



# FY 2025 Annual Program Research Project Statement 25-012

<b>Title:</b>	Develop Optimum 2-Mat Reinforcement Design in Continuously Reinforced Concrete Pavement (CRCP)
<b>The Problem:</b>	<p>Over the years, slab thicknesses of continuously reinforced concrete pavement (CRCP) in Texas have increased. As slab thickness increases, the spacing between reinforcing steel becomes smaller, which requires the need for dividing the steel into two layers.</p> <p>Currently, TxDOT requires 2-mat reinforcement for 14-inch and 15-inch slabs; however, 2-mat steel design at TxDOT was developed in the 1980s without any technical evaluations. There are several design details that need to be fully evaluated, such as the depths and proper amounts of steel in each layer.</p> <p>Current design details do not fully utilize the benefits of 2-mat steel reinforcement. Development and implementation of optimum 2-mat steel design will improve the performance of thick CRCP in Texas.</p> <p>Recent findings from project 0-7026, Optimizing Reinforcing Steel in 12-inch and 13-inch Continuously Reinforced Concrete Pavement (CRCP), showed that small modifications to steel location in single steel layer CRCPs had significant improved effects on the stress/strain behavior of CRCP through reduction in vertical strains and reduced curling/warping behavior.</p>
<b>Technical Objectives:</b>	<p>The objectives of this project are:</p> <ul style="list-style-type: none"> <li>• Conduct a literature review and summarize state-of-the practice and key findings.</li> <li>• Analyze theoretical structural behavior of CRCP with various 2-mat designs.</li> <li>• Investigate CRCP behavior in actual CRCP projects.</li> <li>• Analyze results from both theoretical and field investigations.</li> <li>• Develop optimum steel design for 2-mat reinforcement.</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. Project Summary Report.</li> <li>4. Research report documenting the findings of this research, including: <ul style="list-style-type: none"> <li>• Results from theoretical and field studies.</li> <li>• Optimum steel design for 2-mat reinforcement.</li> <li>• Value of Research (VoR) that includes both qualitative and economic benefits.</li> </ul> </li> </ol>
<b>Proposal Requirements:</b>	<ol style="list-style-type: none"> <li>1. RFP#1 Q&amp;A Deadline: 12:00 p.m. Central Time, <b>Tuesday, February 20, 2024.</b></li> <li>2. Proposal Deadline: 12:00 p.m. Central Time, <b>Thursday, March 21, 2024.</b></li> <li>3. Use the current “ProjAgre” and “PA Forms” templates located at the <a href="#">RTI Forms webpage</a>.</li> <li>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 <a href="#">University Handbook</a>.</li> <li>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.</li> <li>6. This project will be tracked during the life of the project using the Technology Readiness Level (<a href="#">TRL</a>) scale.</li> <li>7. 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>. 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.</li> </ol>