Title:	Development of a Continuous for Live Load Prefabricated Steel Accelerated Bridge Construction (ABC) Unit for Texas Bridges
The Problem:	TxDOT has a developing program for Accelerated Bridge Construction (ABC) using various techniques. A few recent projects on IH 635 at Old Seagoville Road in Dallas, Old San Antonio Road (OSR) in the Bryan District, and US 83/SH 15 bridges in the Amarillo District have used the concept of prefabricated bridge unit assemblies where sections involving two girder lines and a composite slab built offsite are erected side-by-side with closure pours. These projects have used either structural steel or prestressed girders, but in simple span arrangements. While Texas has typical continuous steel beam and continuous concrete spliced girder bridges, continuous bridges for live load establishing a form of continuity at bents, primarily done in prestressed girder bridges, was abandoned in the 1980s. With a recent focus on durability and accelerated construction, TxDOT has an interest in ABC prefabricated units that integrate continuous for live load details. Because lifting and transport weights are an important constraint, steel girders, either rolled beams or plate girders, will be the focus of this research.
Technical Objectives:	Because the prefabricated solution establishes continuity at a pier, the following issues need guidance: 1. Span length capabilities given section sizes/depths 2. General details of establishing live load continuity that are conducive to speed of construction. 3. Closure pour details at interior bents that address deck stresses and connectivity of the precast deck, while minimizing closure pour size for ABC. 4. Structural steel splicing details in the joint area that provide requisite negative moment capacity and ease of construction/tolerances. 5. Interior bent bearing and support system compatible with typical TxDOT substructure details. To achieve these objectives, the work to be performed shall include: 1. Conduct literature review that provides range of techniques used with this type of system. 2. Develop a system using an industry review panel, with input from TxDOT. 3. Use a combination of physical testing and analytical methods to validate the system for Texas. 4. Develop an analytical/design approach. The expectation of the project end product(s) shall attain a Technology Readiness Level of 6.
Anticipated Deliverables:	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; not a stand-alone deliverable. 4. Research report documenting the findings of the research, including recommended analytical/test results, a documented design method, and tabulated range of design concepts for various span arrangements. 5. Project Summary Report
Proposal Requirements:	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.