Title:	Develop Models for Field Performance of Friction and Skid Number
The Problem:	In recent years, TxDOT Maintenance Division has implemented a new, more comprehensive and powerful pavement management system known as Pavement Analyst (PA). One of the capabilities of the new system is to prioritize maintenance and rehabilitation (M&R) activities based on current conditions, predicted pavement performance, and a series of decision trees. To account for safety, these decision trees are now incorporating new variables, such as skid and texture, that were not previously considered. Texture and skid are highly correlated to the number of wet weather crashes, so controlling these variables will significantly improve the safety of the Texas highway network. There are no current models for the field prediction of skid and/or texture. Current models are based on laboratory characterization and the exponential decay rate is estimated from laboratory performance. The primary objective of this project will be to develop such models to aid in the selection of optimal M&R activities.
Technical Objectives:	This research shall develop models for field performance of friction and skid number to assist in selection of optimal M&R activities. To achieve this objective, the work to be performed shall include: 1. Conduct a literature review to identify existing models that are used to predict texture or friction based on field data and report the findings. 2. Evaluate data currently available in PA and other available sources that could be used to develop such models and identify potential shortcomings. 3. Review current values of predicted skid number for typical treatment, specifically initial and terminal skid, decay rate and service live, in years to terminal. 4. Once the gaps have been identified, develop a plan to address shortcomings and gaps. 5. Implement and deploy such a plan so the missing data are identified and collected, and develop a database that is compatible with PA. 6. Develop pavement performance models to predict the evolution of texture or skid with time and traffic in a manner compatible with implementation within PA. Provide revised initial and terminal values and decay rates. The expectation of the project end product(s) shall attain a Technology Readiness Level of 7.
Anticipated 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; not a stand-alone deliverable. 4. Research report documenting the findings of the research, including a specific plan to address the data gaps, and experimental design and specifications of data collection. 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.