Title:	Develop Standardized LRFD Design Methods for Ancillary Highway Structure Foundations
The Problem:	As part of the ongoing TxDOT effort to transition to LRFD based design for foundation elements, there is a need to adapt the current traffic structure standard foundation designs (Traffic Standards Link) to the updated design framework. The current standards rely solely on Texas Cone Penetrometer (TCP) values to determine foundation lengths, but this will no longer be possible for new designs in the overhauled framework. The standards need to be updated, as the LRFD method relies on other testing methods (Standard Penetration Test (SPT) Values and Triaxial Tests) for foundation design. The increased complexity of the design procedure should be evaluated to create an approach that is compliant with AASHTO design requirements, while maintaining an efficient design and the ease-of-use of a standard. The solution should be scalable so that it can be applied to various structure types and able to address the axial, lateral, and torsional capacities, as required. This research should include evaluation and development of design criteria that can be used for foundations subject to transient loading.
Technical Objectives:	The objectives of this project are: • Conduct a literature review and summarize state-of-the practice and key findings of standards and design criteria for ancillary traffic structures of TxDOT and other DOTs. • Evaluate existing TxDOT traffic structure standards to develop criteria for updates, including potential for correlation to existing design methods and presentation of results. • Identify simplified soil parameters and associated testing methods that can be used in a standard while complying to the LRFD foundation design approach. • Provide a series of design examples that are compliant with AASHTO requirements, including the Broms' and/or P-Y method, using the proposed standardized design approach for the various sign structure configurations (e.g., single shaft vs. shaft footing). 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: • Summary of the state of practice for design of ancillary traffic structures subject to transient lateral loads. • Recommendations for approach for updates to the applicable standards. • Design examples using the proposed approach. • 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.