



Research Project Statement 20-076 FY 2020 Annual Program

Title:	Establish Guidelines for Designing Auxiliary Lanes on Frontage Roads
The Problem:	<p>Auxiliary lanes provide for acceleration, maneuvering, and weaving of vehicles and are widely used to increase capacity and improve traffic safety. They typically precede median openings and right- and left-turning movements at intersections. While auxiliary lanes have attracted significant attention over the years by many agencies that use them to improve operations and address safety concerns, there is limited guidance with respect to the design of auxiliary lanes on frontage roads.</p> <p>TxDOT's Roadway Design Manual addresses auxiliary lane design only on mainlanes. The AASHTO Green Book covers some design aspects for intersections (Section 9.7) without providing relevant design criteria for frontage roads, which are briefly addressed in the Green Book (Section 4.12). According to the Green Book, warrants for the use of auxiliary lanes cannot be stated definitely.</p> <p>Many factors should be considered, such as speeds, traffic volumes, percentage of trucks, capacity, type of highway, availability of right-of-way, service provided, and the arrangement and frequency of intersections. Existing guidebooks provide general conclusions drawn based upon observations and engineering experience, without fully describing how the aforementioned factors may affect the operation of auxiliary lanes on frontage roads and how auxiliary lanes should be designed.</p> <p>Lack of relevant guidance often creates ambiguity and confusion during the planning and design phases of a project and may result in poorly designed facilities that can pose safety concerns to the driving public. There is a need for evaluating and addressing some of these parameters and provide relevant design criteria.</p>
Technical Objectives:	<p>The researchers shall address the following:</p> <ol style="list-style-type: none"> 1. Review relevant design criteria developed by other agencies in the United States. 2. Collect data and evaluate factors that can affect the design, operation, and safety on these facilities. 3. Analyze data and develop design criteria. 4. Prepare appropriate guidance. <p>The expectation of this project is that the end product will obtain a TRL level 8.</p>
Desired 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. 4. Research report documenting the findings of the research, including a set of criteria for designing auxiliary lanes on frontage roads. The guidelines shall be written in a way suitable for inclusion in TxDOT's Roadway Design Manual. 5. Project Summary Report.
Proposal Requirements:	<ol style="list-style-type: none"> 1. Utilize the "Proj/Agre" and "PA_Form" templates located at the TxDOT RTI website. 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 University Handbook, which is also located at the RTI website. 3. Proposals should be submitted in PDF format, 1 PDF file per proposal. File name should include project name and university abbreviation. 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 TRL, click.