



# Research Project Statement 20-279 FY 2019 Annual Program

<b>Title:</b>	Examine Trade-Offs Between Center Separation and Shoulder Width Allotment for a Given Roadway Width
<b>The Problem:</b>	<p>As traffic increases on a given roadway corridor to the point that widening is necessary, decisions have to be made as to what cross-section to provide within the available roadway width for the widened segment. Similarly, roadway segments may be periodically reviewed in conjunction with resurfacing projects to determine whether the existing cross-section best meets the needs of the current and anticipated demand.</p> <p>Studies have shown that 4-lane undivided roadways have poor safety performance compared to 4-lane divided and 2-lane cross-sections, but there is not always sufficient space within the available right-of-way to accommodate a traditional 4-lane divided cross-section. In these situations, one consideration is to provide a measure of center separation; e.g., a buffer or a narrow paved median, to achieve some benefits of dividing the opposite directions of traffic by reducing the width of the shoulders.</p> <p>Reducing shoulder width comes with its own results in terms of safety and operations, but the relative benefits of providing center separation and shoulders of varying widths are not well known. A better understanding of the benefits of center and shoulder combinations would provide useful information to designers who make decisions on cross-sections for new and resurfaced roadway segments.</p>
<b>Technical Objectives:</b>	<p>The objective of this research is to provide a useful tool in helping designers determine the most suitable cross-section for optimizing operations and safety on highway segments statewide. This would reduce crashes while making the best use of existing right-of-way and of existing roadway width within that right-of-way.</p> <p>The researchers shall address the following:</p> <ol style="list-style-type: none"> <li>1. Collect crash data and operational data on highway segments with similar paved surface width, but different cross-sections for lane, shoulder, and center separation widths.</li> <li>2. Examine the crash history on cross-section alternatives for the same paved width to identify the alternatives with fewer crashes as well as fewer crashes that are preventable based on the treatment; e.g., head-on crashes, run-off-road crashes.</li> <li>3. Analyze the operational data to compare capacity, segment operating speed, and other measures of effectiveness, to identify any effects on operations based on the change in cross-section.</li> </ol> <p>The expectation of this project is that the end product will obtain a TRL level 8.</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 potential revisions to the TxDOT Roadway Design Manual and potential crash modification factors for center separation treatments.</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>