Title:	Capitalizing on Construction Records to Identify Relationships between Construction and Long-Term Project Performance
The Problem:	TxDOT uses AASHTOware SiteManager to manage construction projects and store vast amounts of project data. Some of this project data contains material quality and construction quality data in the way of QC/QA reports and test results. TxDOT has used QC/QA specifications associated with HMA construction for over two decades. This specification contains elements used to make bonus/penalty payments associated with HMA construction. While implied, the actual relationship between QC/QA specifications and other construction tests with long-term performance is unknown and under researched. Without this knowledge, TxDOT does not have a complete understanding of whether or not it is getting the best value for money spent. The underexploited data in SiteManager is not limited to data associated with specifications and project tests. Other detailed information in daily work reports, item payments, and change orders remains underexploited. This project seeks to better capitalize on construction records data in the generation of as-built information and potentially expose construction processes that impact performance, whether good or bad.
Technical Objectives:	The researchers shall address the following: 1. Perform a literature review on the relationship between HMA specifications and other construction quality reports and long-term performance. Review methods used by other DOTs with regard to construction quality, specifications, and determine if there is any effort to link these with performance. 2. Select different types of projects that have been in service for five or more years. Review the construction records and apply analytical techniques to the digital datasets. Perform site visits of the projects and discuss project performance with local TxDOT personnel. 3. Analyze current performance and identify links or gaps between construction records and tests taken during the construction process and actual field performance. 4. Identify potential modifications that will lead to TxDOT getting more value for money spent with regard to long-term performance. Also, identify specific application areas that may significantly improve current business processes, particularly as it relates to construction and material inspection and management. The expectation of this project is that the end product will obtain a TRL level 5.
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 recommendations for adjustments to existing specifications, recommendations for QC/QA testing that will lead to better long-term performance, potential data analytics application areas to better exploit historical construction datasets, and suggestions on any process changes in construction that could positively impact performance. 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.