Title:	Evaluation of Rapid Mix Design for Lime Treated Materials
The Problem:	Lime treatment remains a widely used strategy to modify or stabilize pavement materials that have elevated plasticity index. To realize structural credit in pavement design, these lime treated layers must meet minimum lab strength requirements measured in accordance with TxDOT Materials Specification Tex-121-E, Soil-Lime Testing. Once the Moisture-Density (MD) curve relationship has been established, the current Tex-121-E requires an additional 17 days for curing and conditioning lime treated materials prior to strength testing. In contrast, for other treatment types, after the MD curve relationship has been established, TxDOT uses or develops lab design methods based on the indirect tensile (IDT) strength of small samples with a test turnaround time of four days, inclusive of curing and moisture conditioning. Exploratory work has shown that a similar method could be viable for lime treated materials, but focused effort has not been placed on this topic. Currently, no field sections exist in Texas constructed with lime-treated materials designed using the proposed rapid small sample mix design.

Technical Objectives:	The objectives of this project are:
	• Conduct a literature review and summarize state-of-the practice and key findings.
	• Review and summarize mix design methods currently in use for lime treated materials.
	• Conduct a comprehensive lab program comparing existing procedures with small sample methods:
	  ○ Develop a lab mix design method for lime treatment that is similar in methodology, with accelerated methods of mix design currently in use or under development for asphalt-based and cement-based treatments.
	  ○ The lab mix design should significantly reduce the test turnaround time for lime treated materials, the testing burden, and better harmonize mix design methods across treatment.
	• Demonstrate the procedures for upcoming construction projects.
	• Develop recommended test procedures and updates to specifications.
	
	The expected technology readiness level (TRL) for this project is 8.

Anticipated Deliverables:	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: • Summarization of mix designs, • Results of the lab program, • Results of the demonstration road sections. • Value of Research (VoR) that includes both qualitative and economic benefits.
Proposal Requirements:	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. This project will be tracked during the life of the project using the Technology Readiness Level (TRL) scale. 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 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.