	1-Aug-2005	31-Jul-2009
06-1B	LTRC	Bill King	Implementation of Testing Equipment for Asphalt Materials	1-Apr-2006	30-Jul-2008
06-2P	LTRC	Zhong Wu	Mechanistic Flexible Pavement Overlay Design Program	1-Mar-2006	31-Dec-2008
07-1P	LTRC	Zhong Wu	Finite Element Simulation of Structural Performance on Flexible Pavements with Stabilized Base/Treated Subbase Materials under Accelerated Loading	1-Oct-2006	31-Mar-2009
07-2GT	LTRC	Murad Abu-Farsakh, Ching Tsai, Sungmin Yoon	Calibration of Resistance Factors needed in the LRFD Design of Driven Piles	1-Sep-2006	30-Jun-2009
08-3GT	LTRC	Murad Abu-Farsakh, Sungmin Yoon	Support Study to Structure Health Monitoring of the I-10 Twin Span Bridge Over Lake Pontchartrain	1-Jan-2008	31-Dec-2010
08-7GT	LTRC	Pallavi Bhandari	LTRC Database Management and Tracking Project	1-May-2008	31-Aug-2009
04-1GT	LTU	Xingran (Jay) Wang	Estimating of Setup of Piles Driven Into Louisiana Clayey Soils	1-May-2008	31-Oct-2009
04-2ST	Tulane	Bob Bruce	Structural Monitoring of Rigolets Pass Bridge	1-Apr-2005	30-Apr-2009
04-3B	LSU	William H. Daly	A Comparative Analysis of Modified Binders: Original Asphalts and Materials Extracted From Existing Pavements	1-Jul-2007	31-Jul-2009

LTRC: Louisiana Transportation Research Center LSU: Louisiana State University LTU: Louisiana Tech University ULL: University of Louisiana at Lafayette SU: Southern University

Active Research

Project No.	Agency	Principal Investigator	Title	Start Date	End Date
06-2ST	SU / LTU	Guoquian Li, Aziz Saber	Elimination of Deck Joints Using a Corrosion Resistant FRP Approach	1-Mar-2006	31-Aug-2008
06-3ST	LTU	Aziz Saber	Field Evaluation of the Effectiveness of Continuity Diaphragms for Skewed Precast Prestressed Concrete Bridge Girders	1-Apr-2006	30-Aug-2008
07-2C	LSU	Hak-Shul Shin	Determination of Coefficient of Thermal Expansion Effects on Louisiana's PCCP for the Mechanistic-Empirical Pavement Design Guide	1-Feb-2007	31-Dec-2008
07-2P	LSU	Ishak / Shin	Characterization and Development of Truck Load Spectra for Current and Future Pavement Design Practices in Louisiana	1-Apr-2007	30-Sep-2008
07-2SS	LTRC	Brian Wolshon	The Design of Lane Merges at Rural Freeway Construction Work Zones	1-Sep-2007	31-Oct-2009
07-3SS	LSU	Sherif Ishak	Establishing an Intelligent Transportation Systems (ITS) Lab at LTRC	1-Jul-2007	31-Dec-2008
07-4SS	SU	Sharon Parsons	LADOTD Customer Service Process and Outcome Evaluation	1-May-2007	30-Jun-2010
07-9P	LSU	Kun Lian	Support Study for Developing Embedded Wireless Strain/Stress/Temperature Sensors Platform for Highway Applications	1-Jun-2007	30-Jun-2009
09-1AD	LTRC	V.J. Gopu	Research Expansion Program	1-Nov-2006	31-Oct-2009
08-1P	LSU	Mostafa Elseifi	Cost Effective Prevention of Reflective Cracking of Composite Pavement	1-May-2008	30-Apr-2010
08-1ST	LSU	Ayman Okeil	Evaluation of Continuity Details for Precast Prestressed Girders	10-Dec-2007	30-Nov-2009
08-2P	LSU	Mostafa Elseifi	Analysis of Seasonal Strain Measurements in Asphalt Materials Under Accelerated Loading	1-Jan-2008	31-Dec-2008
08-1TIRE	LSU	Guoping Zhang	Developing an In-situ Characterization Technique to Assess the Scour Potential of Cohesive Soils	1-Feb-2008	31-Jan-2009
08-2TIRE	LTU	Erez Allouche	Application of Inorganic Polymer Concrete ('Geopolymer') in Transportation Structures Located in Harsh Environments	1-Jan-2007	30-Nov-2008
08-3TIRE	LSU	Zhiqiang Deng	First Flush Reactor for Stormwater Treatment for Elevated Linear Transportation Projects	1-Dec-2007	30-Nov-2008

Active Research

Project No.	Agency	Principal Investigator	Title	Start Date	End Date
08-4TIRE	ULL	Ryan Benton	Automated Construction of 3D Road Models from Right-of-Way Video	1-Jan-2008	31-Dec-2008
08-6GT	LSU	Michele Barbato	Performance Evaluation of Buried Pipe Installation	1-Jan-2008	1-Apr-2009
09-1PLAN	LTRC	Chester Wilmot	LTRC Proposal for the Support of Research and Development in Transportation Planning	1-Jul-2006	30-Jun-2009
05-3ST	LSU	Guoqiang Li	Development of Advanced Grid Stiffened (AGS) FRP Tube-Encased Concrete Columns	1-Sep-2005	31-Aug-2008
05-5ST	LSU	Steve Cai	Development and Performance Evaluation of Fiber Reinforced Polymer Bridge	15-Nov-2005	14-May-2009
06-2B	LTRC	Louay Mohammad	Optimization of Tack Coat for HMA Placement	1-Jul-2005	30-Jun-2009
07-1ST	LTRC	Murad Abu-Farsakh, Sungmin Yoon	Structure Health Monitoring of the I-10 Twin Span Bridge Over Lake Pontchartrain	1-Nov-2007	31-Oct-2010
07-3GT	LSU	Roy Dokka	Development of Operational Real-Time Kinematic Global Positioning Service for Southeastern Louisiana	1-Nov-2007	31-Oct-2008
07-3ST	LSU	Steve Cai	Use of Fiber Reinforced Polymer (FRP) Bars in Highway Concrete Bridges	1-Oct-2007	30-Apr-2009
07-4ST	LSU	George Voyiadjis, Steve Cai, Sharma	Integral Abutment Bridge for Louisiana's Soft Soil	1-Oct-2007	31-Aug-2011
07-8P	LSU	Kun Lian	Developing Embedded Wireless Strain / Stress / Temperature Sensors Platform for Highway Applications	1-Jun-2007	30-Jun-2009
08-4GT	LTRC	Murad Abu-Farsakh, Qiming Chen	Support Study to Evaluation of the Base/Subgrade Soil Under Repeated Loading	1-Jan-2008	31-Dec-2008
	LSU	Steve Cai	Development of Scour Monitoring Techniques Using Fiber Optic Sensors	30-Sep-2008	31-Aug-2010
04-2P	LTU	Mohammad Jamal Khattak	LADOTD Pavement Management System: Development of Uniform Sections for PMS Inventory and Applications	1-Oct-2006	30-Sep-2008
05-1SS	LSU/ULL	Sherif Ishak, Brian Wolshon, Xiaoduan Sun	Evaluation Of The Traffic Safety Benefits Of A Lower Speed Limit And Restriction Of Trucks To Use Of Right Lane Only On I-10 Over The Atchafalaya Basin	1-Jan-2005	31-Aug-2008

LTRC: Louisiana Transportation Research Center LSU: Louisiana State University LTU: Louisiana Tech University ULL: University of Louisiana at Lafayette SU: Southern University

Active Research

Project No.	Agency	Principal Investigator	Title	Start Date	End Date
07-7P	ULL	Xiaoduan Sun	Safety Improvement from Edge Line of Rural Two-Lane Highways	1-Jul-2007	30-Jun-2010
08-2SS	LTRC	Chester Wilmot	LOOP Environmental Monitoring: 2008-2010 Beach Elevation, Beach Vegetation, and Land Loss and Habitat Change Surveys	1-Jan-2008	31-Dec-2010

LTRC: Louisiana Transportation Research Center LSU: Louisiana State University LTU: Louisiana Tech University ULL: University of Louisiana at Lafayette SU: Southern University

Total Number of Active Research Projects by Fiscal Year



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 Programs; 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.

Structured Training Programs

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 the personnel in construction, maintenance, and supervisory/leadership positions. The program also provides liaison assistance to headquarter 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 recertification of inspectors and technicians statewide in each area of construction.

The Maintenance Training Program focuses on the development of new job-specific courses related to job functions, work processes, and safe operation of equipment used by maintenance field personnel. These courses promote an awareness of safe practices and attitudes needed for maximum job performance.

Construction and Maintenance Course Development

There were 17 courses developed in this time period, 7 in construction and 10 in maintenance.

Construction Courses/Projects Completed

- » Application of Quality Assurance Specifications for Portland Cement Concrete and Structural Concrete (Updated to latest specifications)
- » Application of Quality Assurance Specifications for Asphaltic Concrete (Updated to latest specifications)
- » Introduction to Surveying (course revision)
- » Mathematics for Surveyors (course revision)
- » Module One: Training for the Automated Lightweight Profiler—Pre-Operation Procedures
- » Location and Design Advanced Math Geometry and Trigonometry (conversion from SI Metric units to English)
- » Levee and Flood Control Works Inspection (4 training modules)

Maintenance Courses/Projects Completed

- » Fall Protection/Aerial Lift Safety/Safety Harnessing
- » Workplace Safety
- » Trailer Mounted Boom Lift
- » Basic Flagging Procedures (course revision)
- » Maintenance Math Volume 1 (course revision)

Education & Training

- » Front End Loader (course revision)
- » Forklift (course revision)
- » Power and Hand Tool Safety (supplemental materials)
- » Training Needs Assessment of Basic Maintenance Trades Functions
- » IMSA recertifications

Construction and Maintenance Current/On-Going Projects

A total of 15 projects are currently ongoing, 9 in construction and 6 in maintenance

Construction Current/On-Going Projects

- » Management of the Inspector/Technician Certification Program for DOTD and the Louisiana transportation industry
- » Revisions of Specialty Area Tests to keep current with specifications
- » Conversion of testing materials to the IQ-Box web-based e-testing platform
- » Module Two: Training for the Automated Lightweight Profiler – IRI Readings
- » Base Course Inspection (course book revision)
- » Excavation and Embankment Inspection (course book revision)
- » Basic Asphaltic Plant Inspection (course book revision)
- » Asphaltic Concrete Paving Inspection Volumes 1 and II (course book revisions)
- » Introduction to Highway Plan Reading

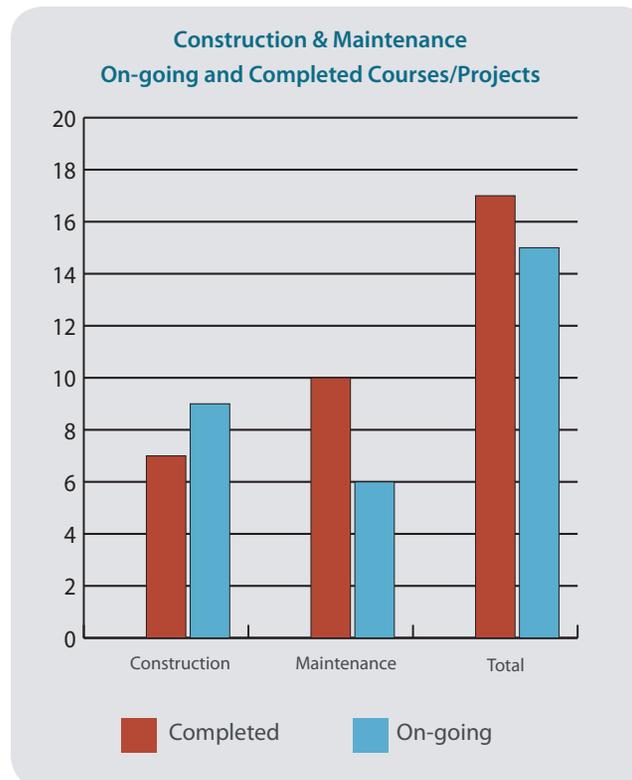
Maintenance Current/On-Going Projects

- » Traffic Signal Installation Plan Reading and Inspection
- » Herbicide Applicator Certification
- » SOCL Herbicide Spray Rig
- » SOCL Sweepers (revision)
- » IMSA Program Revitalization (Signs and Markings Level one)
- » Letter Bid Study Guide

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 2007–2008, 3 people participated in the ERDP and 62 participated in the Cooperative Education Program. In addition, more than 50 graduate students were supported through LTRC research during 2007–2008.

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 projects are transportation-related and are included in courses for which junior- or 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. Louisiana Tech, Southern, and Louisiana State University participated in the program during 2007-2008.



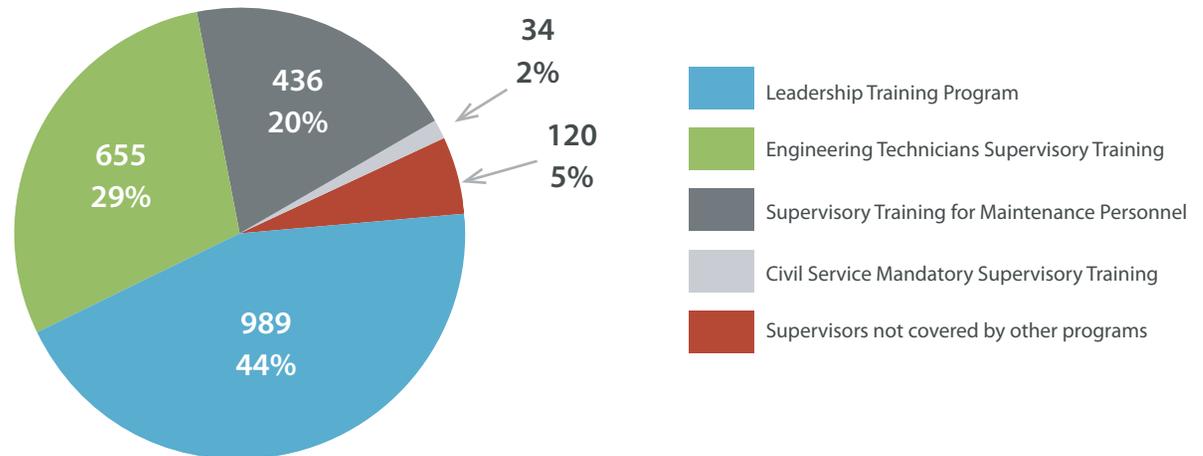
Education & Training

Management Development Training Program

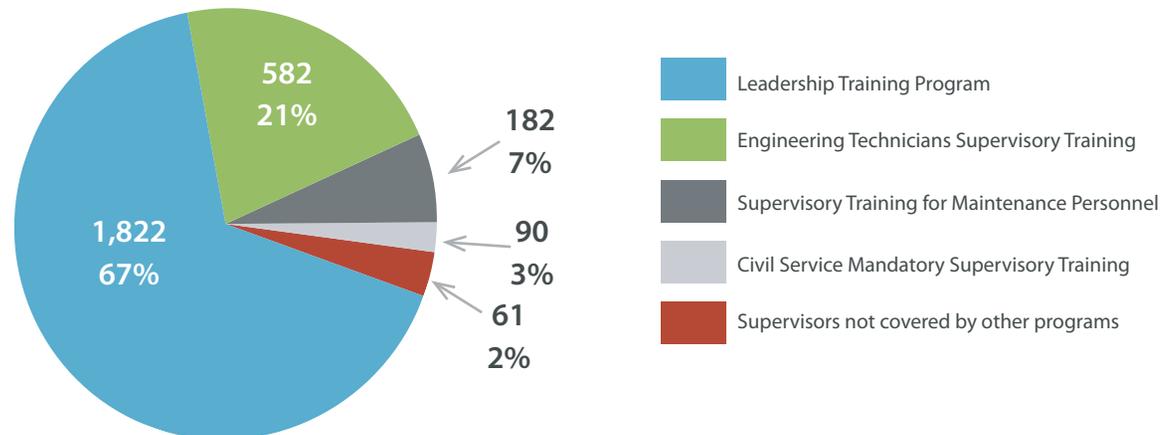
This program oversees several mandatory supervisory, management development, and career development training programs: the Leadership Training program, a structured training program for DOTD employees in a professional job series; the Engineering Technician Supervisory Training program, a supervisory training program for DOTD Engineering Technicians; the DOTD Supervisory Maintenance Training program, for trades, crafts, and maintenance supervisors; and the Civil Service Supervisory training program for supervisors not covered by other DOTD training programs.



There are currently **2,234** employees actively participating in leadership training.



The number of employees completing instructor-led courses for this period of time was **2,737**.



The Transportation Training and Education Center 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 new 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.
- » Incorporate instructional design concepts, utilizing the talents of formally trained designers to update and modernize courses.



A 100-seat classroom style lecture facility is one of the state-of-the-art learning environments available at TTEC. The center also includes two general purpose classrooms, a hands-on computer classroom, and an executive conference room

LTRC Establishes a Transportation Library

LTRC has established a transportation library at its Transportation Training and Education Center, with the goal of supporting researchers at LTRC, at the Louisiana Department of Transportation and Development, at Louisiana State University, and across the nation in their transportation related research. The idea behind the library is that having access to appropriate resources and knowing where to find valuable information quickly is key to facilitating quality research.

The first step toward establishing the library involves collecting and inventorying materials. Until now, various publications have been housed on open shelves in the

halls of LTRC, in storage buildings, in offices, and in work rooms. Once the publications have been organized in one designated area, seeing what is available and filling gaps with needed resources will be possible.

Also involved in the process is choosing and implementing a system that will manage cataloging and circulation. The catalog will be available online and will provide anyone with Internet access with the ability to search the collection and request materials. The circulation system will allow for checking materials in and out of the library and tracking use of the library. Knowing who is using the library, how often it is being used, and the purposes for which it is being used will help library personnel serve the customers with precision.

The Library News Blog, created to facilitate communication between the library staff and customers, contains entries, such as "Why a Blog?" and "LTRC TTEC Library Introductions." Library staff members hope a steady flow of information will enable the library to fulfill its purpose of supporting research. Topics that will be discussed on the blog in the near future include: Moodle, new items

cont. on page 18

TTEC

External Training Activities

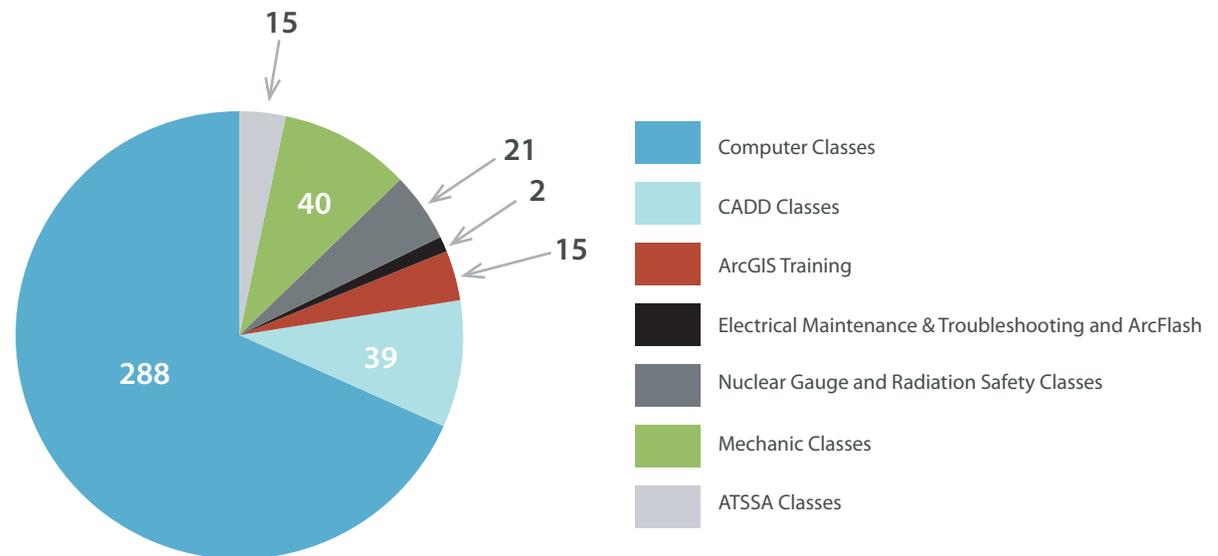
LTRC's external training program continues to supply the professional development and technical skills training necessary for the career growth of all DOTD employees. This training program, which is vital for DOTD and private industry, is increasing its offerings to the wider transportation community. External training satisfies specific needs by providing job-specific training topics through partnerships with universities and private training providers.

TTEC was the host for the majority of these events, which included National Highway Institute (NHI), FHWA, and Northwestern University courses. With 95 offerings from January 2007–June 2008, more than 2,000 DOTD employees received training. Approximately 660 consultants and state/local government employees and nearly 60 FHWA personnel attended training as well.

Individual Registrations

In addition to managing courses in-house, the center provides the opportunity to attend courses, conferences, seminars, and other educational and training opportunities offered by outside parties. During 2007–2008, LTRC managed registrations for 777 employees to attend 348 conferences, courses, seminars, and other educational and training opportunities offered by outside parties.

During 2007–2008, 3,656 students attended 420 computer and technical contract courses offered through LTRC. The types of courses are shown below:



LTRC Establishes a Transportation Library, cont. from page 17

coming to the library, hints for using new databases, and the limited availability of ASTM standards.

TTEC's library will share information with the libraries of various participating departments of transportation. Such will allow users of the TTEC library to take advantage of resources at libraries nationwide. Sharing will also allow users from all over the country to benefit from TTEC's resources. The networking provided by organizations such as The Eastern Transportation Knowledge

Network and the Transportation Library Connectivity Pool will help TTEC's library staff to better serve its myriad of customers.

A web site intended to provide easy access to all TTEC library resources is currently being developed. The page will be equipped with a chat feature that will allow visitors to communicate with the librarian in real time. Interested parties can access the library Web page through a link on LTRC's Web site.

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 and videos, or seminars and workshops, technology transfer's ultimate goal is to disseminate practical knowledge to municipalities, parishes, and the transportation industry at large.

DOTD. DOTD Human Resources coordinated the effort to match students and DOTD mentors based on areas of interest and/or geographical location. Students accompanied their mentors to technical sessions, DOTD table displays, and vendor exhibits. Mentors were asked to introduce their students to DOTD employees and administrators and take the opportunity to discuss the multitude of positive aspects of employment with DOTD. Student Shadowing allowed for a first contact between DOTD and prospective engineers.

LTRC is currently planning the 2009 Louisiana Transportation Conference, set for February 8-11, 2009, at the Baton Rouge River Center (www.ltrc.lsu.edu/ltrc_09).

Transportation Engineering Conference Moves to a New Venue

The Louisiana Transportation Research Center held the 2007 Louisiana Transportation Engineering Conference at the Baton Rouge River Center February 11-14. The conference is held on a biennial basis and is intended to foster a better relationship and greater understanding between DOTD, FHWA, and the transportation industry (contractors, consultants, universities, suppliers, and parish/local agencies). The conference could not be held as scheduled in 2006 because of the lingering effects of Hurricanes Katrina and Rita. The Program Committee planned and brought to fruition 72 technical sessions, several how-to clinics, and a myriad of alternative sessions dealing with various management and workplace issues. Many in attendance at the 2007 conference received credit for up to 16 professional development

hours (PDH), one of which is the biennially required hour in Professional Ethics. A conference Web site allowed for online registration and provided extensive program information.

Student Shadowing was a new program incorporated into the engineering conference this year. The program was introduced to familiarize college junior and senior engineering students with the many opportunities and engineering disciplines available within the DOTD. The goal of the program was to encourage students to consider careers in transportation, particularly with



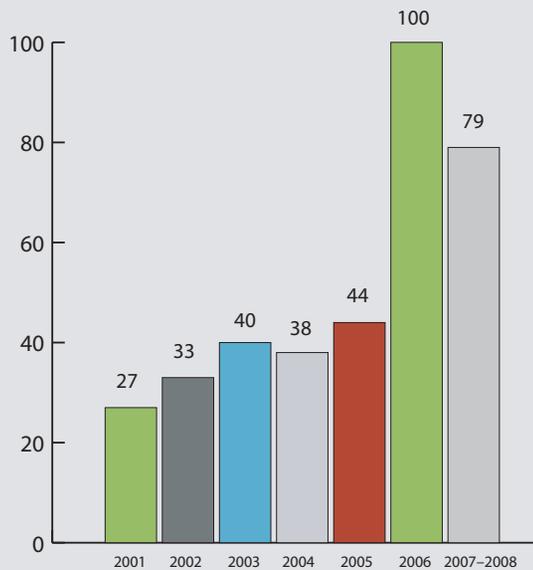
More than 1,500 transportation professionals attended the LTEC, held at the Baton Rouge River Center for the first time in 2007

Tech Transfer

Technical Assistance Projects

LTRC's technical assistance program provides laboratory testing, field testing, and forensic investigation in direct response to Departmental inquiries for expert analysis on DOTD projects. LTRC also provides assistance to state universities for laboratory or field testing on research projects not funded by LTRC. During the 2007-2008 fiscal year, LTRC responded to 79 of 80 technical assistance requests.

**Total Number of Technical Assistance Projects
2001-2008**



Peer Exchange Highlights Opportunities for Growth



The 2007 LTRC peer exchange was the first to utilize distance learning technology available at TTEC

While internal organizational reviews are critical to progress, periodic critiques from outside experts can provide invaluable insight, leading to best practice implementation. Such is the philosophy behind peer exchange.

In order to manage State Planning and Research (SP&R) funds, LTRC must conduct a peer exchange every three to five years, according to federal regulations (23 CFR 420 Subpart B). Peer exchange is an opportunity to review research and development and technology transfer activities. Its intent is to strengthen weak programs while enhancing strong ones.

LTRC's peer exchange team convened in Baton Rouge for three days in May for an informal open dialogue and exchange of ideas. During the meetings, LTRC

staff presented information about current focus areas and practices, and the invited participants shared their state practices and took part in brainstorming sessions.

The 2008 peer exchange team included representatives from Arizona, Florida, Iowa, Mississippi, South Dakota, Texas, Wisconsin, and Wyoming, along with officials from FHWA, LTRC, and DOTD headquarters. With the distance learning technology available at LTRC's TTEC, remote team members were able to participate in sessions via videoconference. This year's peer exchange focused on the following key areas:

- » Enhancing university relationships
- » Exploring new research topics
- » Effectively cooperating with regional peers
- » Measuring and reporting on the value of research
- » Developing LTRC's transportation library

The results from all presentations, interviews, and breakout sessions were compiled into a final report that identified LTRC's strengths in the aforementioned areas as well as opportunities for improvement and growth.

Tech Transfer

LTRC Seminar Focuses on Bridge Projects

LTRC held a bridge structures seminar on February 20–21, 2008, in New Orleans, Louisiana. The seminar boasted 150 attendees from 13 states and featured presentations on major bridge projects, moveable bridges, bridge maintenance, bridge rehabilitation, structures research, and bridge design. Several of the 17 participating speakers were from Louisiana. DOTD Chief Engineer William “Bill” Temple opened the series by welcoming participants to what he hopes will be the first of many such opportunities for the sharing of vital research. Following are examples of the session offerings:

- » DOTD’s Ching Tsai contributed to a session centered on the American Association of State Highway and Transportation Officials Load and Resistance Factor Design Code. He explained that, in compliance with a Federal Highway Administration mandate, DOTD and LTRC have an ongoing research project that calibrates the risk levels (in terms of resistance factors) associated with deep foundations in Louisiana.
- » Dr. John Kulicki, CEO at Modjeski and Masters and member of the National Academy of Engineering, gave a presentation on Luling Cable Stay Replacement summarizing the seven year process that culminated in AASHTO’s 1993 adoption of LRFD.
- » Bruce Peterson, of Louisiana TIMED Managers, presented information concerning the Huey P. Long Bridge widening project. The project involves a unique widening and rehabilitation project that will incorporate an

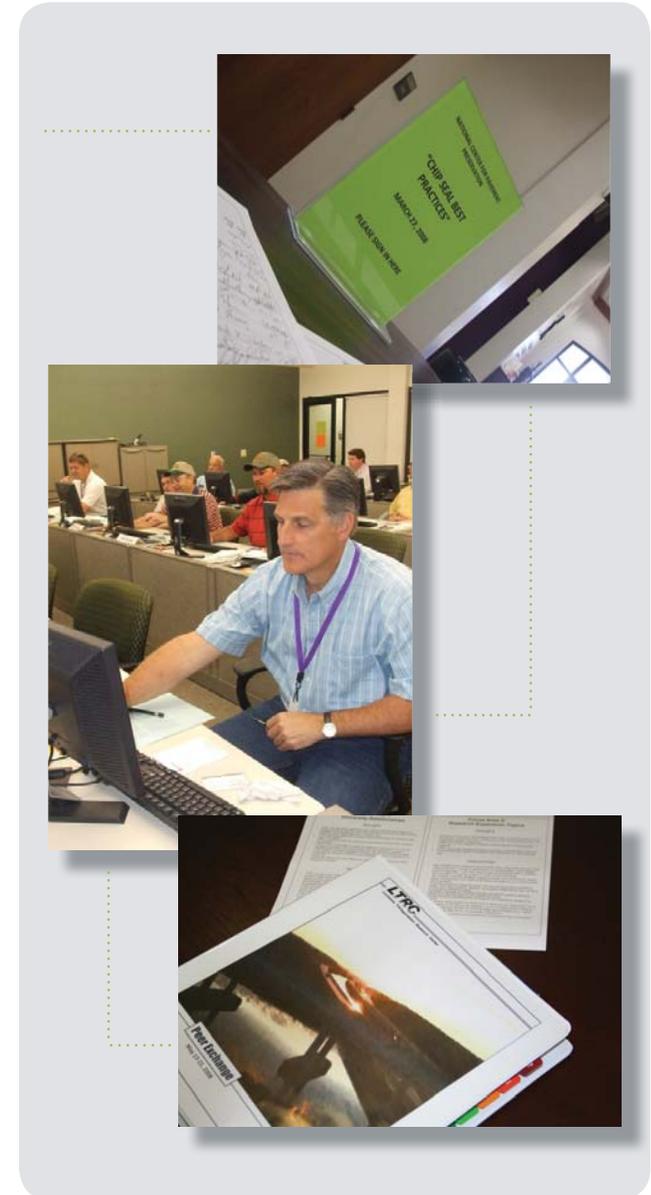
existing long span steel truss and existing cantilevered floor beam brackets into the widened multi-truss bridge.

When asked about the seminar, Peterson said, “It was very good because it provided current local research on local problems and issues. In addition, it was an opportunity to learn more about local projects that have been completed or are currently underway. New techniques and construction methods highlighted in these projects help to provide designers and owners with information on available techniques that could be applied to projects they are currently working on.”

LTRC Director Harold “Skip” Paul brought the proceedings to a close with positive observations concerning the success of the seminar and the benefits sure to come from the wealth of information provided.

Dissemination of Information

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 2007–2008, LTRC published 12 technical summaries, 9 project capsules, 2 implementation updates, 3 final reports, and 1 technical assistance report.



Local Technical Assistance Program

The Louisiana Local Technical Assistance Program (LTAP) is one of 58 centers in a national network that provides services to the local transportation community in each state, Puerto Rico, and the Native American Tribal areas. Each center operates independently to develop and implement programs that best meet the needs of the local transportation agencies while sharing a common national mission “to foster a safe, efficient, and environmentally sound surface transportation system by improving skills and increasing knowledge of the transportation workforce.” LTAP also shares four national focus areas that include infrastructure maintenance, safety, workforce development, and value delivery.

The LTAP provides an array of services geared specifically to the local agencies and personnel that manage and maintain Louisiana’s local roads and transportation system. Training classes and workshops have been primary services offered since the program began in 1986. Classes are routinely offered at eight locations around the state as part of the ongoing “Roads Scholar” program. Special topic classes are also offered, and on-site on-demand workshops are also available. LTAP also provides technical assistance on request, publishes a quarterly newsletter, and maintains a publication and video library.

LTAP and the Local Road Safety Program

LTAP has continued its tradition of more than 25 years of service to Louisiana’s local road and transportation agencies. LTAP provides technical assistance, information transfer, technical training, and work force development opportunities. Over the years, LTAP has helped local agency personnel learn about new and proven technologies to better manage and maintain Louisiana’s local roads and bridges. Popular classes included inspection and maintenance of local bridges, basics of road

construction and maintenance, work zone and safety, and heavy equipment operator safety. LTAP also works with the Louisiana Parish Engineers and Supervisors Association and the American Public Work Association to enhance professional development opportunities of local agency personnel.

A primary focus of LTAP has been the new Louisiana Local Road Safety Program (LRSP) which was initiated in 2006 to assist local communities in identifying and solving local road safety problems. Louisiana has one of the highest road fatality rates in the nation with a rate that

is 40 percent higher than the national average. In 2007, 987 people were killed on Louisiana’s roads. Fatalities on Louisiana’s local roads account for over 20 percent of the total roadway deaths in Louisiana and nearly 40 percent of the total crashes. The LRSP provides on-site technical assistance by experienced traffic engineers, training for local road staffs and community representatives, local crash data analysis, and a funding program for local road safety improvement projects. Over 80 project applications were received in 2007, and 39 of the highest priority projects were selected for funding. Selection criteria included the potential of the project to reduce crashes that result in serious injuries and fatalities. Special consideration was given to projects that were supported by crash data, low cost, and considered to be readily implementable. The projects ranged in size from less than \$5,000 to nearly \$500,000, and implementation is managed by the LTAP and LRSP staff in cooperation with the DOTD. The LRSP provides the primary mechanism to implement the strategies in the Louisiana Strategic Highway Safety Plan that relate to local road safety.

..... Local Technical Assistance Program

LTAP Director Serves as National President



Dr. Marie B. Walsh, the Director of the Louisiana LTAP, served as the president of the National LTAP Association (NLTAPA) from

July 2007 to July 2008. NLTAPA represents the 58 LTAP/TTAP state and regional centers to the Federal Highway Administration and to other external national partners involved in local transportation management and local road safety. During her term as president, she was instrumental in the formation of the NLTAPA Road Safety Committee to direct more national-level attention on the local road safety crisis and to focus LTAP efforts on local road safety. Over 60 percent of the nation's roadway fatalities occur on rural or locally owned roads, which are managed by LTAP's primary customer base. Nation-wide, LTAP centers are in an excellent position to assist local customers in improving road safety at the local level and play a role in driving down the number of deaths on all of America's roads.

Dr. Walsh participates in a number of national road safety committees to represent LTAP and the local transportation providers. She is also a member of the TRB Road Safety Work Force Development Task Force



Standing in front of the 2008 Work Cone Memorial at the LADOTD Headquarters Building (l to r): Col. Mike Edmonson, State Police; William Ankner, LADOTD Secretary; Dr. Marie Walsh; and Wes Bolinger, FHWA Division Administrator



Students participate in a Road Safety Audit class exercise



Instructors perform an electrical safety demonstration

and the Advisory Panel for an NCHRP study on the challenges and successes of attracting and retaining a skilled workforce. An active member of the Louisiana team to implement the Louisiana Strategic Highway Safety Plan, Dr. Walsh is a member of the Executive Committee for

the Traffic Records Coordinating Council, the Board of Directors for the Baton Rouge Branch of the American Public Works Association, the Louisiana Parish Engineers and Supervisors Association, and Louisiana Operation Lifesaver.

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LTRC Final Reports		
Report No. 417	Mohammad, L.N., Gaspard, K., Herath, H., and Nazzal, M.	Comparative Evaluation of Subgrade Resilient Modulus from Non-destructive, In-situ, and Laboratory Methods
Report No. 406	Mohammad, L.N., Herath, H., Gudishala, R., Nazzal, M., Abu-Farsakh, M., and Alshibli, K.	Development of Models to Estimate the Subgrade and Subbase Layers Resilient Modulus from In-situ Devices Test Results for Construction Control,
Report No. 410	Mohammad, L.N., Wu, Z., and Raghavedra, A.	Performance Evaluation of Louisiana Superpave Mixtures
Report No. 409	Mohammad, L.N., Rasoulian, M., King W., and Martinez, M.	Evaluation of Stone/RAP Interlayers under Accelerated Loading
Report No. 393	Cooper, S., Mohammad, L.N., and Abadie, C.	Evaluation of Field Projects Using Crumb Rubber Modified Asphaltic Concrete

LTRC Technical Summaries	
381	Louisiana Traffic Sign Inventory and Management System
389	Assessment of In Situ Test Technology for Construction Control of Base Courses and Embankments
395	Fatigue and Shear Behavior of HPC Bulb Tee Girders
396	Development of Laboratory Testing Facility for Evaluation of Base-Soil Behavior Under Repeated Loading:Phase-1: Feasibility Study
399	Statewide Traffic Safety Study Phase I: Review of Current Traffic Safety Research, Practice, Analytical Procedures, and Databases
400	Evaluation of Freeway Contraflow Evacuation Initiation and Termination Point Configurations
407	Modeling Hurricane Evacuation Traffic: Testing the Gravity and Intervening Opportunity Models as Models of Destination Choice in Hurricane Evacuation
408	Modeling Hurricane Evacuation Traffic: Development of a Time-Dependent Hurricane Evacuation Demand Model
418	Monitoring System to Determine the Impact of Sugarcane Truckloads on Non-Interstate Bridges
420	Assessing the Need for Intermediate Diaphragms in Prestressed Concrete Bridges

LTRC Technical Assistance Reports		
07-3TA	Wilmot, C.G., S. Varanasi, and S. Vadlamani	Analysis of Louisiana Vehicular Input Data for MOBILE 6
08-2TA	Gaspard, K	Assessment of TriDyne Precast Panels

LTRC Implementation Updates	
334	Evaluation of Bearing Capacity of Piles from Cone Penetration Test Data
347	Construction and Comparison of LA's Conventional and Alternative Base Courses Under Accelerated Loading

..... Publications & Presentations

LTRC Project Capsules	
07-2S	Design of Lane Merges at Rural Freeway Construction Work Zones
07-1ST	Structure Health Monitoring of I-10 Twin Span Bridge
07-3ST	Repairing/Strengthening of Bridges with Post-Tensioned FRP Strands and Performance Evaluation
07-4ST	Integral Abutment Bridge For Louisiana's Soft and Stiff Soils
07-7P	Safety Improvement from Edge Lines of Rural Two-Lane Highways
08-1ST	Evaluation of Continuity Detail for Precast Prestressed Girders
08-2P	Analysis of Seasonal Strain Measurements and Asphalt Materials Under Accelerated Load
08-6GT	Performance Evaluation of Buried Pipe Installation
08-7GT	LTRC Project Management and Tracking System

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Publications in the <i>Journal of the Transportation Research Board</i>			
Abu-Farsakh, M. Y., Zhang, Z., and Gautreau, G.	"Evaluating the Deformation Modulus of Cohesive Soils from PCPT for Consolidation Settlement Estimation"	No. 2004	pp. 49–59
Abu-Farsakh, M. Y., Nazzal, M., and Mohammad, L.N.	"Effect of Reinforcement on Resilient and Permanent Deformations of Base Course Material"	No. 2004	pp. 120–131
Abu-Farsakh, M. Y., Gu, J., Voyiadjis, G. Z., and Mingjiang, T.	"Numerical Parametric Study of Strip Footing on Reinforced Embankment Soil"	No. 2004	pp. 132–140
Chen, Q., Abu-Farsakh, M. Y., Sharma, R., and Zhang X.	"Laboratory Investigation of the Behavior of Foundations on Geosynthetic Reinforced Clayey Soil"	No. 2004	pp. 28 –40
Fu, H., Wilmot, C.G., Zhang, H., and Baker, E.J.	"Modeling the Hurricane Evacuation Response Curve"	No. 2022	pp. 94–102
Fu, H., Wilmot, C.G., and Baker, E.J.	"A Sequential Logit Dynamic Travel Demand Model and it's Transferability"	No. 1977	pp. 17–24
Ishak, S., Kondagari, S. and Alecsandru, C.	"A Probabilistic Data-Driven Approach For Real-Time Screening Of Freeway Traffic Data"	No. 2012	pp. 94–104
Nazzal, M., Abu-Farsakh, M. Y., Alshibli, K., and Mohammad, L.N.	"Evaluating the LFWD Device for In Situ Measurement of Elastic Modulus of Pavement Layers"	No. 2016	pp. 13–22
Sun, X., Park, J., Tekell, Jr., V.O., Ludington, N.S.	"Evaluation of Pavement Edge Lines on Narrow Highways with Low Traffic Volume in Louisiana"	No. 1989	pp. 115–122

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Tao, M., Abu-Farsakh, M., Zhang, Z., and Mohammad, L.N., "Laboratory Characterization of Drainable Unbound Aggregate," published at the 87th TRB annual meeting CD, Washington, D.C.

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Presentations

Abadie, C., "LTRC Asphalt Binder Research and Specification Review," June 2008, Sandestin Florida, LAPA annual meeting.

Abadie, C., "Quality in Paving; US 190 Forensic Evaluation," June 2007, Sandestin Florida, LAPA annual meeting.

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Deng, Z.Q. and Chowdhary, H. "Statistical Evaluation of BMP Effectiveness in Reducing Stormwater Runoff-Induced Dissolved Oxygen Impairment in Mermentau River Basin," The 7th Annual Stormwater Conference, Orlando, Florida, August 3-7, 2008.

Habib, E. and Sun, X. "Analysis of Rainfall-Accident Relationships Using High-Resolution Radar-Rainfall Data," presentation at the 2008 Southern District ITE (SDITE), Annual Meeting, Charleston, South Carolina, March 30–April 2, 2008

Gaspard, K., 2007, "Laboratory assessment of Uretek," Executive staff at LADOTD HQ and Uretek USA.

Gaspard, K., 2007, "Design and Maintenance of Gravel Roads," Louisiana Parish Engineers Association.

Gaspard, K., 2007, "Forensic Investigation of Distresses in Concrete Pavements," LADOTD staff at HQ.

Gaspard, K., 2007, "Laboratory Correlation of Subgrade Modulus with Non-Destructive Testing Equipment," DOTD staff at HQ.

Mohammad, L.N., "Tack Coat Quality and Interface Bond Testing," Presented at the 49th Louisiana Asphalt Pavement Association Convention, Sandestin, Florida, June 4-8, 2008

Mohammad, L.N., Nazzal, M., and Austin, A., "Laboratory Characterization of Asphalt-Treated Granular Bases," Presented at the 16th Annual International Center for Aggregate Research Symposium, Austin, Texas, May 12–14, 2008.

Mohammad, L.N., "Research Update on NCHRP Project 9-40 on Optimization of Tack Coat for HMA Placement," Presented at the 35th Annual Meeting of the Asphalt Emulsion Manufacturer Association, San Jose del Cabo, Mexico, February 19-23, 2008.

Mohammad, L.N., "Effect of Tack Coat Material type and Application Rate on the Bond Strength," Presented at the 9th Annual Meeting of the Association of Modified Asphalt Producers Austin, Texas, February 11–13, 2008.

Presentations Given at the 2007 Louisiana Transportation Engineering Conference (Baton Rouge, February 11-14, 2007)

Abadie, C.	Concrete Pavement and Smoothness
Abu-Farsakh, M. Y., Chen, Q., and Gu, J.	Geosynthetic Reinforced Foundation
Abu-Farsakh, M. Y., Nazzal, M., and Mohammad, L.N.	Geosynthetic Reinforced Pavement
Mohammad, L.N.	Performance of Stone & RAP Interlayers Under Accelerated Load Testing
Mohammad, L.N.	Performance of HMA Mixtures with Aggregate Structures Designed Using the Bailey Method
Nazzal, M., and Mohammad, L.N.	Reliability of Material Input Parameters for the Implementation of the MEPDG
Mohammad, L.N.	Characterization of Fracture Resistance of Superpave Mixture Using a Semi-Circular Fracture Tests
Sun, X.	Highway Safety Analysis Tools for Engineers
Sun, X.	Impact of Pavement Edge Line on Vehicular Lateral Position on Narrow Rural Two-Lane Roadways in Louisiana
Tao, M., and Abu-Farsakh, M. Y.	Optimizing Unbound Aggregate Bases through Laboratory Tests
Wilmot, C.G.	Highway Safety in Louisiana
Wu, Z.	Evaluating Structural Performance of Base/Subbase Materials at the Louisiana Accelerated Pavement Research Facility
Wu, Z.	Structural Overlay Design Using NDT Methods
Yoon, S., and Abu-Farsakh, M. Y.	LRFD Application in Driven Pile Design
Zhang, Z.	Alternative Tests for Durability of Cement Stabilized Low Plasticity Soils

Publications & Presentations.....

Presentations Given at the 86th Transportation Research Board Annual Meeting (Washington, D.C., January 21-25, 2007)	
Fu, H., Wilmot, C.G. and Zhang, H.	Modeling the Hurricane Evacuation Response Curve
Fu, H., and Wilmot, C.G.	Static Versus Dynamic and Aggregate Versus Disaggregate: Comparison Between Practice and Research in Hurricane Evacuation Travel Demand Modeling
Abu-Farsakh, M. Y., Nazzal, M., and Mohammad, L.N.	Geosynthetic Reinforced Pavement
Mohammad, L. N., Saadeh, S., Obulareddy, S., and Cooper, S.	Characterization of Louisiana Asphalt Mixtures Using Simple Performance Tests,
Mohammad, L.N.	Performance of HMA Mixtures with Aggregate Structures Designed Using the Bailey Method
Nazzal, M., and Mohammad, L.N.	Reliability of Material Input Parameters for the Implementation of the MEPDG
Mohammad, L.N.	Characterization of Fracture Resistance of Superpave Mixture Using a Semi-Circular Fracture Tests
Ni, F., Wu, Z., Chen, R.S., Gu, X. and Dong, Q.	Fatigue and Anti-Reflective Cracking Properties of Binder Course Mixtures Used in China
Sun, X.	Impact of Pavement Edge Line on Vehicular Lateral Position on Narrow Rural Two-Lane Roadways in Louisiana
Tao, M., and Abu-Farsakh, M. Y.	Optimizing Unbound Aggregate Bases through Laboratory Tests
Wilmot, C.G.	The Case for Standardizing Household Travel Surveys
Wolshon, B.	Traffic Impacts and Dispersal Patterns on Secondary and Low Volume Roadways During Regional Evacuations
Wolshon, B.	Characterization and Comparison of Traffic Flow on Reversible Roadways
Wu, Z., Zhang, Z. , King, B., and Mohammad, L. .N.	Evaluating Structural Performance of Base/Subbase Materials at the Louisiana Accelerated Pavement Research Facility
Zhang, Z.	Alternative Tests for Durability of Cement Stabilized Low Plasticity Soils

Mohammad, L. N., "Laboratory Evaluation of HMA Mixtures Containing CRM Binder," Presented at the DOTD PG 82-22 RM Asphalt Binder Specification Meeting, Baton Rouge, Louisiana, December 12, 2007.

Mohammad, L.N., Nazzal, M., and Austin, A., "Evaluation of Low Cost Asphalt Treated Base Mixtures," Presented at the 2007 SEAUPG Annual Meeting, San Antonio, Texas, November 13-15, 2007.

Mohammad, L. N., and Kabir M., "Evaluation of Superpave Mixtures Containing Hydrated Lime." Presented at the Superpave Mixture Design Task Group Meeting, 2007 SEAUPG Annual Meeting, San Antonio, Texas, November 13-15, 2007.

Mohammad, L.N., "Review of the Development, Implementation and Performance of Superpave Mixtures," Presented to the Aswan Faculty of Engineering , South Valley University, Aswan, Egypt, July 19, 2007.

Mohammad, L. N., "The Design and Performance of Perpetual pavements," Presented at the 2nd International Symposium on Pavement Engineering, Hefei, Anhui , China, June 20 – June 23, 2007. (Key Note Speaker)

Mohammad, L. N., "Application of Strength Tests for Permanent Deformation of HMA Mixtures," Presented at the 48th Louisiana Asphalt Pavement Association Convention, Sandestin, Florida, June 6-10, 2007. (Invited Guest Speaker)

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Mohammad, L.N., Saadeh, S., and Cooper S., "Evaluation of Asphalt Mixtures Containing Sasobit Warm Mix Additive," Presented at the GeoCongress 2008: The Challenge of Sustainability in the Geoenvironment, New Orleans, Louisiana, March 9-12, 2008.

Mohammad, L.N., and Saadeh, S., "Performance Evaluation of Stabilized Base and Subbase Material," Presented at the GeoCongress 2008: The Challenge of Sustainability in the Geoenvironment, New Orleans, Louisiana, March 9-12, 2008.

Mohammad, L.N., Saadeh, S., "Evaluation Of Rutting Susceptibility Of Superpave Mixtures," Presented at the 5th International Symposium on Maintenance & Rehabilitation of Pavements, Park City, Utah, August 8-10, 2007.

Mohammad, L.N., Saadeh, S., Zhang, C., Cooper, S., Abadie, C., and Khattak, J., "Comparative Study of the Mechanical Properties of HMA Mixture: Field vs Laboratory," Presented at the Annual meeting of the Association of Asphalt Paving Technologists, San Antonio, Texas, March 12-14, 2007.

Saber, A., 2007, "Cost of Proposed Higher Truck Loads on State Bridges," ASCE/ACI Louisiana Civil Engineering Conference and Show, September, Kenner, LA.

Saber, A., 2008, "Impact of Heavy Loads on State and Parish Bridges", LTRC Bridge Seminar Series, February, New Orleans.

Saber, A., 2008, "Cost of Heavy Loads on State and Parish Bridges", LES Monroe Chapter, March, Monroe.

Sun, X., "Safety Impact of Differential Speed Limit on Atchafalaya I-10," DSITE Annual Meeting, Gulf Shores, AL, June, 2008.

Sun, X., "Investigating Weather Impact on Crashes," DSITE Meeting, Charleston, SC, March 2008.

Tao, M., Abu-Farsakh, M., and Zhang, Z., 2007, "Characterization of Unbound Aggregates through Laboratory Tests," The 14th National Conference on Pavement Engineering, Douliou, Taiwan, September 13-14.

Tao M., Abu-Farsakh M., and Zhang Z., 2008, "Optimize Drainable Unbound Aggregate through Laboratory Tests," Presented at Geo Congress 2008, New Orleans, Louisiana, pp. 28-35.

Wilmot, C.G., Williams, M.B., and Seals, R.K. "Mandatory and Desirable Elements of a Capstone Design Course," Presented at the National Capstone Design Course Conference, University of Colorado, Boulder, June 13-15, 2007.

Wolshon, B., "Traffic Impact and Dispersal Patterns on Low Volume Roads During Mass Evacuations," Disasters and Low Volume Roads Workshop, 9th International Conference on Low Volume Roads, Austin TX, June 2007.

Wolshon, B., "Outcomes from the 2007 National Conference on Disaster Planning for the Carless Society," Research Council Committee Meeting on the Role of Public Transportation in Emergency Evacuation, National, Washington D.C., March 2007. (via teleconference)

Wolshon, B., "Operational Results of the Louisiana Katrina Evacuation," Joint Meeting with the Japan Atomic Energy Agency, International Programs Office, Sandia National Laboratory, Albuquerque, NM, March 2008.

Wolshon, B., "Development and Effect of the Louisiana Regional Evacuation Plan," Fall Conference of the Louisiana Parish Engineers and Supervisors Association, Lafayette, LA, September, 2007.

Wolshon, B., "Operational Characteristics of Traffic Flow on Reversible Arterial Roadways," Annual Conference of the Southern District of the Institute of Transportation Engineers, Biloxi, MS, June 2007.

Publications & Presentations

Wolshon, B., "Engineering and Computer Modeling for Carless Evacuation," 2007 Planners Network Conference, University of New Orleans, New Orleans, LA, June 2007.

Wolshon, B., "Regional Level Microscale Evacuation Modeling for Evacuation," Texas Hurricane Conference, Galveston, TX, May 2007.

Wolshon, B., "Planning for the Evacuation of Carless Populations: Application of Microsimulation for Regional Multimodal Evacuations," Conference on Severe Storm Prediction, Education and Evacuation from Disasters, Rice University, Houston, TX, May 2007.

Wolshon, B., "Effects of Contraflow Evacuation Traffic Operations," Sandia National Laboratory, Albuquerque, NM, February 2007.

Wolshon, B., "Reversible Lanes for Improved Arterial Operations," Annual Meeting and Exhibit of the Institute of Transportation Engineers, Pittsburgh, PA, August 2007.

Wolshon, B., "Regional Traffic Dispersal Patterns Under Managed Evacuation: The Katrina Case Study," Freeway and Tolling Operations in the Americas Conference, Houston, TX, May 2007.

Wolshon, B., "Simulation of the New Orleans Carless Evacuation Plan," National Conference on Disaster Planning for the Carless Society, New Orleans, LA, February 2007.

Wolshon, B., Presentation to the Rotary Club of Baton Rouge on the subject of hurricane evacuation in Louisiana, Baton Rouge, LA, September 2007.

Wolshon, B., Presentation to the Houston Forum on the subject of hurricane evacuation research within the Rice University SSPEED Center, Houston, TX, August 2007.

Wolshon, B., Presentation to the Kiwanis Club of Baton Rouge on the subject of hurricane evacuation in Louisiana, Baton Rouge, LA, April 2007.

Wu, Z., Zhang, Z., Morvant, M., Paul, H. and Temple, B., 2008, "Accelerated Pavement Testing on Thin Asphalt Pavements with Various Base and Subbase Layers," Presented at the First International Symposium on Transportation and Development Innovative Best Practices. T&DI of American Society of Civil Engineers, April 24-26, 2008. Beijing, China.

Wu, Z., Chen, X., Gaspard, K. and Zhang, Z., 2008 "Structural Overlay Design of Flexible Pavement by Non-Destructive Test Methods in Louisiana," Presented at the 87th Transportation Research Board Annual Meeting, Washington, D.C., Jan. 13-17.

Wu, Z., 2007, "Instrumentation and Performance Evaluation of Superpave Mixtures under Full-Scale Accelerated Pavement Testing," Presented at the Department of Civil and Environmental Engineering of LSU, Dec. 5.

Wu, Z., 2007, "Hydroplaning Prediction Using PAVFRN," Presented at the LTRC conference room, Oct. 15.

Wu, Z., 2007, "M-E PDG: Flexible Pavement Structural Inputs and Distress Model Calibration," Presented at the LTRC TTEC conference room, Sept. 19.

Wu, Z., Zhang, Z. and Mohammad, L.N., 2007, "Performance Evaluation of Stone and RAP Interlayers in Soil-Cement Pavements under Accelerated Loading," Presented at the 7th International Conference of Chinese Transportation Professionals, Shanghai, May 20-23.

Zhang, Z., 2007, "Build Reliable Cement Treated Subgrade Layer," The 7th International Conference of Chinese Transportation Professionals, May 21-22, 2007, Shanghai.

Zhang, Z., 2007, "Network Analysis of Pavement Structures Damage Caused by Hurricane Katrina Flooding," Invited Speaker at CE 7750 – Seminar, Louisiana State University, March.

Zhang, Z. 2007, "Pavement Structures Damage Caused by Hurricane Katrina Flooding," TRB's Data Analysis Working Group ("the DAWG") Annual Meeting, Washington D.C., January.

..... Publications & Presentations

Presentations Given at the 87th Transportation Research Board Annual Meeting (Washington, D.C., January 13-17, 2008)	
Abu-Farsakh, M., Zhang, Z., Tumay, T., and Morvant, M.	Development of MS-Windows CPT Soil Classification Software (poster session)
Abu-Farsakh, M. Y., Zhange, Z., and Gautreau, G.	Evaluating the Deformation Modulus of Cohesive Soils from PCPT for Consolidation Settlement Estimation
Abu-Farsakh, M. Y., Nazzal M., and Mohammad, L.	Effect of Reinforcement on Resilient and Permanent Deformations of Base Course Material
Abu-Farsakh, M. Y., Gu, J., Voyiadjis, G. Z., and Mingjiang T.	Numerical Parametric Study of Strip Footing on Reinforced Embankment Soil
Chen, Q., Abu-Farsakh, M. Y., Sharma, R., and Zhang, Z.	Laboratory Investigation of the Behavior of Foundations on Geosynthetic Reinforced Clayey Soil
Cheng, G., and Wilmot, C.G.	Louisiana Highway Construction Cost Trend After Hurricanes Katrina and Rita
Cheng, G., and Wilmot, C.G.	Destination Choice Model for Hurricane Evacuation
Fu, H., and Wilmot, C.G.	The Effect of Passenger Age and Gender on Young Driver Crash Risks
Gaspard, K.	Asphalt pavement overlay design techniques
Mohammad, L.N., Saadeh, S., Kabir, M.D., Othman, A., and Cooper, S.	Characterization of Louisiana Asphalt Mixtures Using Simple Performance Tests
Nazzal, M., Mohammad, L.N., and Gaspard, K.	Development of Resilient Modulus Prediction Models for Louisiana Subgrade Soils
Nazzal, M., Abu-Farsakh, M. Y., Alshibli, K., and Mohammad, L.N.	Evaluating the LFWD Device for In Situ Measurement of Elastic Modulus of Pavement Layers
Sun, X.	Preliminary Application Experience of Rural Multiple-Lane (RML) Safety Predictive Model with Louisiana Data
Tao M., Abu-Farsakh M., Zhang Z., and Mohammad, L.N.	Laboratory Characterization of Drainable Unbound Aggregate
Wolshon, B.	Empirical Characterization of Mass Evacuation Traffic Flow
Wolshon, B.	History, Outcomes, and Future of Evacuation Traffic Simulation in Louisiana
Wu, Z., Zhang, Z. and Morvant, M.	Performance of Various Base/Subbase Materials under Accelerated Loading
Yoon, S., Abu-Farsakh, M., Tsai, C., and Zhang, Z.	LRFD Calibration of Axially-Loaded Concrete Piles Driven into Soft Soils

Books/Journals Edited

Associate Editor, *ASCE Journal of Materials in Civil Engineering*

Associate Editor, *Journal of Engineering Research*

Associate Editor, *International Journal of Pavement Research and Technology*

Editor, *Journal of the Association of Asphalt Pavement Association CD ROM version,*

Volumes 19-15, 2007.

Organization & Committee Memberships

Transportation Research Board (TRB) Committees

- » AHB20, Freeway Operations Committee
- » ABJ70, Artificial Intelligence and Advanced Computing Applications
- » ANB10 (4), Subcommittee on Emergency Evacuation
- » A2B09, Full Scale Accelerated Pavement Testing
- » AFK10, General Issues in Asphalt Technology
- » AFK30, Characteristics of Non Bituminous Components of Bituminous Paving Mixtures
- » AFK40, Characteristics of Bituminous-Aggregate Combinations to Meet Surface Requirements (committee chair)
- » AFK50, Characteristics of Bituminous Paving Mixtures to Meet Structural Requirements;
- » AFK 60, Flexible pavement construction and rehabilitation
- » AFK 80, Basic Properties of Concrete
- » AHD20, Pavement Maintenance Committee;
- » AFP20, Committee on Exploration and Classification of earth Materials.
- » AFS50, Committee on Modeling Techniques in Geomechanics.
- » AFS70, Committee on Geosynthetics.
- » AFP50, Committee on Seasonal Climatic Effects Including Frost Action on Transportation Infrastructure.
- » AFS40, Committee on Subsurface Soil-Structure Interaction.
- » AFP40, Committee on Physicochemical and Biological Processes in Soils
- » AFP10, Committee on Pavement Management Systems
- » AFP60, Committee on Engineering Behavior of Unsaturated Soil

American Society of Civil Engineers (ASCE)

- » Transportation and Development Institute, Planning and Economics Committee
- » Highway Safety Committee
- » Construction Institute Bituminous Committee.
- » Bituminous Materials Committee (BMC)
- » Baton Rouge Geotechnical Chair

National Cooperative Highway Research Program

NCHRP Project Panel Chair

- » Project 9-36 on the Improved Procedure for Laboratory Aging of Asphalt Binders in Pavements.

NCHRP Project Panel Member

- » Project 9-39 on Development of Procedures for Determining the Mixing and Compaction
- » Temperatures of Superpave Asphalt Binders in Hot Mix Asphalt;
- » Project 1-42A on Models for Predicting Top-Down Cracking of Hot-Mix Asphalt Layers.
- » Project 20-05/Synthesis Topic 38-09, Correlation for Resilient Modulus Values of Subgrades and Unbound Pavement Materials
- » Project 20-71, A Manual for Methodology of Experimental Design and Analysis
- » Project 20-68A, U.S. Domestic Scan Program

Federal Highway Administration (FHWA)

- » Asphalt Binder Expert Task Group
- » Pavement Preservation Emulsion Task Group
- » Highways for Life Innovative Technology Review Team

Miscellaneous

- » Accelerated Pavement Testing Consortium and Technical Exchange Partnership (CAPT)
- » Asphalt Pavement Analyzer User Group
- » ASTM D 04.25 on Analysis of Bituminous Mixtures (Chair)
- » Association of Asphalt Paving Technologists (AAPT)
- » Committee on International Transportation
- » Concrete Pavement Technology Center
- » Conference Organizing Committee, National Conference on Disaster Planning for the Carless Society
- » Engineering Geology and Site Characterization Committee, Geo-Institute

..... Organization & Committee Memberships

- » Highway Safety Manual Task Force
- » International Society of Asphalt Pavement
- » International Steering Committee for Travel Survey Conferences
- » Institute of Transportation Engineers Transportation Security and Evacuation Advisory Committee.
- » Louisiana Engineering Society
- » LTPP State Highway Agency (SHA) contact person
- » National Research Council Committee on the Role of Public Transportation in Emergency Evacuation.
- » National Society of Professional Engineers
- » Research Advisory Group of the National Stone, Sand, and Gravel Association
- » Southeastern Asphalt User Producer Group
- » Scientific Committee, The Fifth International Conference on Maintenance and Rehabilitation of Pavements and Technological Control
- » US Universities Council on Geotechnical Engineering Research (USUCGER)

Training Memberships

- » American Society for Training and Development
- » Civil Service Mandatory Training Coordinator for DOTD
- » Construction Certification Committee
- » CPTP Statewide Training Coordinators rep. for DOTD
- » DOTD Loss Prevention Committee
- » DOTD Testing Procedures Committee
- » LA Comprehensive Public Training Program (CPTP) Curriculum Committee
- » Southeast Task Force on Technician Training and Qualification

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Amar Raghavendra, P.E., Applications Engineering Manager
Munir Nazzal, Ph.D., Senior Research Scientist

Structures Research

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

Planning/Intermodal

Chester Wilmot, Ph.D., Associate Professor

Technology Transfer & Training

Sam Cooper, P.E., Associate Director, Technology
Transfer & Training
Bridget LeBlanc, Executive Services Assistant
David Jumper, IT Technical Support
Scott Menter, Audio Video 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

LTRC Policy Committee

Structured Training Programs

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Cindy Twiner, Construction and Materials
Program Manager

C. Gordon Smith, Management Development
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Karen Cordell, Headquarters Training Program Manager

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Kelvin Stone, Training and Development Specialist

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