

THE LOUISIANA MODEL FOR TRANSPORTATION WORKFORCE DEVELOPMENT

Integrating Technical Assistance, Structured Training, Continuing Education, and Technology Transfer

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The Louisiana Transportation Research Center (LTRC) is more than its name implies. The center's research section explores the thresholds of technology, and the technology transfer and training section applies the findings in practical ways.

Created by the Louisiana legislature in 1986, LTRC has gained national recognition through its efforts to improve transportation systems in the state. The center conducts short- and long-term research and provides technical assistance, training, continuing education, technology transfer, and problem-solving services to the Louisiana Department of Transportation and Development (DOTD) and to the transportation community at large.

By merging the resources of its two parent institutions—Louisiana State University (LSU) and Louisiana DOTD—the center has assembled a versatile core of facilities and expertise for application to rapidly evolving transportation challenges. Supported by state and local government, universities, and private industry, LTRC identifies, develops, and implements new technology to improve the state's transportation system.

Auditorium at the Transportation Training and Education Center seats 100 and includes many high-tech amenities.



With guidance from the Transportation Curriculum Council (TCC)—an advisory committee with representatives from Louisiana DOTD and industry—LTRC seeks innovative solutions to the state's transportation problems. TCC serves as the governing body in the search for the most effective ways to educate and train all sectors of the transportation community—public, private, and local government. Meeting twice a year, TCC evaluates training programs, implements curricula, and provides direction for LTRC training efforts. Following are highlights of the center's training programs.

Structured Training

In 2001, DOTD issued its first comprehensive policy addressing workforce development and defining the expectations of supervisors and employees.¹ The policy asserts that training is key to developing qualified personnel and is crucial to the effective management of the transportation system.

The DOTD-structured training program, therefore, consists of a department-sanctioned, progressive training curriculum that requires the completion of specific work-related training at each level of an employee's career path. For DOTD, training is necessary and integral to career advancement. The department supports and promotes an environment of continual learning, so that employees can pursue professional development to the fullest extent and can contribute to the goals of the department.

Structured training programs ensure workforce proficiency and knowledge, prepare workers for the challenges of a highly technical work environment, and guide employees systematically into career advancement. Depending on an individual's position, structured training can involve professional development, continuing education, technical skills training, and on-the-job training.

¹ Policy and Procedure Memorandum No. 59: Workforce Development.



(Left:) A Louisiana DOTD training session on operation of an automated profiler to evaluate pavement smoothness. The DOTD emphasizes structured, progressive training and continual learning at all career levels.



(Right:) Maintenance training courses promote safe and efficient operation of equipment.

LTRC oversees three main areas in the structured training program: construction and materials, maintenance, and management development.

Construction and Materials

The construction and materials training program provides comprehensive, up-to-date training and evaluation for professional engineers, engineering technicians, and transportation industry contractors and materials producers. LTRC monitors changes in departmental specifications, test procedures, quality assurance operations, new technology, and federal regulations affecting the program. Training professionals then develop, revise, or acquire training materials accordingly.

LTRC has been involved in a nationwide effort to develop a standard quality control–quality assurance training program for state highway departments. The construction and materials training program manages the inspector–technician certification program for DOTD and the Louisiana transportation industry by coordinating the testing, authorization, and certification of inspectors and technicians statewide in each area of construction activity.

Maintenance

The maintenance training unit develops job-specific courses on the functions, processes, and safe handling of each piece of equipment operated by maintenance field personnel. Maintenance training courses promote safe practices and the attitudes needed for optimal job performance.

LTRC training specialists redesign older courses to incorporate updates in state and federal regulations, as well as in department policy, procedures, and specifications. The maintenance training unit also offers testing services for the International Municipal Signal Association to certify DOTD and Louisiana city or parish employees.

Management Development

The management development training unit oversees several supervisory and career development training programs for management-level employees from all areas of the agency. The unit organizes DOTD's participation in the Governor's Office of Comprehensive Public Training Programs for supervisory and nonsupervisory employees.

The program also plays a key role in the state's participation in the National Partnership for Highway Quality, the only national program that brings public highway agencies and private industry together to advance highway quality, safety, and service. The DOTD Chief Engineer and the FHWA Division Administrator cochair the Louisiana Partnership for Highway Quality. LTRC coordinates Louisiana's training and education subcommittee of the partnership through TCC.



A management training session at LTRC.

In managing these programs, LTRC regularly solicits input to determine what training is needed, and the DOTD administration periodically reviews all programs to ensure that all sections and divisions are served equitably. LTRC facilitated the first formal review of the workforce development policy in 2006, convening meetings around the state to gather feedback from administrators at all levels. The findings were presented to the DOTD Secretary, executive committee, and district administrative officials before revisions were implemented in early 2007.

State-of-the-Art Learning Environment

In August 2004, construction crews broke ground on the Transportation Training and Education Center (TTEC), a progressive partnering effort between the public sector and private industry. Adjacent to LTRC's main facility on the LSU campus, TTEC provides a stimulating learning environment to assist and enable workforce development. The 14,000-square-foot center offers a variety of learning spaces: a 100-seat auditorium, a computer laboratory, a library, an executive conference room, and two classrooms that can be configured for lectures or group learning. A state-of-the-art audiovisual system provides mixed media delivery in each classroom, the auditorium, and the conference room. The facility is equipped to send and receive web-based transmissions for distance learning, e-learning, and teleconferencing.

The center began hosting classes in January 2006 and has expanded with computer workshops, computer-aided design and drafting courses, geographic information system workshops, American Traffic Safety Services Association classes, and more. TTEC has enabled LTRC to reduce its contracts for external training space by half.

Center Goals

TTEC seeks to accomplish the following goals:

- ◆ Create and provide pedagogically sound training;
- ◆ Transition classes to distance learning, as appropriate;
- ◆ Incorporate instructional design concepts to update and modernize courses;
- ◆ Provide content-rich classes to district, municipal, and industry participants through onsite instruction, videoconferencing, live web-based seminars, and stored web-based content;
- ◆ Maximize the use of instructional resources such as National Highway Institute (NHI) courses, computer-based training, structured training pro-



grams, contract training, individual conferences and seminars, major conferences, and miniconferences; and

- ◆ Build a digital transportation library with national and regional connections for technology exchange and research enhancement.

NHI courses are among the most popular offerings. TTEC has increased the number of NHI courses offered by 50 percent and has signed a memorandum of understanding to serve as a regional NHI center—one of only two in the country.

The TTEC librarian assists a researcher in finding a journal paper. A digital transportation library is in the works.

A training session in the TTEC computer laboratory; the facility is equipped for distance learning, teleconferencing, and e-learning.





A Local Road Safety Program class performs a site audit.

Local Community Outreach

The Louisiana Local Technical Assistance Program (LTAP) is one of 58 providing services to local transportation communities in each state, Puerto Rico, and the Native American tribal areas. Each center operates independently to develop and implement programs that meet the needs of local transportation agencies; all foster a safe, efficient, and environmentally sound surface transportation system by improving the skills and knowledge of the transportation workforce. LTAP has four national focus areas: infrastructure maintenance, safety, workforce development, and value delivery.

Louisiana LTAP provides an array of services geared to the local agencies and to personnel charged with managing and maintaining local roads and transportation systems. Training classes and work-

The Louisiana Local Technical Assistance Program conducts a workshop for local agency road maintenance managers and personnel as part of the Roads Scholar program.



shops have been the program's primary services, with classes at eight locations under the Roads Scholar program. Special-topic classes and onsite, on-demand workshops also are offered. More than 3,000 participants have attended approximately 18,000 hours of technical and safety training each year. LTAP also provides technical assistance, publishes a quarterly newsletter, and maintains a library of publications and videos.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users provided LTAP with opportunities to bring road safety assistance to the local community. Working with DOTD's Office of Highway Safety, LTAP coordinated implementation of the Louisiana Local Road Safety Program (LRSP). In 2006, its first year, LRSP offered basic road safety training classes, technical assistance, statewide informational meetings, and funding through DOTD for local road safety improvement projects.

Local agencies identified low-cost improvement projects and submitted applications through LTAP. Applications were received for 54 projects; 41 were eligible for funding, including installation of improved signage and pavement markings, traffic studies, line-of-sight improvements, warning signs, crash data collection and management systems, sidewalk construction, and new guardrail installation. LRSP continues to provide training and technical assistance free of charge.

Training Events

Every two years, DOTD's Louisiana Transportation Engineering Conference convenes representatives from all sectors of the transportation community nationwide to learn about the latest technologies and to share best practices. Held in Baton Rouge, the conference is a premier opportunity for technology transfer by LTRC, which plans, coordinates, and manages the event. The most recent conference, in February 2007, attracted nearly 1,600 attendees and featured 72 technical sessions, how-to clinics, and many alternative sessions covering management and workplace issues. Conference attendees earn 16 professional development hours, including the biennially required hour in professional ethics. The next conference is scheduled for February 2009.²

Building on the popularity and success of the Transportation Engineering Conference, LTRC identified a need for more frequent, focused conferences at smaller venues throughout the state. In 2004, the center initiated a forum to demonstrate new
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² www.ltrc.lsu.edu/tec_07.

Freight Academy Targets Transportation Professionals

KAREN RYAN TOBIA

The I-95 Corridor Coalition, through its Intermodal Program Track Committee, is sponsoring a Freight Academy to train public-sector transportation professionals whose work in planning, operations, or management has an impact on decisions, investments, and interactions related to the movement of goods. Designed as an immersion program, the first Freight Academy will be held October 26 through October 31, 2008, at the Center for Advanced Infrastructure and Transportation, Rutgers University, New Brunswick, New Jersey. Instructors will represent both the public and private sectors, and the curriculum will be structured so that the Freight Academy can be held in any state of the I-95 Corridor Coalition region.

The Intermodal Program Track Committee proposed the project after considering such trends as the large increases in freight movements and the dynamic changes in the goods movement industry, as well as the need to understand freight as an integral part of the transportation system and the need to integrate freight facilities and operations with community goals. These trends and needs, combined with the expected retirements of many experienced members of transportation agencies in the next 5 to 10 years, prompted the proposal to develop the Freight Academy.

The week-long program will allow approximately 30 participants to learn from industry experts, understand issues involving goods movement, and visit port, rail, aviation, trucking and distribution center sites to see firsthand what is involved in multimodal freight movements. Participants then will apply what they have learned by working on capstone projects addressing real-world transportation issues suggested by I-95 Corridor Coalition members.



PHOTO: A. STRAUSS-WIEBER, INC.

Maher Terminals in Elizabeth, New Jersey, the largest container terminal operator in the Port of New York and New Jersey, offers Freight Academy participants firsthand case studies.



PHOTO: DISTRIBUTIONS SOLUTIONS, INC.

A field trip will include warehouse facilities and equipment, like these operated by Distribution Solutions, Inc., Secaucus, New Jersey.

The Freight Academy is open to participants from throughout the United States. The cost of the program is approximately \$3,500 per person and includes lodging and meals. The Coalition is offering a limited number of scholarships to applicants from member organizations.

The I-95 Corridor Coalition is an alliance of transportation agencies, toll authorities, and related organizations from Maine to Florida, with affiliated members in Canada. The Coalition encompasses all modes of travel and focuses on the efficient transfer of people and goods between modes in and throughout member states. It also provides a forum for decision makers and policy makers to address transportation management and operations issues of common interest and to work together to improve transportation system performance. Recent Coalition projects have involved regional passenger and freight movement analysis, long-distance trip planning on public transportation modes, port access, and international border-crossing security.

For additional information about the Freight Academy, visit www.freightacademy.org.

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PHOTO: NEW ENGLAND MOTOR FREIGHT

Freight Academy participants will examine training vehicles like this, used by New England Motor Freight.



New engineers undergo extensive orientation and training in the Engineering Resource Development Program.

technologies, implement and publicize its research, discuss and resolve problems, import best practices, and partner with the transportation community.

LTRC now sponsors one to two seminars each year on a variety of technical topics, including pavement performance, asphalt technology, concrete, and bridge structures. By involving industry partners in planning the conferences, LTRC seeks to attract contractors, consultants, suppliers, and local government staff in addition to DOTD personnel.

Next Generation of Professionals

The Engineering Resource Development Program (ERDP) introduces new engineers to DOTD employment. In 17 years, 137 participants have completed the training program; of these graduates, 55 are current DOTD employees.

ERDP consists of a 30-week rotation, with an optional extension of two to six weeks. After an orientation at LTRC, the new hires spend one to three weeks in 19 different sections. Individual tracks can

Rehiring Retirees

Minnesota's Postretirement Option

On July 1, 2005, the Minnesota Legislature established the postretirement option (PRO) for employees at state agencies. The PRO encourages employees with critical skills to delay full retirement and to remain in state employment on a temporary, part-time basis. The measure provides a way for state agencies to retain the critical skills and organizational knowledge of potential retirees and to gain flexibility in addressing the anticipated skills shortages as increasing numbers of employees become eligible to retire in the next 5 to 10 years.

The law allows employees who have retired since July 1, 2005, to return to state employment for an initial period of up to one year. PRO employment may be renewed, but cannot exceed a total of five years. For the Minnesota Department of Transportation, which has the most PRO employees among state agencies, the measure has expanded alternatives for addressing skills development, knowledge transfer, training, mentoring, transition, skills shortages, and changing demographics.

Following are summary highlights of the legislation, including recent revisions:

- ◆ Each state agency determines whether to offer postretirement employment and whether to agree to it for a particular employee.
- ◆ The employee must have been regularly scheduled to work at least 1,044 hours per year in a position covered by the Minnesota State Retirement System (MSRS) during the pre-

ceding 5 years; qualify for an unreduced annuity; be retired from state service; and have taken steps to commence an annuity.

- ◆ A PRO agreement must be in place for no more than one year and must not exceed 1,044 hours per year. The agreement may be with the same or a different agency, in the same or a different job class.

- ◆ The employee may collect a state retirement annuity, which may not be reduced or enhanced because of earnings in the postretirement position. Neither the agency nor the employee can make retirement contributions on earnings from the PRO position, and the employee earns no additional state retirement service credit.

- ◆ PRO employees may qualify for a contribution to either the state's employee group insurance plan or to the MSRS-administered health care savings plan. Early incentive retirees who already receive an employer contribution do not qualify.

- ◆ The agency may choose to end the PRO arrangement or to renew it, as is or with changes. Each renewal may be for up to one year, but total employment under the program cannot exceed five years.

- ◆ Eligible employees under age 62 must wait 30 days after termination of service before receiving an offer for PRO employment, and must wait 30 days after termination of a PRO position before receiving an offer of a renewal.

For additional information about the program at Minnesota DOT, www.newsline.dot.state.mn.us/archive/08/jul/2.html.

begin at any time in the year. The rotation gives participants an uncommon perspective of DOTD—experiencing firsthand the variety of the agency's operations and gaining insights that typical orientation sessions cannot supply. The department also benefits from the new ideas and fresh approaches of the participants.

ERDP is the predominant means of entry for new engineers to DOTD employment and has proved particularly beneficial to recent college graduates who need hands-on experience before deciding on a career path. Participants are evaluated not only for academic achievement but also for interest, enthusiasm, preparation, diversity, and other attributes.

After the completion of each section, supervisors and participants fill out evaluations. Supervisors rate the engineers on productivity, communication skills, adaptability, and other characteristics. Participants evaluate the usefulness of the experience, the effectiveness of the training, and their interest in that area.

After the rotation, the ERDP manager considers supervisor feedback, the participant's interests, and position availability before making assignments. Participants have noted that the program helped in determining which assignments to pursue. With more than 40 percent of the graduates still working for the department, ERDP is fulfilling its mission of recruiting and retaining the best engineers for Louisiana DOTD.

LTRC also manages the Cooperative Education Program, which gives full-time undergraduate students a firsthand glimpse into DOTD operations. The program provides practical experience in civil engineering—experience that can enhance the résumés of new college graduates applying for their first jobs. In addition to gaining a field education, students earn a salary and can receive academic credit from their universities. Program participants work 20-hour weeks in different DOTD sections throughout the state.

The assigned DOTD supervisor evaluates the student's work performance, and the students evaluate their program assignments at the end of the work period. To complete the coop program, students must give a 15-minute presentation at LTRC about their job duties and the lessons learned. The number of coop applicants usually exceeds the number of available positions, and the program consistently receives good reviews from supervisors and participants. Past participants have attributed subsequent success in the classroom to real-world situations experienced during coop employment.

Focused Commitment

LTRC is committed to leadership in workforce devel-



opment. The research section focuses on the future of transportation technology, and the technology transfer and training section looks to the present—to the practical application of the technological innovations by the transportation community through implementation, training, and educational activities.

The Cooperative Education Program provides civil engineering undergraduates with practical experience, academic credit, and pay.

Resource

Highway Research and Technology: The Need for Greater Investment. A Report of the National Highway Research and Technology Partnership, April 2002. <http://onlinepubs.trb.org/Onlinepubs/rforum/HwyRandT.pdf>.

Paving the Way with Scholarships

The National Asphalt Pavement Association Research and Education Foundation (NAPAREF) initiated a scholarship program in 1994 to encourage university-level students of transportation to take elective courses in asphalt technology and management and to assist educational institutions in offering the courses. NAPAREF is a 501(c)(3) nonprofit foundation that conducts and implements research and educational programs in technical and management areas related to hot-mix asphalt (HMA) design and construction.

The scholarship program is open to U.S. students majoring in civil engineering, construction engineering, or construction management who take courses in HMA technology. The numbers of and the dollar amounts of the scholarships distributed each year vary with the contributions from sponsors and with the foundation's investment earnings. Since the program's inception, individual scholarship awards ranged from approximately \$1,000 to \$5,000 per academic year.

The scholarship program is supported by contributions from individual donors, as well as from organizations and corporations in the HMA industry. Graduates pursue careers in the HMA industry and in public works at the municipal, county, state, and national levels.