

Technology

Today

Vol 18
No. 4

LTRC

2004

A publication of the Louisiana Transportation Research Center

Peer Exchange Produces Results



Peer exchange team members participate in the final discussion at DOTD headquarters

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 exchanges.

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). The peer exchange is an opportunity for review of research and development and technology transfer activities. Its intent is to strengthen weaker pro-

grams while enhancing stronger ones.

LTRC's peer exchange team convened in Baton Rouge for three days in fall 2003 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.

Cont. on
page 8

Pilot Training Program Pays Off

for Lafayette District

Fifteen LADOTD maintenance equipment operators from the Lafayette district (03) recently completed an employability skills pilot program administered by LTRC and conducted by Louisiana Technical College, Lafayette Campus

(LTC-Lafayette). If the program is implemented, it will provide instruction for a statewide comprehensive basic skills assessment and remediation program.

The pilot program was coordinated by the Lafayette

District Training Office, LTRC staff, and LTC-Lafayette staff. District 03 volunteered for the pilot program and was selected based on their interest in new training endeavors.

Cont. on
page 7

LTRC and Chang'an University Form

International Partnership

Technology Today Publication Statement

Technology Today is a quarterly publication of the Louisiana Transportation Research Center, administered jointly by the Louisiana Department of Transportation and Development and Louisiana State University. For additional information on material included in this newsletter, contact the editor, (225) 767-9145, Louisiana Transportation Research Center, 4101 Gourrier Ave., Baton Rouge, LA 70808-4443.

Joe T. Baker, P.E.
- Director, LTRC
Kirt Clement, P.E.
- Assoc. Director, Technology Transfer
Skip Paul, P.E.
- Assoc. Director, Research
Sher Creel
- Executive Editor
Emily Wolfe
- Editor
Vicki Dischler
- Graphic Designer
Nick Champion
- Photographer
Jenny Speights
- Web site Developer



LTRC and the College of Highway Engineering at Chang'an University in Xi'an, China, have initiated a technology exchange program that will benefit both partners tremendously.

During a two-week trip to China in November 2003, officials from Chang'an University hosted a delegation from LTRC. Zhongjie "Doc" Zhang (Sr. Geotechnical Research Engineer), Chris Abadie (Materials Research Administrator), Bill King (Pavement Research Facility Administrator), and Joe Baker (Director) represented LTRC. Dr. Xiaoduan Sun of the University of Louisiana at Lafayette also participated in the trip.

Aside from a visit to the highway engineering college at Chang'an, the trip also

included stops at the Shanghai Highway and Transportation Society, Tongji University in Shanghai, and the Highway Department's Ministry of Communications in Beijing. China's Ministry of Communications is similar to the Federal Highway Administration (FHWA) in the United States. At various engagements throughout the trip, the LTRC representatives presented an overview of LTRC's operations and more detailed information about specific research areas, projects, and facilities.

Chang'an University initiated the technical partnership because of its interest in LTRC's operations, particularly the ALF device at the Pavement Research Facility. During the trip, Dr. Xu Yue, Dean of the

College of Highway Engineering at Chang'an, and Baker signed a statement of cooperation that formally established the partnership between the college and LTRC. As part of the agreement, LTRC will provide technical consulting for Chang'an's ALF needs. The two institutions also agreed to promote research cooperation, engage in exchange and training of researchers, and exchange publications and other research information.

"We were thoroughly impressed with Chang'an's facilities and capabilities and with China's transportation system," Baker said upon his return. "Not only have we established a mutually advantageous partnership, we've made lasting friendships. The hospitality our hosts extended to us was unparalleled."

LTRC has extended an open invitation to the Chinese delegation to visit Louisiana and see firsthand LTRC's staff and capabilities.

Engineering Conference News: The 2004 Transportation Engineering Conference was held February 15-18, 2004, at the Radisson Hotel and Conference Center in Baton Rouge. This biennial conference represents a premier tech transfer opportunity for LTRC, which is charged with the accountability for planning, coordinating, and managing the conference. Attendees represented the public, private, and academic sectors from throughout Louisiana and the nation. Thanks to all who worked diligently to ensure the success of this year's conference! A full report on conference activities will follow in the next issue of *Technology Today*, (Vol. 19.1).

TTEC Update: Bid dates have been set for the Transportation Training and Education Center (TTEC). Advertisement for bids was scheduled for February. TTEC will facilitate the delivery of transportation training, professional development opportunities, continuing education, and technology transfer to engineers, technicians, and professionals of both the public and private sectors. The 14,000-square-foot facility will be constructed adjacent to the current LTRC office building. This new building will house a lecture facility for 100, a computer-based training classroom for approximately 30, and two general classrooms for about 40. Each of these will be equipped with state-of-the-art education and training equipment and distance learning / video-conferencing capabilities. A transportation library and offices are also included in the plans.

LTRC Represented at 83rd Annual TRB Meeting: The 83rd Annual Transportation Research Board Meeting was held January 11-15, 2004, in Washington, D.C. With over 2,000 presentations available in 500 sessions, this major meeting attracted attendees from all areas of the transportation spectrum—government, academia, and private industry. Following is a list of presentations made by LTRC staff members and contract researchers:

- Bogdan Barbu, Kenneth McManis, Mysore Nataraj, "Study of Silts Moisture Susceptibility Using the Tube Suction Test"
- Kirt Clement, "Workforce Development, Louisiana Department of Transportation and Development"
- Khalid Farrag, Murad Abu-Farsakh, Mark Morvant, "Stress and Strain Monitoring of Reinforced-Soil Test Wall"
- Haoqiang Fu, Chester Wilmot, "A Sequential Logit Dynamic Travel Demand Model for Hurricane Evacuation"
- Robert Liang, Izzaldin Almoh'd, Mustaf Al-Saleh, "Monitoring Results of an Instrumented MSEW: Comparison with Current Practice"
- Louay Mohammad, Zhong Wu, C. Zhang, Mohammad Kattak, Chris Abadie, "Variability of Air Voids and Mechanistic Properties of Plant Produced Asphalt Mixtures"
- Mark Morvant, Lan Wang, Zhongjie "Doc" Zhang, "Preliminary Laboratory Evaluation of By-Product Gypsum as Pavement Base Material"
- L.B. Wang, Laureano Hoyas, Jay Wang, George Voyiadjis, Chris Abadie, "Anisotropic Properties of Asphalt Concrete: Characterization and Implications in Pavement Design and Analysis"
- Xiaoduan Sun, Zhongjie "Doc" Zhang, Robert Wang, Jason Chapman, "Analysis of Past NBI Ratings for Predicting Future Bridge System Preservation Needs"
- Kirk Zeringue, William Temple, Zhongjie "Doc" Zhang, Jeff Lambert, "Agency Process for Alternate Design and Alternate Bid of Pavements"
- Zhongjie "Doc" Zhang, Murad Abu-Farsakh, Lan Wang, "Evaluation of Trench Backfill at Highway Cross-Drain Pipes"

LTRC Receives Federal Funding to Investigate Effects of Sugar Cane Trucks on Highways



Principal Investigator: Freddy L. Roberts, Ph.D., P.E., T. L. James Professor of Civil Engineering Louisiana Tech University

Research Manager: Mark Morvant, P.E. Pavement & Geotechnical Research Administrator, LTRC (225) 767-9124

LTRC has begun a research project to study the damage to low-volume roads and interstates caused by heavy sugar cane trucks. Other project goals include estimating costs to rehabilitate the roadways, developing truck axle configurations that will cause less pavement damage, and performing economic and impact assessments for alternate pavement management plans.

Funding to support the project will come from federal legislation TEA-21, which appropriated \$200,000 to Louisiana for research on overloaded highways. Enacted in 1998, the Transportation Equity Act for the 21st Century authorizes the federal surface transportation programs for highways, highway safety, and transit for the six-year period 1998-2003.

A 1999 study performed for the Louisiana Governor's Oversize and Excess Weight Vehicle Task Force showed that the cost of roadway damage produced by trucks hauling overweight loads of sugar cane far exceeds the \$100/year/vehicle charged for the harvest overweight permits. Damage is greatest on roads designed for light land-access traffic. Since the cost of damage to these roads exceeds the price paid to travel on them, these overweight vehicles are essentially subsidized by the Louisiana taxpayers—because legislation regulates vehicle weight as well as cost of overweight permits. At the present time, the magnitude of this subsidy is unknown. However, the burden of payment for repair of the roadways is borne by LADOTD (and parish police juries, in the case of parish roads).

Solutions to control the damage produced by these legally overweight vehicles may include a number of options, including: a) increasing the number of axles per truck in order to reduce the magnitude of

individual axle loads carried by the pavement, b) reducing allowable gross vehicle loads from 100,000 pounds to 80,000 pounds, eliminating permits for overweight trucks, c) increasing pavement structure to handle 100,000 pound loads, and d) decreasing the time between major rehabilitations of the roadways.

Each of the aforementioned options has an economic cost associated with implementation. This research project will determine the magnitude of the costs associated with each option.

After identifying the roadways that are most affected by the transport of sugar cane, researchers will assemble models for predicting pavement distress based on anticipated loads. These model predictions will be coupled with a logic system that will select maintenance/rehabilitation options best suited to rectify each distress. The unit cost of each maintenance/rehabilitation option will be included. The models will be assembled into a computer program that will pro-

Grouchy Retires as LTAP Director

We at LTRC would like to take this opportunity to thank David for his service and wish him well in future endeavors. We welcome Dr. Marie Walsh, who assumed the position of LTAP Director in January 2004.



LTRC Director Joe Baker (right) presents David Grouchy with a certificate of appreciation

After seven years as LTRC's Local Technical Assistance Program (LTAP) Director, David Grouchy retired in December 2003.

During his tenure, the LTAP added course offerings and improved its customer service capabilities while the number of Louisiana Roads Scholar graduates topped 400. Grouchy also served at the

national level as president of the National LTAP Association (NLTAPA) and Chairman of the LTAP

Clearinghouse Advisory Committee. Under his leadership, the Louisiana Technology Transfer Center has become one of the best in the country.

Although he is officially "retired," Grouchy has no plans to quit working. His next move will take him to Arlington, Virginia to work with the Federal Highway Administration (FHWA) Office of Professional Development, which serves as an "in-house consultant" for training and learning as well as administering the LTAP and National Highway Institute (NHI) programs.

LTRC Receives Federal Funding (cont. from page 4)

duce net present costs of the various strategies for repair or reconstruction.

In an effort to identify methods for reducing roadway damage caused by heavy truck loads, alternative trailer axle configurations will be considered. Trailer manu-

facturers will be consulted to estimate costs that would result from potential axle modifications. The estimated costs for repair/reconstruction of the roadways and possible modification of trailers will be included in the economic analysis.

LADOTD will be able to use the computerized pavement distress prediction model to estimate future maintenance/rehabilitation costs for roadways used to haul sugar cane. With this data, more informed decisions may be made regarding appropriate assessment of roadway user fees.

New Tech Transfer Position Improves Customer Service

With the implementation of the Secretary's PPM No. 59 regarding work force development, many LADOTD employees are discovering that their training requirements are changing. In light of these new requirements, a new position was created this past year to enable LTRC to better meet the needs of LADOTD employees and training coordinators.

The new headquarters training program manager now acts as a liaison between the training and headquarters sections to assist section heads and training coordinators in providing employees with required training. In many ways, this new position parallels the district training coordinator.

The primary goal for the HQ program manager is to ensure that all employees are informed of and understand new training requirements as well as assist training coordinators in helping employees complete required training before deadlines approach.

Karen Cordell, who assumed the role at the beginning of 2003, said that her position "will make employees aware of training requirements well in advance of deadlines. I'll also be available to explain new training requirements and help employees form a plan to accomplish their training needs."

One of the first major benefits of this position has been an increase in testing availability. Testing sessions for self-study courses are now being conducted twice a month, and individual testing can be scheduled to accommodate employee work schedules. Also, applicants can schedule multiple tests at one sitting, enabling them to complete a series such as the Practical English courses in a much shorter time span. Cordell can also help employees get assistance for their areas of weakness and evaluate requests for course substitutions.

Regular meetings between the HQ program manager and section training coordinators will provide a forum for discussing matters of concern and sharing ideas to improve and expedite training. Section training coordinators will be advised of new developments in the ETRN system and employee training programs. The HQ program manager will also be a resource for training section coordinators to use ETRN for generating training reports, documenting employee training, and researching employee records.

Currently, the tech transfer office has created a procedure for sections to follow that will ensure that employees meet all training criteria. The new form will be a guide for coordinators to use prior to any personnel action, including promotions and merit increases. The new form is available in PDF format and has been emailed to section heads and training coordinators.

DOTD
Headquarters
Training
Program
Manager acts as
the liaison
between the
training and
headquarters
sections.
Program
Manager Karen
Cordell is also
available to
coordinate the
delivery of in-
house developed
courses and the
development of
training aids
and enhance-
ments for exist-
ing courses.
Eventually, she
will coordinate
the development
of new courses
and the revision
of obsolete
courses.

Pilot Training (cont. from page 1)

LTC-Lafayette conducted skills assessments of a pilot group of 30 employees from District 03 and then developed a customized plan for each employee needing a skills upgrade. The team at LTC-Lafayette used ACT WorkKeys assessments along with computer-based KeyTrain software. WorkKeys is ACT's comprehensive system for measuring, communicating, and improving common skills required for success in the workplace. KeyTrain, specifically designed for WorkKeys, allows for targeted, self-paced instruction.

The 15 participants chosen attended a three-hour class meeting once a week for 15 weeks at the District 03 office in Lafayette. In accordance with the contract, LTC-Lafayette conducted assessments and training with minimal impact on the participants' work requirements.

Training concluded in October 2003 with a final assessment to test the suc-

cess of the program. Twelve of the fifteen participants moved up by one skill level or more.

Student response regarding the course instruction and content was overwhelmingly positive. Carlton Broussard said, "I think the program was very educational and helpful. It showed a lot of things I have not seen since high school, which will be very helpful in advancement in the department." According to Quentin Moore, the program "was a mind-renewing 15 weeks."

Participation in this WorkKeys training program provides trainees an opportunity to receive a Louisiana *WorkReady! Certificate*. Six of the fifteen participants in the pilot program received *WorkReady! Certificates*. Approved by the Louisiana Workforce Commission in February 2003, the certificate is a portable credential that signifies to an employer that an individual has certain fundamental skills necessary for success in the workplace, according to

three subject areas: Applied Mathematics, Reading for Information, and Locating Information.

Pilot Program Participants

Rickey Braus
Merline Coleman
Kelvin Gaspard
Cecil Hebert
Larry Romero
Ed Jones
Gerald Joseph
Quentin Moore
Terry Shawback
Harold Trahan
Carlton Broussard
Richard Frederick
Kenneth Gaspard
Cindy Greene
Ellis Hargrave
Bradley Peltier
Shane Roy
Ethel Melancon
Aaron Trahan

**Sources: Louisiana Works!
Workforce Development in Louisiana
<http://www.laworkforce.net/WorkReady/>**

This public document is published at a total cost of \$1192.00. Seventeen hundred copies of the public document were published in this first printing at a cost of \$920.00. The total cost of all printings of this document including reprints is \$1192.00. This document was published by Louisiana State University, Graphic Services, 3555 River Road, Baton Rouge, to report on the research and training of the Louisiana Transportation Research Center as required in R.S. 48:105. This material was duplicated in accordance with standards for printing by state agencies established pursuant to R.S. 43:31. Printing of this material was purchased in accordance with the provisions of Title 43 of the Louisiana Revised Statutes.



implementation. For example, LTRC can examine the Pennsylvania Department of Transportation's (Penn DOT) means of assessing the qualitative and quantitative value of research results. The Penn DOT "Toolbox" incorporates surveys, peer reviews, life cycle cost analysis, performance indicators, and cost / benefit analysis to report on research implementation.

LADOTD's Transportation Engineering Conference, performing a customer satisfaction survey, and using a comprehensive selection committee to develop a research work program.



Peer exchange participants also left the meeting with ideas to consider for improving their own departments, such as conducting a conference similar to

The three main focus areas of this peer exchange were self-generated funding / research partnerships, performance measures / indicators, and research implementation / best practices. The results from all presentations, interviews, and focus sessions were compiled into a final report addressing the opportunities for improving and enhancing LTRC programs and its research management process, improvements other participants' agencies can make, and overall satisfaction with the peer exchange format.

The team members made numerous recommendations for enhancing LTRC's program by presenting their own agencies' best practices for research and

The 2003 peer exchange team included:

- Wes Lum, California DOT
- Beth Bieryla, Pennsylvania DOT
- Dick McReynolds, Kansas DOT
- Joe Button, Texas Transportation Institute
- Freddy Roberts, Louisiana Tech University
- Crawford Jencks, Transportation Research Board
- Jamie Setze, Federal Highway Administration
- Mark Morvant, LTRC Pavement and Geotechnical Research Administrator
- Chris Abadie, LTRC Materials Research Administrator
- Mike Boudreaux, LTRC Technology Transfer Engineer
- Kirt Clement, LTRC Associate Director Tech Transfer
- Skip Paul, LTRC Associate Director Research