



Research Project Statement 19-404 FY 2019 Annual Program

Title:	Develop Decision Tree Incorporating Surface Conditions
The Problem:	<p>TxDOT's implementation of Pavement Analyst (PA) system has been a significant improvement for the planning, construction, and management of the state highway infrastructure. PA is a tool to make informed and objective decisions about maintenance and rehabilitation activities, and can be used in planning documents, such as TxDOT's 4-Year Plan.</p> <p>The PA system relies on a series of embedded decision trees for the selection of the type of activity to be performed: preventive maintenance, light-, medium- or heavy-rehabilitation work (PM, LRhb, MRhb, HRhb). The current PA decision trees were built based on traffic, environmental, and pavement distresses, but lack of surface condition elements, such as roadway texture and skid resistance.</p> <p>By incorporating these elements into the decision process within PA, TxDOT can further optimize performance and preservation of TxDOT assets and improve network safety. The objective of this project is to define and incorporate elements in the PA decision trees that could trigger some preventive maintenance or rehabilitation work to improve safety conditions when low levels of texture are detected, particularly in areas that have been identified as problematic.</p>
Technical Objectives:	<ol style="list-style-type: none">1. Review and evaluate current TxDOT maintenance and rehabilitation decision trees within PA and identify the particular decision trees that would benefit from additional information related to surface condition.2. Within PA, assess and incorporate any additional information that could be used to the lack of surface texture or friction on a particular roadway.3. Develop and propose enhanced decision trees for the selection of maintenance or rehabilitation activities that account for the loss of texture or friction.4. Develop models for flexible and rigid pavements.5. The expectation of this project is that the end product will obtain a TRL level 7.
Desired Deliverables:	<ol style="list-style-type: none">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 research report.4. Research report documenting the findings of the research, including full documentation related to recommended modifications to be made within PA and supporting documentation to justify the modifications.5. Project Summary Report.
Proposal Requirements:	<ol style="list-style-type: none">1. Utilize the deliverable based templates (see the appendices provided).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.3. Proposals should be submitted in PDF format, 1 PDF file per proposal. The PDF file name should include Project Statement Title, Project Statement Number and abbreviated Performing Agency(ies) Name.4. This project will be tracked during the life of the project using a Technology Readiness Level (TRL) scale. More information about the use of a TRL can be found at https://www.fhwa.dot.gov/publications/research/ear/17047/17047.pdf.

Pre-Proposal Meeting Information:	Friday, December 7, 2018 1 0 :00 AM - 11:30 AM Austin Riverside Campus 118 E. Riverside Drive RTI Conference Room, 1st Floor Webex Information: 1. See attached Webex meeting notification. 2. If requested, enter your name and email address. 3. If a password is required, enter the meeting password: De8Mft7N 4. Click "Join". Teleconference information: Provide your phone number when you join the meeting to receive a call back. Alternatively, you can call: Call-in toll-free number: 1-855-437-3563 (US) Conference Code: 734 619 030
Proposal Deadline:	Proposals are due to RTI by 3:00 PM Central Time, Thursday, January 24, 2019. Email proposal submissions are to be sent to RTIMain@txdot.gov .