



# Research Project Statement 24-011 FY 2024 Annual Program

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| <b>Title:</b>                    | Develop Guidelines for Evaluation of Embankment Conditions in Bridge Approach Slabs and Pavement Structures   |
| <b>The Problem:</b>              | Settlements of bridge approach slabs (BAS) relative to bridge decks and pavement structures cause an uncomfortable or unsafe ride and increased maintenance costs. The maintenance strategies of BAS and adjacent pavement structures are based on subgrade conditions of in-service embankments where excessive settlements were observed; however, there are no current guidelines on how to accurately evaluate soil conditions of the in-service embankments. This project will develop guidelines for characterizing subsurface conditions beneath BAS and adjacent pavement structures by assessing the effectiveness of various in-situ testing tools and to establish maintenance strategies depending on the conditions of the in-service embankments.   |
| <b>Technical Objectives:</b>     | <p>This research will aid TxDOT pavement engineers in accurately and reliably identifying subsurface conditions of embankments where excessive settlements of BAS occurred. The maintenance strategies that will be proposed in this project based on the subsurface conditions can help TxDOT expedite the repair process and reduce maintenance costs. To successfully accomplish this project, the research team shall:</p> <ul style="list-style-type: none"> <li>• Evaluate suitability of various in-situ testing tools in characterizing soil conditions of in-service embankments in terms of testing time, equipment accessibility, accuracy and resolution of testing results, and effectiveness for subgrade assessment.</li> <li>• Provide technical guidelines on how to evaluate and classify embankment failures.</li> <li>• Propose maintenance strategies in consultation with TxDOT district pavement engineers based on subsurface conditions in BAS and pavement structures.</li> </ul> <p>The expected technology readiness level (TRL) for this project is 8.</p>   |
| <b>Anticipated Deliverables:</b> | <ol style="list-style-type: none"> <li>1. Technical memorandum for each task completed.</li> <li>2. Monthly progress reports.</li> <li>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.</li> <li>4. Research report documenting the findings of the research, including documentation of the effectiveness of in-situ testing tools and maintenance strategies.</li> <li>5. Project Summary Report.</li> </ol>  |
| <b>Proposal Requirements:</b>    | <ol style="list-style-type: none"> <li>1. Project duration shall not exceed 36 months.</li> <li>2. Proposal Deadline: 12:00 p.m. Central Time, <b>Monday, March 6, 2023</b>.</li> <li>3. RFP#1 Q&amp;A Deadline: 12:00 p.m. Central Time, <b>Wednesday, February 1, 2023</b>.</li> <li>4. Use the current “ProjAgre” and “PA Forms” templates located at the <a href="#">RTI Forms webpage</a>.</li> <li>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 <a href="#">University Handbook</a>.</li> <li>6. Proposals should be submitted in PDF format; (1) PDF file per proposal. File name should include project name and university abbreviation.</li> <li>7. This project will be tracked during the life of the project using the Technology Readiness Level (<a href="#">TRL</a>) scale.</li> <li>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 <a href="mailto:RTIMAIN@txdot.gov">RTIMAIN@txdot.gov</a> 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.</li> </ol> |