TRANSPORTATION POOLED FUND PROGRAM
QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): Louisiana Transportation Research Center (LTRC)

INSTRUCTIONS:
Project Managers and/or research project investigators should complete a quarterly progress report for each calendar quarter during which the projects are active. Please provide a project schedule status of the research activities tied to each task that is defined in the proposal; a percentage completion of each task; a concise discussion (2 or 3 sentences) of the current status, including accomplishments and problems encountered, if any. List all tasks, even if no work was done during this period.

Transportation Pooled Fund Program Project # *(i.e, SPR-2(XXX), SPR-3(XXX) or TPF-5(XXX)* TPF-5(242)		**Transportation Pooled Fund Program - Report Period:** ☑ Quarter 1 (January 1 – March 31) ☐ Quarter 2 (April 1 – June 30) ☐ Quarter 3 (July 1 – September 30) ☐ Quarter 4 (October 1 – December 31)
Project Title: Traffic and Data Preparation for AASHTO MEPDG Analysis and Design		
Name of Project Manager(s): Doc Zhang	**Phone Number:** 225-767-9162	**E-Mail** Doc.Zhang@LA.GOV
Lead Agency Project ID:	**Other Project ID (i.e., contract #):**	**Project Start Date:** Sept 1 2011
Original Project End Date: Aug 31 2014	**Current Project End Date:** Aug 31 2014	**Number of Extensions:** 0

Project schedule status:

☑ On schedule ☐ On revised schedule ☐ Ahead of schedule ☐ Behind schedule

Overall Project Statistics:

Total Project Budget	Total Cost to Date for Project	Percentage of Work Completed to Date
$683,334	About $590,000	86%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
$40,000 and 6%	$40,000	86%

Project Description:

Background:
The Mechanistic Empirical Pavement Design Guide (MEPDG) is a significant advancement in pavement design, but requires significantly more inputs from designers. Many data sets need to be pre-processed before their use in the MEPDG procedure, such as Weigh-In-Motion (WIM) traffic data.

Under contract with the Federal Highway Administration (FHWA) and the Office of Pavement Technology, and co-sponsored by the Arkansas Highway Department, the University of Arkansas recently developed a software program called Prep-ME with comprehensive database features to store and process climate, traffic and materials data and to: (1) identify all the required inputs and analysis parameters; (2) develop algorithms and procedures to locate the available data sets, pre-process raw data, check data quality, and import the traffic and other data sets to the designed database tables, including conducting quality checks on both weight and classification WIM data based on LTPP and FHWA methods; (3) implement database algorithms for uploading, data checking, and generating the required data files for the MEPDG software; and, (4) develop a user friendly software interface, Prep-ME, to generate the required input files for the MEPDG software.

Objectives:
The objective of the Prep-ME software is to assist state DOTs in the data preparation and improve the management and workflow of the MEPDG input data to make the MEPDG software more accessible. Additionally, it can be used as a critical tool for calibrating and implementing the MEPDG as well.

Scope of Work:
In order to make Prep-ME full production software assist states use the MEPDG, the software and services need to be

Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):

This quarter (January - March 2013) is the 11th quarter of the project. The OSU team has added several new interfaces for the new functionalities: (1) Soil Map Module, (2) KYTC clustering method, (3) material module for E* and CTE, (4) classification data check module. Specifically, the detailed tasks that the OSU team has finished from January to March 2014 are:

(1) Developed Soil Map module: By inputting the latitude and longitude of a design location, associated Soil Map image will be loaded into the software interface with an extinctive marking demonstrating the design location. Users can manually input the "Map Char" on the soil map to the Prep-ME software interface. A soil report with all the required soil parameters in Pavement ME Design will be generated for users to view. Users can also import the soil parameters in a txt file report.

(2) Added new clustering method for Kentucky - "KYTC Method". The KYTC method implements the "aggregate class" concept to generate Level 2 traffic inputs for Pavement ME Design in Kentucky.

(3) Developed Material Module for users to retrieve dynamic modulus (E*) data for HMA and coefficient of thermal expansion (CTE) for PCC: E* and CTE are two of the most sensitive material parameters in Pavement ME Design. Many states have conducted extensive material testing for these two parameters. The most recent Prep-ME software is able to retrieve the material inputs that can be imported into Pavement ME Design based on state customized retrieving parameters.

(4) Completed the interface and coding for Classification Data Check module: similar to the module of Weight Data Check

Anticipated work next quarter:

The project is to be nearly completed in the next quarter by the end of June. The following tasks are planned for next quarter:

(1) Complete FWD module: this module allow users to import raw FWD data in F25 data format, manually input layer structure data for the FWD testing pavement section, and generate report that can be used by pavement designers to perform back-calculation analysis using third-party back-calculation software. With back-calculation modulus, users can manually input these values to Prep-ME interface, subsequently XML file based on Pavement ME Design data format can be generated for Pavement ME rehabilitation or overlay design.

(2) Finish loading group method developed in the LTPP TPF-5(004): five loading groups have been developed in TPF-5 (004). Prep-ME will apply their definitions into Prep-ME.

(3) The OSU team is planning for the two training events in the next quarter. First, from April 7 to April 8th, a one-and-a-half-day on-site training is to be provided for KYTC pavement engineers and planning staff in Frankfort Kentucky. Second, a half day Prep-ME workshop is scheduled at the 2014 North American Travel Monitoring Exposition and Conference (NATMEC).

(4) The team will continue making improvements to Prep-ME based on feedback from participating states. This task will continue till the end of this project.

(5) The team will complete and deliver a final version of Prep-ME with all new GUIs for Phase II of this pooled fund study in June. In addition, a new version of User's Manual will be developed and distributed to the participating states along with the new Prep-ME software.

(6) The OSU team will submit the draft final report for this project by the end of April 2014.

Significant Results:

The OSU team has added several new interfaces for the new functionalities: (1) Soil Map Module, (2) KYTC clustering method, (3) material module for E* and CTE, (4) classification data check module. Accordingly, new database tables are added into the database. The final version of Prep-ME is to be delivered in June 2014 with all the new GUIs for Phase II of this pooled fund study.

The OSU team interacts with individual states on regular basis to address their questions and feedback via emails and phone calls. Software bugs and many improvements have been made in the new version of Prep-ME software. In addition, the OSU team has rigorously tested the software internally.

Regarding training: (1) a TRB workshop on Prep-ME software was conducted in the 2014 TRB conference in January 16th 2014 in Washington D.C., (2) A FHWA talking traffic webinar focusing on Prep-ME demonstration and implementation by participating states was held in February 2014 with more than 50 participants nationwide.

Circumstance affecting project or budget. (Please describe any challenges encountered or anticipated that might affect the completion of the project within the time, scope and fiscal constraints set forth in the agreement, along with recommended solutions to those problems).

There is no circumstance affecting the project or budget at this time.

Potential Implementation:

No new information on implementation at this time, other than what has been reported on the application of Prep-ME at individual states.