



Research Project Statement 20-168 FY 2019 Annual Program

Title:	Optimizing Reinforcing Steel in 12-inch and 13-inch Continuously Reinforced Concrete Pavement (CRCP)
The Problem:	<p>Recent evaluations of several sections of CRCP mats measuring 12 inches and thicker have revealed issues with delamination of the concrete at the steel depth. This has caused the need for a significant amount of concrete pavement repairs on these sections. The current CRCP standard for these thicknesses only requires the steel to be placed in one single layer at mid-depth.</p> <p>It is hypothesized that these thicker CRCP sections are prone to mid-depth cracking due to the high percentage of steel, tight steel spacing, and the steel being farther from the surface, creating stresses which cause the delamination. Understanding the behavior of these thicker concrete pavements section will allow TxDOT to improve standard details and construction practices.</p>
Technical Objectives:	<p>The researchers shall address the following:</p> <ol style="list-style-type: none">1. Construct, instrument, and monitor test sections with varying steel configurations (one layer versus two layers, or other optimized reinforcement configurations) to determine the differences in pavement stresses and performance.2. Conduct finite element modeling (FEM) to complement the findings from the field work.
Desired 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.4. Research report documenting the findings of the research, including modified pavement standards to ensure improved long term performance of 12-inch and 13-inch CRCP sections, while reducing costly maintenance repairs.5. Project Summary Report.
Proposal Requirements:	<ol style="list-style-type: none">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.