

Technology

Today

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2004 Louisiana Transportation Engineering Conference Largest Ever

Sixty consultants and vendors participated in the trade show.



Over 1,600 transportation professionals recently convened in Baton Rouge for the 2004 Louisiana Transportation Engineering Conference (TEC), marking the largest attendance ever for the biennial event.

Attendees from throughout Louisiana and 23 other states represented the public, private, and academic sectors of the transportation industry. The sixth meeting since its inception in 1993, this year's conference, held February 15-18 at the Radisson Hotel and Conference Center, was deemed the most successful yet.

While LTRC is responsible for planning, coordinating,

and managing the conference through its technology transfer role to the department and other customers in the state, the conference would not be possible without the enormous partnering effort between LADOTD, LTRC staff, and friends in the transportation community.

"This conference is LTRC's premier opportunity to transfer technology to our customers in both the

Cont. on
page 2

Baton Rouge Hosts AAPT Annual Conference;

Paul Honored with Award of Recognition



The 2004 annual meeting of the Association of Asphalt Paving Technologists (AAPT) was held at the Radisson Hotel and Conference Center in Baton Rouge March 8-10, 2004.

AAPT is the premier technical organization in the country dedicated to the advancement of asphalt technology and asphalt pavement construction. It encourages and includes the production, testing, and

quality control of materials used in asphalt pavement construction; communications between persons charged with technical responsibility for the production, materials, and laying of

Cont. on
page 8

department and the transportation industry,” according to LTRC Director Joe Baker. “I commend Kirt Clement on his outstanding job as conference administrator as well as Skip Paul for his efforts as program chair. Their leadership was a significant reason for the great success of the conference.”

LADOTD Undersecretary John Basilica served as the moderator for the conference’s opening general session. FHWA Division Administrator Tony Sussmann, State Senator Jody Amedee, State Representative William B. Daniel, IV, and Peter Wilson of Barriere Construction Company were on hand to welcome the attendees. Andy Kopplin, Chief of Staff for Governor Kathleen B. Blanco, then addressed the crowd regarding the governor’s position on transportation improvement. After LADOTD Secretary Kam Movassaghi’s discussion of the state of the department, AASHTO Executive Director John Horsley presented a valuable update on the reauthorization of federal legislation TEA-21.

The general session concluded with a unique opportunity for attendees to gain a professional development hour (PDH) credit in ethics with Dr. Dale Henry’s entertaining and educational presentation of “Ethics and the Transportation Professional.” Dr. Henry is a well-known trainer who speaks to over 100,000 professionals nationwide every year.

Technical sessions provide valuable information exchange

The two and a half-day conference featured 45 technical sessions, 10 “workshops for success,” 7 “how-to clinics,” a health fair, and an industry trade show. Nearly 60 transportation-related consultants and vendors participated in the successful trade show, which provided an important networking opportunity for attendees to discuss transportation issues and solutions. John Starring of GEC, Inc., was responsible for planning and managing this successful event.

Technical sessions offered information on various areas of interest ranging from materials research and envi-

ronmental planning to innovative design solutions and ITS applications. Some of the most popular sessions were Megaprojects, Bridge Design, Louisiana TIMED Managers and TIMED, LADOTD Project Delivery Process, Bridge Fabrication and Construction, Deep Foundations, and Improvements to Pavement Foundation.

Throughout the conference, the “workshops for success” and “how-to clinics” gave attendees an opportunity to delve into job-specific topics and hone their working skills.

“How-to clinic” topics included LADOTD Workforce Development and Initiatives, Phase II NPDES Requirements for Construction Projects, and LADOTD’s Employment Opportunities for Students, which attracted nearly 100 university students from throughout Louisiana. Workshops dealing with emotional intelligence, communication skills, conflict management, leadership skills, and time management added a personal improvement element to the conference.

After assessing the evaluations for the 2004 conference, LTRC and LADOTD administrators look forward to the challenge of planning and managing an even better Transportation Engineering Conference for 2006.

Awards Presented at Closing Luncheon

LADOTD Construction Project Awards

- Asphalt Paving Award - Interstate: I-49 (LA10-LA 106), St. Landry Parish, District 03
- Asphalt Paving Award - Non-Interstate: LA 6 (Sabine Parish-LA 120), Natchitoches Parish, District 08
- Concrete Paving Award - Rural: US 171 (Mansfield Airport to Grand Cane), District 04
- Concrete Paving Award - Urban: 1-10 Off Ramp at College Drive, District 61
- James "Jim" Tadie, Structural Bridge Award - Urban: I-10 / I-610 West Interchange, Jefferson Parish, District 02
- James "Jim" Tadie, Structural Bridge Award - Rural: Lake Bistineau Spillway Bridge, Bossier Parish, District 04

FHWA Pavement Smoothness Awards

- Smoothest Single Lift Asphalt Overlay Project on the National Highway System: LA 485 – West; State Project No. 455-06-0044; Federal Project No. IM-49-3(052); I-49; District 08 (Alexandria)
Contractor: Madden Contracting Co.
LADOTD Project Engineer & Gang: Jonathan Lachney, Gang 218
- Smoothest Multi-Lift Asphalt Overlay Project on the National Highway System: Calcasieu Parish Line – Jct. LA 99; State Project No. 450-03-0037; Federal Project No. IM-10-1(161)051; I-10; District 07 (Lake Charles)
Contractor: Diamond B Construction Co.
LADOTD Project Engineer & Gang: Brian E. Morgan, Gang 217
- Smoothest Portland Cement Concrete Project on the National Highway System: Grand Cane – Kickapoo; State Project No. 025-06-0027; Federal Project No. NH-01-05(013); US 171; District 04 (Shreveport)
LADOTD Project Engineer & Gang: Michael J. Murphy, Gang 244

FHWA 2003 District Office Smoothness Awards

- Rural Area District Smoothness Award: District 04 (Shreveport)
- Urban Area District Smoothness Award: District 08 (Alexandria)

At the closing luncheon, LADOTD Chief Engineer Bill Temple and FHWA's Tony Sussmann presented the LADOTD Construction Project Awards and FHWA Pavement Smoothness Awards. Finally, guest speaker Mike Tidwell educated the audience about

the background of his book, *Bayou Farewell: The Rich Life and Tragic Death of Louisiana's Glorious Coast*, which discusses the vast problem of coastal land loss in Louisiana.



Guest speaker Dale Henry addresses the audience.

Walsh Named New LTAP Director

LTRC welcomed Dr. Marie B. Walsh as its new LTAP director in January, 2004. Dr. Walsh received a Master of Engineering in environmental engineering from Louisiana State University, in Baton Rouge, in 1985 and a Ph.D. in human resource education and workforce development in 2003. Her background in engineering and supervision combined with work-force development and training gives her unique insights into the needs of LTAP's customers.

Her past work experience includes project engineering and management as well as training and organizational development in the private and public sectors. Prior to joining LTAP, she was employed by the East Baton Rouge City Parish as the director of training and employee development. Her work included design and implementation of training for the public works department including heavy equipment operator training; safety training; best practices for equipment operation; and maintenance, supervisory, and leadership skill development. Dr. Walsh looks forward to the opportunity to serve the LTAP customers and to expanding the high quality programs already offered through the program.

While still settling into her new position, Dr. Walsh is enthusiastic about the LTAP program and its potential. She believes that, "the Louisiana LTAP should be an invaluable resource to local governments and agencies looking for assistance with training and technical resources. We have access to such a wide range of products, services, and expertise that, if a local agency needs assistance and we can't provide it directly, we can help find a way to make it happen. I look forward to learning more about the needs of our local public works agencies and governments and to developing programs to meet these expectations in the future."

Conference Administration Introduces New Technology

In a continuous effort to improve customer service by taking advantage of technology, conference administrators established several innovations for the 2004 Louisiana Transportation Engineering Conference. First, the conference announcement was distributed via email and on the LTRC web site during fall 2003. With online registration and online credit card processing available for the first time in conference history, over 1,000 of the attendees took advantage of this option. At the conference site, registration workers were able to quickly enter walk-in participants into the database with the use of real-time online registration. Evaluations sent via email several weeks after the conference's conclusion produced a higher response rate than typical paper-based evaluations. Those who completed the online evaluation could then register to receive CD's with the available conference presentations.

Implementing all of these features at the 2004 TEC and other conferences will help LTRC's Tech Transfer section improve training classes and other T² offerings.



LTAP Director
Dr. Marie B. Walsh encourages all those with suggestions about the LTAP program to contact her at (225) 767-9184 or by e-mail at mbwalsh@ltrc.lsu.edu.

LADOTD Continues Relationship with Southern University



Established in 1879, Southern University (SU) in Baton Rouge is one of the oldest of the 100-plus historically black colleges and universities (HBCUs) in this country. While there are three other HBCUs in Louisiana (Grambling State University, Dillard University, and Xavier University of Louisiana), SU is the only one with a civil engineering department.

Mike Boudreaux, Technology Transfer Engineer at LTRC, serves on SU's Civil Engineering Department Advisory Board as well as the HBCU Committee. He also works directly with the LADOTD compliance section and the FHWA to ensure proper compliance measures are followed and that the department's relationship with SU continues to thrive.

One way the department supports SU and other state universities is through funding proposals included in the LTRC Research Work

Program. Currently, LTRC is supporting summer research for three years for two professors who have been jointly hired by SU and Louisiana State University under a National Science Foundation grant. SU students have also been active in LADOTD programs like the Co-op Program and Support Program for Senior Projects. Over the past three years, SU's use of funds from all of these areas has increased tremendously.

Aside from financial resources, LADOTD also offers SU support for its programs. For example, several Department employees have served as judges for engineering competitions at conferences hosted by SU. LADOTD also assisted faculty in preparing a proposal to create the Southern University Institute of Transportation Studies (SUITS). SUITS subsequently received \$150,000 in funding from CN Railroad.

With representation at SU's annual career fairs, LADOTD has been active in

recruiting SU students for employment. Through his position as Tech Transfer Engineer, Mike Boudreaux has coordinated speakers and several field trips for SU's Summer Transportation Institute, a four-week program for high school students interested in transportation career fields. Finally, LADOTD was represented at the most recent FHWA-hosted biennial HBCU forum (Atlanta, 2002) and plans on attending future forums.

Many SU students took advantage of the recent Louisiana Transportation Engineering Conference. To encourage student participation, registration fees were waived for junior and senior civil engineering students at Louisiana universities.



Pavement Research Facility and ALF: An Implementation Progress Report

Since being delivered to LADOTD's Pavement Research Facility (PRF) in 1993, the Accelerated Loading Facility (ALF) device has been instrumental in assessing pavement performance.

The facility is funded by the department in cooperation with the Federal Highway Administration. Over \$3 million has been invested in the site development, facility operation, and test bed construction at the state-of-the-art facility. Pavement test sections are built with full-scale construction equipment to closely simulate normal highway construction.

The 100-ft long, 55-ton ALF device simulates truck loading for pavement testing. One of only three of its kind in the nation, ALF compresses many years of road wear into just a few months of testing. As much as 20 years of loading can be condensed into a period of only one month.

Two experiments have been completed at the PRF. Experiment 3 is currently active, and Experiment 4's test lanes are under construction. Pavement response to ALF loading and climatic conditions is monitored for the duration of each experiment. Rut profiles and crack mapping are taken after every 25,000 passes. Each test lane is instrumented at various layer interfaces with strain measuring and pressure gauge devices to record actual stress and strain within the pavement structure.

The Falling Weight Deflectometer, Dynaflect, and Dynamic Cone Penetrometer tests investigate in situ strength properties of the pavement layers and subgrade. Pavement temperature at various levels and subgrade moisture is measured using temperature thermocouples and TDT moisture sensors. The PRF weather station monitors ambient temperature, relative humidity, wind direction and speed, barometric pressure, and rainfall intensity.

Experiment 1

Comparison of Louisiana's Conventional and Alternative Base Courses

Nine test lanes constructed with 3.5 in. asphalt pavement were placed over the following alternate base courses:

- 8.5" stone / fabric separator
- 5.5" stone / geogrid reinforcement
- 4" stone / 6" stone stabilized soil
- 8.5" cement stabilized soil – plant mix
- 8.5" cement treated soil – plant mix
- 8.5" cement treated soil – plant mix w/ fibers
- 8.5" cement stabilized soil – in-place mix
- 4" stone / 6" cement stabilized – in-place mix
- 12" cement treated soil – plant mix

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The stone interlayer over soil cement base course performed better than all other base course sections, and the 12" - 4% soil cement section was the second best performer. LADOTD is currently implementing both of these pavement design schemes into current projects. A life cycle cost benefit analysis showed a 40% reduced annual cost for both low- and high-volume roads with a 30-year design life. Using life cycle cost analysis, it is estimated that the use of these alternate base designs has reduced DOTD costs by \$8.2 million for construction from 2001 - 2003. For more information about this experiment's results and recommendations, request a copy of LTRC Report No. 301 from the research office, (225) 767-9133.

Experiment 2

Comparative Performance of Conventional and Rubberized Hot Mix Asphalt

Three lanes were constructed with 1.5" asphalt wearing course, 2" asphalt binder course, and 3.5" asphalt base course over 8.5" of stone and 10" of soil cement. One test lane placed the asphalt-rubber in the wearing course, while another lane included an asphalt-rubber black base. The third lane was constructed as a control section using conventional asphalt throughout.

The testing was carried beyond the expected life cycles of these sections, and no cracking was observed. The section with the asphalt-rubber in the base experienced the least rutting (less than one-third the strain of the conventional base). The conventional wearing course and rubberized wearing course sections performed similarly. Experience has shown that the asphalt rubber base strains are similar to a polymer-modified base. A recommendation has been made to require asphalt-rubber or polymer-modified asphalt in base course mix. The life cycle cost benefit analysis showed a 13% reduced annual cost for a 40-year design life. For more information, see LTRC Report No. 374.

Experiment 3 (Active)

Evaluation of Stone and Recycled Asphalt Pavement (RAP) Interlayers

Three test lanes constructed with 3.5" asphalt were placed over the following alternate base courses.

- 3.5" stone over 6" soil cement - 10% in-place mix
- 3.5" RAP over 6" soil cement - 10% in-place mix
- 3.5" RAP over 10" soil cement - 5% in-place mix

After approximately one million ESAL's, the RAP over 10" of soil cement is outperforming the other two lanes. However, the stone is outperforming the RAP for the 6" soil cement lanes. These preliminary results indicate that the use of RAP as an aggregate base course in conjunction with a thick cement-treated soil layer has the potential to be an alternate to crushed

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Pavement Research Facility and ALF (cont. from page 7)

stone. The projected life cycle cost benefit for a 30-year design life is a 10% reduction in annual cost. Results are being implemented on the LA 347/103 pilot project in St. Landry parish.

Experiment 4 (Under Construction)

Accelerated Loading Evaluation of a Subbase Layer, Blended Calcium Sulfate Base, and Foamed Asphalt Recycled Base

Experiment 4 is currently under construction at the PRF and is scheduled for completion in July 2005. Its objectives are to 1) evaluate the effect a stronger, more durable subbase has on pavement performance, 2) investigate the potential of recycled foamed asphalt material as an alternative to stone bases, and 3) evaluate the performance of blended calcium sulfate bases. For the first time in ALF experimentation, two test sections per lane will be built:

- 1A: 8.5" BCS base / 12" lime treated subgrade
- 2A: 8.5" BCS base / 12" cement treated subbase
- 3A: 8.5" Foamed recycled soil cement - RAP mix / 12" cement treated subbase
- 1B: 8.5" Stone base / 12" lime treated subgrade
- 2B: 8.5" Stone base / 12" cement treated subbase
- 3B: 8.5" Foamed RAP / 12" cement treated subbase

AAPT Annual Conference (cont. from page 1)

asphalt pavements; serving as a central point of exchange of ideas related to asphalt paving technology; and conducting and collating research in the asphalt paving industry.

Through their work on the conference's Local Arrangements Committee, several LTRC employees were instrumental in helping the conference run smoothly. Committee members were Skip Paul (Associate Director, Research), Chris Abadie (Materials Research Administrator), Sam Cooper (Asphalt Research Engineer), Dr. Louay Mohammad (Associate

Professor, EMCRF Manager), and Don Weathers (Executive Director, Louisiana Asphalt Pavement Association). Various other LTRC personnel from both the research and tech transfer sections also contributed to the conference.

While the conference program was organized by the AAPT's Board of Directors, the Local Arrangements Committee assisted with hotel details, coordinated the Board of Directors Dinner and the spouses' tour, and arranged for Bill Temple, LADOTD Chief Engineer, Office of Highways, to provide the

welcoming address for the conference. The committee also hosted "Monday Night on the Bayou," an event that treated attendees and their spouses to an evening of traditional south Louisiana hospitality complete with Cajun food, music, and dancing.

LTRC's Skip Paul received the AAPT 2003 Award of Recognition which is given annually to those who have served the association by offering papers and discussions as well as serving on the Board of Directors, Paper Awards, Paper Review, Nominations, and other ad hoc committees.

Skip Paul, LTRC Associate Director, Research, received the AAPT 2003 Award of Recognition at the conference's banquet.