Title:	Develop Efficient Prediction Model of Highway Friction on an Annual Basis on Texas Network
The Problem:	The measurement of the skid resistance, in terms of skid number, of the Texas highway network is a daunting task due to the size of the network associated with the low effectiveness of the locked wheel trailer. Most skid measuring equipment used around the world is characterized by its low efficiency due to the need of frequent stops to refill the water tank. As a result, TxDOT can only measure the skid of a portion of its network on an annual basis. Recent advances in automated data collection using high-definition 3D lasers have demonstrated that accurate measurements of surface texture associated with the measurement of other pavement characteristics and distresses have the potential to predict surface friction and skid with high accuracy. Models for predicting skid based on texture, pavement type, and distress levels have shown accuracies greater that 70 percent, and in some cases, higher than 90 percent. This research project will develop a system to estimate pavement skid on the entire Texas highway network on an annual basis.
Technical Objectives:	The researchers shall address the following: 1. Evaluate recent advances worldwide for the measurement and prediction of skid resistance with particular emphasis on high efficiency methods. 2. Develop and propose a method to measure texture and other relevant properties to predict skid resistance with a high degree of accuracy. 3. Develop and perform a field experiment to validate the proposed method and establish measures of performance. The method should be highly efficient and should allow TxDOT to estimate skid resistance at the network level on an annual basis. 4. Recommend a system to measure pavement texture and use these measurements and other relevant information to predict skid resistance at the network level. The expectation of this project is that the end product will obtain a TRL level 8.
Desired Deliverables:	1. Technical memorandum for each task completed. 2. Monthly progress reports. 3. Value of Research (VoR) that includes both qualitative and economic benefits, to be included in the final research report. 4. Research report documenting the findings of the research, including a system to measure pavement texture and use these measurements and other relevant information to predict skid resistance at the network level. 5. Project Summary Report.
Proposal Requirements:	1. Utilize the “Proj/Agre” and “PA_Form” templates located at the TxDOT RTI website. 2. Proposals will be considered non-responsive and will not be accepted for technical evaluation if they are not received by the deadline or do not meet the requirements stated in RTI's University Handbook, which is also located at the RTI website. 3. Proposals should be submitted in PDF format, 1 PDF file per proposal. File name should include project name and university abbreviation. 4. This project will be tracked during the life of the project using a Technology Readiness Level (TRL) scale. For more information about the use of a TRL, click.