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 $640,000	95%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
$25,000 and 3%	$25,000	95%

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 (April - June 2014) is the 12th quarter of the project. The major work in this quarter is the completion of the new Google Map API 3.0 development. There are several enhancements of the existing features in the Prep-ME software. Specifically, the detailed tasks that the OSU team has finished in this quarter are:

(1) The development of Google Map API 3.0 for Prep-ME: Google Map function has been integrated in several modules in Prep-ME, including "Import Traffic Data", "Check Station Data", "Export Traffic Data", and "Import Climate Data". The geo-referenced Google Map is activated to show the geographical relationships among the design project, climate stations and WIM stations for data output, and the surrounding area. This mapping utility has all major functions of Google Map, such as displaying satellite imagery.

(2) The completion of preliminary FWD module: this preliminary 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.

(3) The addition of state average "Number of Axles per Truck" function: the new version of Prep-ME software allows users to generate state average data for the "Number of Axles per Truck".

(4) The addition of TTC data plots in the "TTC Method" in the "Export Traffic Data" Module: the TTC dentitions proposed in Pavement ME Design do not include all the truck class distributions. In many cases, the software will return users with

Anticipated work next quarter:

The project is nearly completed in this quarter by the end of June. The following tasks are planned for next quarter (the last quarter of Phase II of this project):

(1) Develop preliminary function to implement the LTPP TPF-5(004) loading group method: the preliminary function will allow users to export the results from this study in three tiers of loading groups: Tier 1 - Global, Tier 2 - Typical, and User-defined.

(2) The team will continue making improvements to Prep-ME based on feedback from participating states. The team will deliver a final version of Prep-ME with all new GUIs for Phase II of this pooled fund study by the end of July. A updated User's Manual will be distributed to the participating states along with the new Prep-ME software.

(3) The OSU team will submit the revised final report with review comments addressed by the end of July.

Significant Results:

The OSU team has added several new capabilities in Prep-ME: (1) Google Map API 3.0 in several modules; (2) preliminary FWD module; (3) several features to aid users viewing data and performing data checks. The draft final report has been disseminated to the participating states and several states and FHWA engineers have provided comments.

The OSU team interacts with individual states on needed basis to address their questions and feedback via emails and phone calls. Software improvements have been made in the new version of Prep-ME software.

Two training events were hosted by the OSU Team in this quarter, including the 1.5-day on-site training for KYTC, and a half-day Prep-ME workshop at the 2014 NATMEC conference.

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.