



Research Project Statement 24-071 FY 2024 Annual Program

Title:	Roadside Safety Device Analysis, Testing, and Evaluation Program
The Problem:	<p>The Road to Zero has targeted a goal of zero deaths and serious injuries on Texas roadways. This strategic call to action and collaboration is built on the belief that not a single death is acceptable on our roadways. Recent trends in Texas indicate a continued increase in highway fatalities each of the past three years by a total of 22 percent. The Federal Highway Administration (FHWA) has identified roadway departure (RwD) safety as one of three critical focus areas with the greatest potential to reduce highway fatalities using infrastructure-oriented improvements. In 2021, roadway departure crashes were responsible for 40 percent of all crash-related fatalities in Texas, which is the largest single category by crash type. As a result, RwD safety is a key element of TxDOT's Strategic Highway Safety Plan (SHSP). In October 2021, FHWA designated Texas as one of 16 Roadway Departure Focus States based on being over-represented on three different roadway departure crash fatality metrics.</p> <p>Roadside safety devices are a key element of an effective roadway departure safety strategy. These safety devices shield motorists from roadside hazards such as non-traversable terrain and fixed objects, thereby reducing injuries and fatalities associated with roadway departure crashes. A recent review of vehicle sales and registration data indicates that vehicles continue to increase in weight. The light truck segment of the vehicle fleet, which tends to be heavier and less stable than passenger cars, continues to grow. Higher posted speeds continue to become more prevalent across the state roadway system; consequently, the demand placed on roadside safety devices continues to increase. Advances are needed to keep pace with these changes and encompass a broader range of impacts that are occurring on Texas roadways.</p>
Technical Objectives:	<p>This project will provide TxDOT with a mechanism to quickly and effectively evaluate high priority issues related to roadside safety devices. This includes development of both new and improved systems along with their proper implementation, selection, and placement.</p> <p>In each fiscal year, TxDOT will identify and prioritize roadside safety issues. These selected issues will be evaluated and addressed through engineering analyses, computer simulation, dynamic impact testing, and full-scale vehicular crash testing as appropriate. The research will support the roadside safety needs of the Bridge Division, Design Division, Maintenance Division, and Traffic Safety Division. Roadside safety devices that will be studied and/or developed include guardrail, bridge rail, median barriers, transitions, terminals, attenuators, breakaway supports, i.e., sign supports and mailboxes, portable barriers, and work zone traffic control devices. The project will require full-scale vehicle crash testing by an ISO 17025 accredited laboratory.</p> <p>The expected technology readiness level (TRL) for this project is 8.</p>
Anticipated 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. This is not a stand-alone deliverable. 4. Research report documenting the findings of the research, including testing protocols for each 5. category of device and establishing performance measures for each category of. 6. Project Summary Report

Proposal Requirements:	<ol style="list-style-type: none">1. Proposal Deadline: 12:00 p.m. Central Time, Monday, March 6, 2023.2. RFP#1 Q&A Deadline: 12:00 p.m. Central Time, Wednesday, February 1, 2023.3. 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 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 in advance of a proposal submission. Universities found to not submit a completed and signed TSQ in advance of proposal submitting will be held in non-compliance and unable to participate in the Program.
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