Title:	Evaluation of Low-Speed Profiler for Network-Level Pavement Management
The Problem:	A high-speed inertial profiler is used to collect ride quality (IRI) data in TxDOT network-level pavement management. However, it is well known that the data can be inaccurate or misleading at low speeds or stop and go conditions due to an intrinsic limitation in the accelerometer sensor. Recently, profiler manufacturers have developed a "zero" or low-speed profiler that includes additional hardware and updated software to better model the motion of the vehicle. This allows the profiler to collect more accurate profile data at stop signs, traffic lights, highway-rail crossings, or in urban areas. A more realistic and comprehensive pavement surface assessment will result in better decisions in pavement maintenance and rehabilitation (M&R). Ride quality data plays a critical role in the pavement condition score calculation at TxDOT. It is also one of the key Highway Performance Monitoring System (HPMS) data sets requested by the FHWA annually. In addition, it is used in M&R project selection, as mentioned in the 4-year pavement management plan.
Technical Objectives:	The objectives of this project are: • Conduct a literature review and summarize state-of-the practice and key findings. • Analyze existing ride quality data in Pavement Analyst and characterize the affected locations. • Assess the impact of inaccurate IRI due to low speed to pavement scores and network-level performance. • Evaluate the emerging low-speed profiler technology in terms of data accuracy, precision, repeatability, applicability, and adaptability for network-level data collection. • Validate the effectiveness of data collection by low-speed profilers at representative affected locations on TxDOT network. • Recommend how to use the low-speed profiler technology to improve network-level data quality. 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: • Review of existing ride quality data to the low-speed profiler. • Recommendations on use. • 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.