Arkansas State Highway and Transportation Department
Transportation Research Committee

RESEARCH PROBLEM STATEMENT

DATE: 08/27/2010 **PROJECT AREA:** Pavements

TITLE: Data Preparation for Implementing Darwin-ME

PROBLEM STATEMENT:

AASHTO is anticipated to launch DARWin-ME Pavement Design Software in January 2011. AASHTO, FHWA, NCHRP, and many state highway agencies have spent well over $50 million in the past decade on developing, refining, and calibrating the Mechanistic-Empirical Pavement Design Guide (MEPDG), the predecessor to DARWin-ME. AHTD as a leader in MEPDG studies started supporting MEPDG research early on. As the next-generation pavement design procedure, DARWin-ME is embraced by many state highway agencies. As DARWin-ME requires a magnitude more data inputs, some of which are not familiar to pavement designers and not systematically stored and archived, it is imperative to have a process in place for AHTD to collect, analyze, prepare, and use the input data sets for DARWin-ME. Equally important, DARWin-ME will be also used as an analysis tool for pavement engineering due to its inclusion of many engineering principles, including prediction models, materials analysis, construction and as-built database, environment, and qualification of traffic data. The proposed project will rely on past AHTD sponsored projects on MEPDG and establish a workflow in implementing DARWin-ME at AHTD. In addition, it is also proposed that AHTD uses the project to participate in the national pooled-fund study to use PrepME for DARWin-ME data preparation.

OBJECTIVES:

The primary objective of the proposed study is to establish a workflow for AHTD to start implementing DARWin-ME for production and develop relevant technologies so that positive impacts of DARWin-ME will be fully exploited in pavement management, materials, construction, and traffic data collection.

1. Plan for AHTD to implement DARWin-ME, including training AHTD designers to use DARWin-ME
2. Participate in the national pooled-fund study ($50k from the proposed budget will be used for this purpose.)
3. Develop necessary software tools and processes for integrating AHTD data sets for multiple purposes

Form of Research Implementation:

It is anticipated that multiple AHTD sections will be working together to implement DARWin-ME due to unprecedented use of large amount of data across sections. A positive outcome of the project is the data quality improvement of various pavement data sets, and integrating the data sources from multiple sections.

Total Estimated Cost and Project Duration: **$** 350,000 **and** 39 **months.**

PREPARED BY: Dr. Kevin D Hall **and** Dr. Kelvin CP Wang

AGENCY: University of Arkansas, Fayetteville

PHONE: (479) 575-8425 **REVIEWER:** Jeff Brown

ADVISORY COUNCIL RANKING	TRC RANKING	Statement Combined with Statement Number(s)
5		