



Research Project Statement 24-047 FY 2024 Annual Program

Title:	Develop Next Generation of Hamburg Rutting Test for Asphalt Mixes
The Problem:	The Hamburg wheel track test (HWTT) generally serves well as the standard rutting test for asphalt mixes in Texas; however, in the last several years, some premium mixes, e.g., stone matrix asphalt (SMA) and thin overlay mixture (TOM) for a Type C mixture, designed with PG76-22 and low HWTT rut depth have experienced premature rutting failures under slow or stop and go traffic in several TxDOT districts. Such failures not only burden TxDOT with extra cost; it also impacts people's lives and perceptions of TxDOT. Furthermore, it was reported that the HWTT cannot accurately quantify the better rutting performance of some tougher mixes, e.g., highly modified asphalt (HiMA), that were recently proposed to minimize the rutting problem under slow heavy traffic. It is critical to develop the next generation of HWTT to accurately determine rutting performance of asphalt mixes so that premature rutting failures are eliminated.
Technical Objectives:	<p>The HWTT plays a critical role in designing rutting resistant, durable, and long-lasting pavements. Developing the next generation of the HWTT will avoid premature rutting failures and result in major cost savings and reduce the disruption to the public and accordingly lower vehicles emissions. To meet the project objectives, the research team shall:</p> <ul style="list-style-type: none"> • Review literature to identify the pros and cons associated with the current HWTT. • Survey TxDOT districts and contractors to identify past premature rutting failures with mixes passing HWTT. • Document the cause of the failure with a forensic investigation on any major rutting problems that occur during this project. • Develop the next generation of HWTT utilizing the information assembled from the literature review, survey, and documentation of cause of failures. • Validate the next generation of HWTT with a pavement testing program and field performance data. • Revise Tex-242-F test standard and acceptance criteria, if needed. • Recommend specification changes. <p>The expected technology readiness level (TRL) for this project is 8.</p>
Anticipated 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 final research report. This is not a stand-alone deliverable. 4. Research report documenting the findings of the research, including a revised Tex-242-F test standard and acceptance criteria and recommended specification changes. 5. Project Summary Report
Proposal Requirements:	<ol style="list-style-type: none"> 1. Project duration shall not exceed 36 months. 2. Proposal Deadline: 12:00 p.m. Central Time, Monday, March 6, 2023. 3. RFP#1 Q&A Deadline: 12:00 p.m. Central Time, Wednesday, February 1, 2023. 4. Use the current "ProjAgre" and "PA Forms" templates located at the RTI Forms webpage. 5. 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. 6. Proposals should be submitted in PDF format; (1) PDF file per proposal. File name should include project name and university abbreviation. 7. This project will be tracked during the life of the project using the Technology Readiness Level (TRL) scale. 8. The 2021 Texas Legislative Session requires that universities be in compliance with Senate Bill 475 by submitting a completed and signed TxDOT Security Questionnaire (TSQ) to RTIMAIN@txdot.gov in advance of a proposal submission. Universities found to not submit a completed and signed TSQ in advance of proposal submitting will be held in non-compliance and unable to participate in the Program.