



# Research Project Statement 20-141 FY 2019 Annual Program

<b>Title:</b>	Determining Downstream Ecological Impacts of Sediment Derived from Bridge Construction
<b>The Problem:</b>	<p>As part of TxDOT's responsibilities to address potential effects to aquatic species listed under the federal Endangered Species Act (ESA), TxDOT's consultation with the U.S. Fish and Wildlife Service (USFWS) must determine the area of effect. Currently USFWS considers this distance to be 6.2 miles downstream in accordance with USGS publication (USGS/WRI-80-68). With the expected addition of freshwater mussels to the list of federal ESA listed species in Texas, the potential downstream effects from construction are receiving renewed attention since mussels are sessile and unable to temporarily avoid sediment impacts. Most of the literature being cited in these consultations pre-dates the implementation of current stormwater management practices, which include specific measures to control the release of sediment during construction.</p> <p>This project would create technically supportable determinations of the downstream ecological impacts of sediment derived from bridge construction. Given the potential mitigation cost for the endangered species mitigation of potential impacts, TxDOT needs to have a defensible basis for defining the area of effect.</p>
<b>Technical Objectives:</b>	<p>This research will develop and validate a model using sediment loading and transport data derived from projects using current stormwater management practices to confidently predict the quantity, size fraction, and accumulation depths for the length of measurable downstream effect. This model will allow final users to input the specific range of environmental conditions of the construction site to ensure valid model implementation across the range of freshwater mussel environments in Texas.</p> <p>The expectation of this project is that the end product will obtain a TRL level 7.</p>
<b>Desired Deliverables:</b>	<ol style="list-style-type: none"><li>1. Technical memorandum for each task completed.</li><li>2. Monthly progress reports.</li><li>3. Value of Research (VoR) that includes both qualitative and economic benefits, to be included in the final research report.</li><li>4. Research report documenting the findings of the research, including a predictive model to determine how to estimate the quantity, size fraction, and accumulation depths of sediment derived from bridge construction projects in Texas.</li><li>5. Project Summary Report.</li></ol>
<b>Proposal Requirements:</b>	<ol style="list-style-type: none"><li>1. Utilize the "Proj/Agre" and "PA_Form" templates located at the <a href="#">TxDOT RTI website</a>.</li><li>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 <a href="#">University Handbook</a>, which is also located at the RTI website.</li><li>3. Proposals should be submitted in PDF format, 1 PDF file per proposal. File name should include project name and university abbreviation.</li><li>4. This project will be tracked during the life of the project using a Technology Readiness Level (TRL) scale. For more information about the use of a <a href="#">TRL</a>, click.</li></ol>