

# Technology Today

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## Upcoming Events

September 11  
DBE Conference  
TTEC

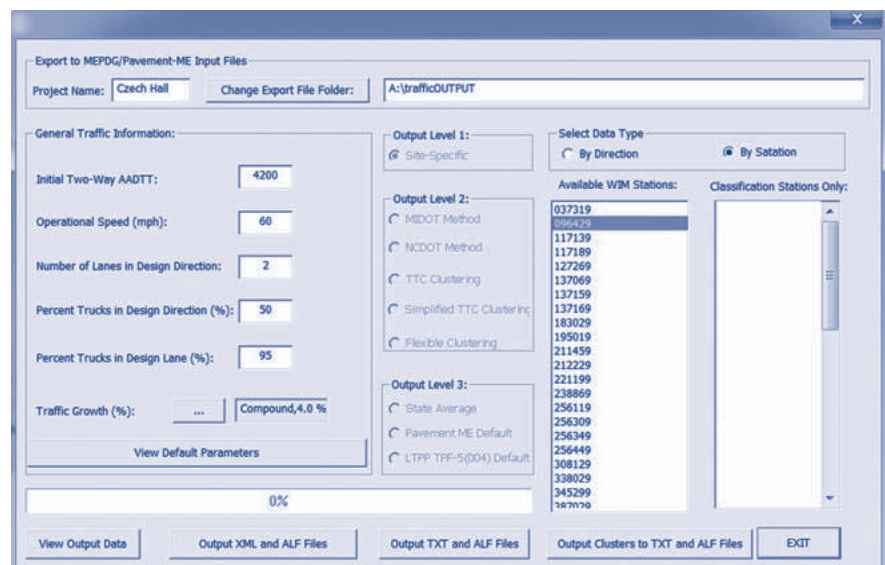
October 7-10  
NHI Course No. I30091—Underwater Bridge Inspection  
TTEC-100

To view more events, please visit  
<http://www.ltrc.lsu.edu>

## New Software Implemented into Louisiana Highway Design System

After serving as a leading agency for a pooled-fund study launched in 2011, DOTD along with ten other state highway agencies and federal offices are in the process of implementing new software, as a result of the study, into daily production and design activities. The software is named Prep-ME and serves as a full-production software program to store and process climate, traffic, and materials data required for the AASHTO Pavement ME Design Guide.

This software complies with the FHWA Traffic Monitoring Guide (TMG) and Travel Monitoring Analysis System (TMAS) for quality assurance and quality control (QA/QC). State highway agencies' experience has been built into the QA/QC of traffic data collection. Based off an original prototype developed by Arkansas DOT, pooled-fund researchers and engineers from participant states upgraded the software by adding more functions and different tools

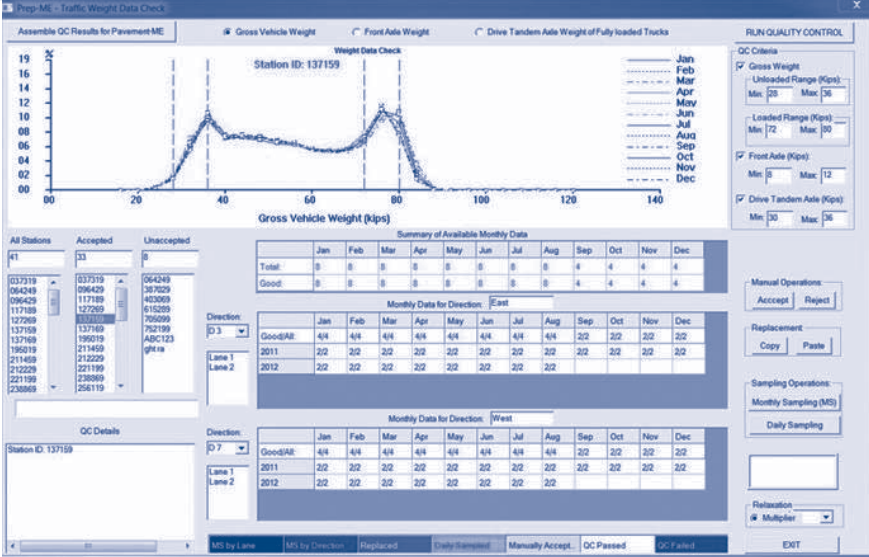


An inside look into the input selections of the new Prep-ME software

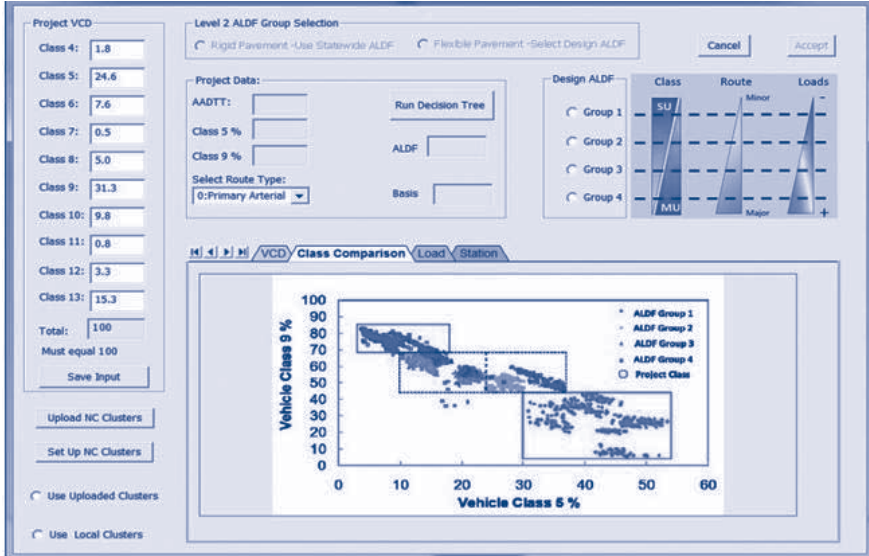
based on state DOTs' needs through a pooled-fund contract to the team at Oklahoma State University who developed the original version for Arkansas DOT.

The software has the following basic functions with more specific features requested by individual states: (1) imports data from data collection devices [e.g., weigh-in-motion (WIM)], (2) checks quality of data regarding FHWA's standards and criteria, (3) identifies and removes bad data, (4) repairs partially useable data when possible, (5) generates usable data (i.e., load spectrum data and other traffic data) for pavement design purposes. From there, the software is able to generate input files in the file formats that can be directly imported into MEPDG and Pavement ME Design software.

This software is available at no cost to highway state departments. To learn more about the software or study, please contact Pavement & Geotechnical Research Administrator Zhongjie "Doc" Zhang, Ph.D., P.E. at doc.zhang@la.gov or (225) 767-9162.



Example of load distribution



Example of load clusters

## LTRC Taking Steps to Certify Local NHI Instructors

LTRC currently offers a number of National Highway Institute (NHI) classes throughout the year at their training facility Transportation Training and Education Center (TTEC). However, recent scheduling problems due to a very limited number of NHI instructors available to teach certain classes have made it challenging for the center to offer courses when needed. As a result, LTRC has begun taking the necessary steps to create a local pool of NHI-certified instructors with expertise in a number of different areas.

External Programs Associate Director Vijaya (V.J.) Gopu, Ph.D., P.E. explains, “The way we did this was by selecting a small group of qualified people to go through a NHI instructor training course as a first step to getting certified as NHI instructors. The group selected included professors, DOTD employees, and FHWA professionals with a background in structures, bridge inspection, bridge maintenance, bridge design, geotechnical engineering, pavements or concrete.”

“We are trying to morph the center’s capabilities to another level—so in addition to being a regional NHI center, we can also have some instructors at our disposal who can be called on to teach if NHI cannot offer a course within a desired time frame,” explains Dr. Gopu.

As the first state to attempt to create a pool of local NHI instructors for their own use, the final specifics are still being determined. While the local benefits of having a pool of NHI-certified instructors would be scheduling and offering courses that LTRC needs in a timely fashion, Dr. Gopu also adds that NHI would benefit as well. “By not having to pay high traveling costs for their instructors to come to the center to teach for a couple days, it’s a win-win for both parties,” explains Dr. Gopu.

“This was the first class, and if we are successful in getting these people certified as NHI instructors, then we will create another small group to add to this original group,” adds Dr. Gopu. “So the larger the pool, the better off we are as a training facility.”

For more information, contact Dr. Gopu at [v.gopu@la.gov](mailto:v.gopu@la.gov) or (225) 767-9102.



*We are trying to morph the center’s capabilities to another level—so in addition to being a regional NHI center, we can also have some instructors at our disposal who can be called on to teach if NHI cannot offer a course within a desired time frame.*



## Statewide Traffic Engineers Meeting Held at LTRC

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Engineers from across the state gathered at TTEC Thursday, June 19, 2014, for their Annual Traffic Meeting hosted by the Department of Transportation and Development (DOTD). Over 130 engineers and transportation professionals were in attendance to network and participate in topics ranging from new signs, safety projects, signal timing projects, and more.

The Traffic Engineering Meeting gathers traffic engineers from around the state every June to discuss current issues and topics in traffic engineering. The organizer of the event this year and DOTD Traffic Engineer Andre' Fillastre, P.E., explains, "This really helps us keep a dialogue open, not just to those engineers in DOTD but

also at local levels and consultants.

In addition to discussing these items, we also want to inform traffic engineers of upcoming policy and standard changes."

With a day filled with presentations from professionals across the state, many topics showed high levels of interest among attendees. Those

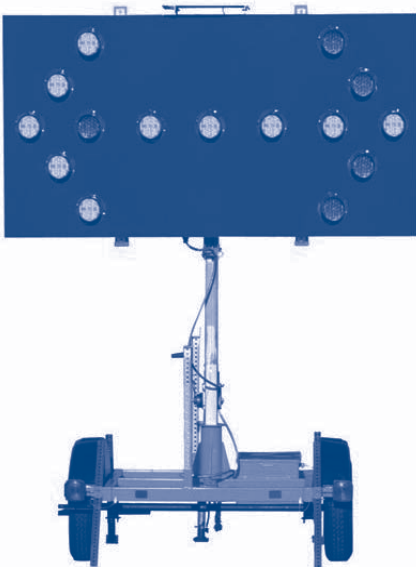
that appeared to be more popular were: *Traffic Modeling Policy Update*, *Traffic Signal Inventory and Upgrades*, *Roundabout EDSM Update*, *Force Account Projects*, and *Public Polling, Vision, Decision-Making Process*. "The reasoning for these presentations being of such interest has to do with how each is affecting how the state is progressing forward in those areas," explains Fillastre. "An example of this would be the Traffic Modeling policy update. This update helped inform the engineers of recent changes that will help them better determine what they may be doing on future projects."

In addition to serving as a place of shared information, the meeting also acts as an opportunity for engineers to create contacts with other engineers across the state, to better help the engineering community share information and knowledge.

Attendees benefited from not only hearing about the state's recently updated policies and standards, but also on what is happening in the field. Fillastre explains, "I hope they took away the effort we are putting forth to make traffic engineering better, not just by developing new policies or standards, but by sharing information and being willing to discuss issues."

To learn more about the meeting or any of the presentations, please contact Andre' Fillastre at [andre.fillastre@la.gov](mailto:andre.fillastre@la.gov) or 225-242-4646.

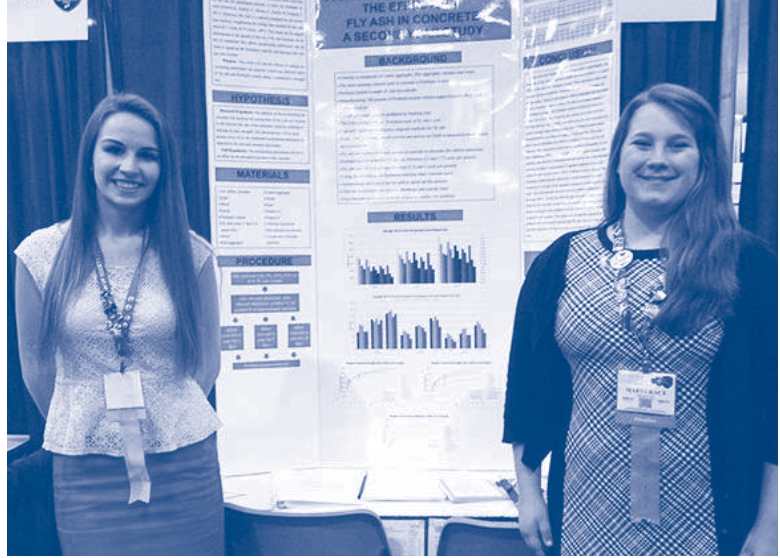
### Did You Know?



**Arrow boards shall only be used to indicate a lane closure. Arrow boards shall not be used to indicate a lane shift.**

# Local High School Science Students Win Scholarships

St. Joseph's Academy Juniors Marygrace Duggar and Olivia Guidry recently participated in the 2014 Intel International Science and Engineering Fair (ISEF) (the world's largest pre-college science competition) held May 11-16 in Los Angeles, California. The girls won \$15,000-per-year renewable scholarships from the University of West Virginia for their project, "A Greener Shade of Grey: The Effects of Fly Ash in Concrete, A Second-Year Study," where they utilized LTRC's labs a second time to conduct their research.



Concrete Research Manager Tyson Rupnow, Ph.D., P.E., assisted them while at LTRC and said, "Their first study looked at permeability of fly ash mixtures; whereas, this study looked at mitigating the retarding effect of the addition of high volume fly ash. Several different commercially available accelerators as well as other methods were used to determine their effect of time of set and early age strength properties."

This project is a follow-up study to their original project "A Greener Shade of Gray: The Effects of Fly Ash in Concrete" also conducted at LTRC last year. Throughout the study, the girls used LTRC's labs to test the durability of concrete containing fly ash compared to the control of concrete only containing Portland cement. Duggar and Guidry went on to win their category and win silver in the engineering category at an international science fair in

addition to two \$2,000 college scholarships.

LTRC would like to congratulate Duggar and Guidry for their hard work, strong pursuit of research, and the many awards that they received along the way.



## Staff Updates and Accomplishments

Engineering Materials Characterization Research Facility (EMCRF) Manager and LSU Civil Engineering Professor **Louay Mohammad**, Ph.D., delivered a keynote presentation on the “Mechanistic-Empirical Pavement Design Guide: Approaches to Implementation” at the GeoShanghai 2014 International Conference held May 26-28, 2014, in Shanghai, China.

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### Recently Published

#### **Final Report and Technical Summary 516**

*Implementation of Slag Stabilized Blended Calcium Sulfate (BCS) in a Pavement Structure*

Khalil I. Hanifa, E.I., and Gavin P. Gautreau, P.E.

#### **Final Report and Technical Summary 520**

*Field Demonstration of New Bridge Approach Slab Designs and Performance*

Murad Y. Abu-Farsakh, Ph.D., P.E., and Qiming Chen, Ph.D., P.E.

#### **Final Report and Technical Summary 502**

*Evaluation of Knowledge Transfer in an Immersive Virtual Learning Environment for the Transportation Community*

Mary Leah Coco, Ph.D., and Glynn W. Cavin, Ph.D.

#### **Final Report and Technical Summary 508**

*A Comprehensive Study on Pavement Edge Line Implementation*

Xiaoduan Sun, Ph.D., P.E., and Subasish Das

#### **Final Report and Technical Summary 499**

*Characterization of Louisiana Asphalt Mixtures Using Simple Performance Tests and MEPDG*

Louay N. Mohammad, Ph.D., Minkyum Kim, Ph.D., Amar Raghavendra, P.E., and Sandeep Obulareddy



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### **Final Report and Technical Summary 503**

*Developing Inexpensive Crash Countermeasures for Louisiana Local Roads*

Helmut Schneider, Ph.D., Xiaoduan Sun, Ph.D., and Peter Kelle, Ph.D.

### **Final Report and Technical Summary 472**

*Development and Performance Evaluation of Fiber Reinforced Polymer Bridge*

C.S. Cai, Ph.D., P.E., Archana Nair, Shuang Hou, Ph.D., and Miao Xia

### **Final Report 525**

*The Impact of Modifying the Jones Act on US Coastal Shipping*

Asaf Ashar, Ph.D., and James R. Amdal, Sr.

### **Project Capsule 12-1B**

*Evaluation of Asphalt Mixtures Containing Recycled Asphalt Shingles*

Louay Mohammad, Ph.D.

### **Project Capsule 14-4C**

*Evaluation of Bonded Concrete Overlays over Asphalt under Accelerated Loading*

Tyson Rupnow, Ph.D., P.E.

### **Project Capsule 14-3SA**

*Developing a Method for Estimating Traffic Volumes Local Roads in Louisiana*

Xiaoduan Sun, Ph.D., P.E.

### **Project Capsule 14-3PF**

*STC Synthesis of Transportation Funding Sources and Alternatives in the Southeastern States Now and in the Future*

James Bryan Gibson, Ph.D.



#### **FIND OUT MORE**

To view a complete list of LTRC publications, visit the website at [www.ltrc.lsu.edu](http://www.ltrc.lsu.edu).



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