Research Project Descriptions

UTC Project Information	
Project Title	**Rapid and Continuous Assessment of Soil Conditions along Highway Alignments**
University	The University of Arkansas
Principal Investigator	PI: Clinton Wood, The University of Arkansas (UARK)
PI Contact Information	Clinton Wood; cmwood@uark.edu; 479-575-6084
Funding Source(s) and Amounts Provided (by each agency or organization)	SPTC: $48,149 The University of Arkansas: $48,179
Total Project Cost	$96,328
Agency ID or Contract Number	DTRT13-G-UTC36 SPTC 15.1-33
Start and End Dates	4/01/2016 – 3/31/2017
Brief Description of Research Project	**PROBLEM**: For new highway alignments in the southern plains region and around the nation, shallow subsurface investigations are typically conducted using drilling and sampling methods. Drilling and sampling is conducted at discrete locations usually 1,000s of feet apart with the objective of determine the properties (resistant modulus and AASHTO soil classification) and subsurface stratigraphy for design of the new highway. Although this method is effective at determining design values, it is often slow to conduct and expensive. Moreover, it only provides information at discrete locations and can likely only detect major changes in stratigraphy. **PROPOSED SOLUTION**: The purpose of this study is to improve upon this method of characterization, to include geophysical methods, particularly capacitively coupled resistivity (CCR), which can be used to provide a rapid and continuous evaluation of the subsurface soil conditions along a new highway alignment. With this evaluation, localized changes in stratigraphy (expansive clay thickness) and localized anomalies (karst sinkholes, unknown landfills, etc) can be detected along the alignment with less chance of missing the localized features. Ultimately, the project will develop a new testing methodology, which can be used to evaluate subsurface soil conditions for new highway alignments in order to reduce the cost of the investigation and provide more comprehensive results for design.

Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	
Impacts/Benefits of Implementation (actual, not anticipated)	
Web Links • Reports • Project website	