Title:	Utilizing Steel Fibers as Concrete Reinforcement in Bridge Decks
The Problem:	There is a current emphasis within TxDOT to identify opportunities for speeding up construction. Laying and tying reinforcing and verifying clear cover to reinforcing is one of the most time consuming processes involved in bridge deck construction. Utilizing steel fibers to replace more traditional reinforcing bars in bridge decks can be a significant step in speeding up bridge construction. Additionally, corrosion of reinforcing steel is the most common path to failure of a bridge deck. Steel fibers have been shown to offer a more corrosion-resistant option over conventional reinforcing bars. Steel fibers are now being produced domestically, which dramatically improves our opportunity for economical implementation. The goal of this project will be to determine the efficacy of using steel fibers in bridge deck applications and if plausible, develop protocols for determining adequate fiber dosages.
Technical Objectives:	1. Determine whether steel-fiber reinforced concrete can be utilized in the cast-in-place portion of bridge decks when precast concrete panels are used with no other reinforcing bars in the field of the deck. The goal is to eliminate as much of the standard reinforcement as possible, though the researcher will need to consider whether reinforcing bars will be needed to support bridge railing, provide connectivity at phased construction joints, or be required in any other areas of the deck. 2. Determine the minimum structural properties of fiber reinforced concrete needed for bridge deck applications with up to full replacement of deck reinforcement. 3. Develop a laboratory testing protocol that can be used by the Materials and Test Division Concrete Lab and industry to determine the required fiber dosage needed to meet the structural requirements for bridge deck applications. 4. Develop a field testing protocol to determine if proposed fiber dosages determined from the lab testing can be adequately placed while ensuring proper distribution of the fibers. 5. Include recommendations on fiber reinforced concrete properties for varying applications and fiber types. 6. Recommend realistic prescriptive/performance based fiber reinforced concrete mix design guidance to minimize bridge deck cracking and corrosion issues. 7. Conduct full-scale testing to verify any analyses or modeling that demonstrates adequate performance. 8. The expectation of this project is that the end product will obtain a TRL level 5.
Desired Deliverables:	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 research report. 4. Research report documenting the findings of the research, including recommendations on developing standard (non-UHPC) ready-mix designs for structural classes of concrete that utilize domestically produced steel fibers. 5. Project Summary Report.
Proposal Requirements:	1. Utilize the deliverable based templates (see the appendices provided). 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. 3. Proposals should be submitted in PDF format, 1 PDF file per proposal. The PDF file name should include Project Statement Title, Project Statement Number and abbreviated Performing Agency(ies) Name. 4. This project will be tracked during the life of the project using a Technology Readiness Level (TRL) scale. More information about the use of a TRL can be found at https://www.fhwa.dot.gov/publications/research/ear/17047/17047.pdf.

Pre-Proposal Meeting Information:	Friday, December 7, 2018 1 0 :00 AM - 11:30 AM Austin Riverside Campus 118 E. Riverside Drive RTI Conference Room, 1st Floor Webex Information: 1. See attached Webex meeting notification. 2. If requested, enter your name and email address. 3. If a password is required, enter the meeting password: **De8Mft7N** 4. Click "Join". Teleconference information: Provide your phone number when you join the meeting to receive a call back. Alternatively, you can call: Call-in toll-free number: 1-855-437-3563 (US) Conference Code: 734 619 030
Proposal Deadline:	Proposals are due to RTI by 3:00 PM Central Time, Thursday, January 24, 2019. Email proposal submissions are to be sent to RTIMain@txdot.gov.