UTC Project Information	
Project Title	Determination of Creep Compliance and Indirect Tensile Strength for Mechanistic-Empirical Pavement Design Guide (MEPDG)
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Agency ID or Contract Number	DTRT13-G-UTC40
Start and End Dates	January 15, 2015– September 15, 2016
Brief Description of Research Project	Pavement condition greatly affects the safety of driver. For instance, the rutting in wheelpath creates hydroplaning which can leads to loss of control of vehicles. The roughness, e.g. potholes, can pose safety hazards to the driver. Therefore, improving the pavement condition by designing cost-effective long-lasting pavement is of paramount importance. The adoptions of Mechanistic-Empirical Pavement Design Guide (MEPDG) align well with this goal, when compared to traditional empirical pavement design. Dynamic modulus, indirect tensile (IDT) creep compliance and strength are the three primary mechanistic properties of asphalt mix for the asphalt pavement in the MEPDG. Thermal cracking is one of dominant distresses in Northern States in the U.S. Based the NCHRP 01-40, the thermal cracking prediction by the Pavement ME is very sensitive (highest category) to the IDT creep compliance and IDT strength. The MEPDG is a significant improvement over empirical design method and the models in MEPDG were developed based on national database of material properties and are not applicable to local materials. Therefore, there needs a local calibration of models and establishment of catalog of typical material properties, including IDT creep compliance and strength at low temperature, for local material. Without catalog of material properties in a state, the calibration of models would not be valid. The objective of

	this proposed research is to develop catalogs of IDT creep compliance and IDT strength for thermal cracking for materials in Idaho.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	During this study the initial inputs for the thermal cracking model of Mechanistic Empirical Pavement Design Guide (MEPDG) for the state of Idaho were developed and these inputs (Creep compliance and tensile strength values for the main asphalt mixes in the state of Idaho) were utilized to calibrated the thermal cracking model of MEPDG for the state of Idaho. The second phase of this project was completed by University of Idaho.

Impacts/Benefits of Implementation (actual, or anticipated)	The local calibration of thermal cracking model of MEPDG will increase the prediction accuracy of MEPDG software for the state of Idaho. This software is the major pavement design and evaluation tool in the united states and local calibration of this software can improve its ability to design pavements with longer service life and it can reduce the costs related to the pavement rehabilitation and reconstruction in the state of Idaho.
Web Links • Reports • Project Website	https://rosap.ntl.bts.gov/view/dot/38810