



FY 2025 Annual Program Research Project Statement 25-011

Title:	Evaluation of Adhesive Anchors in Concrete Pavement Applications
The Problem:	<p>The current concrete pavement standards and the repair standard require/allow drilling and epoxy grouting reinforcing bars at the longitudinal and transverse joints. It is expected that the epoxy grout method can create continuity of the longitudinal reinforcing steel stresses and able to carry the stresses across the tie bars to maintain tight longitudinal and transverse joints. The epoxy used in these applications must meet the requirements of DMS 6100, Epoxies and Adhesives, Type III Class C. A Portland Concrete Institute (PCI) workshop on adhesive anchors highlighted several items that need noting. First, the use of adhesive anchors for the purpose of developing reinforcing bars is not covered in any design provision and therefore should not be an allowed method. Second, there is little to no fatigue test data available for how adhesive anchors perform in cyclic loading conditions. Third, applications under sustained loading should use adhesives tested by AC308/ACI355 protocols.</p> <p>When failures occur at these joint locations, it is often assumed that poor installation of the epoxy grouted bar was the likely cause, but it could also be a result of the adhesive anchor not being suitable for these types of applications under cyclic and sustained loading.</p>
Technical Objectives:	<p>The objectives of this project are:</p> <ul style="list-style-type: none"> • Conduct a literature review and summarize state-of-the practice and key findings. • Perform field studies to evaluate adhesive anchors used in concrete pavement applications (longitudinal steel and transverse tie bars). Determine if: <ul style="list-style-type: none"> ○ The current epoxy grouting method is adequate to ensure long term performance. ○ The epoxy type currently specified is adequate for these types of applications. • Instrument and monitor adhesive anchors in concrete pavement tie-in details. • Review the requirements for Type III epoxies. • Recommend modifications to the standard details and/or material specifications. <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. Project Summary Report 4. Research report documenting the findings of this research, including: <ul style="list-style-type: none"> • Results from field studies. • Recommended modifications to specifications. • Value of Research (VoR) that includes both qualitative and economic benefits.
Proposal Requirements:	<ol style="list-style-type: none"> 1. RFP#1 Q&A Deadline: 12:00 p.m. Central Time, Tuesday, February 20, 2024. 2. Proposal Deadline: 12:00 p.m. Central Time, Thursday, March 21, 2024. 3. Use the current “ProjAgre” and “PA Forms” templates located at the RTI Forms webpage. 4. 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. 5. Proposals should be submitted by the University Liaison in PDF format; (1) PDF file per proposal. File name should include project name and university abbreviation. 6. 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. Universities that have not submitted a completed and signed TSQ one week after award will be considered non-compliant and unable to participate in the Program.