



ACCELERATED BRIDGE CONSTRUCTION  
UNIVERSITY TRANSPORTATION CENTER

<b>UTC Project Information</b>	
Project Title	Alternative Technical Concepts for Contract Delivery Methods in Accelerated Bridge Construction
University	FIU
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Funding Source(s) and Amounts Provided (by each agency or organization)	ABC-UTC Funds: \$60000 Match Funds: \$30,000
Total Project Cost	Total Funds: \$90,000
Agency ID or Contract Number	Accelerated Bridge Construction University Transportation Center (ABC-UTC) 69A3551747121
Start and End Dates	01/01/2020 - Active
Brief Description of Research Project	<p>Accelerated bridge construction (ABC) is known to reduce the construction time and cost of bridges drastically, yet there are several issues in its delivery methods that have yet to be fully investigated. It is vital to provide specific frameworks and guidelines for ABC projects, which disseminates knowledge to encourage ABC stakeholders understand the various contract delivery methods that promise possible savings on a project's cost and schedule. This study aims to address one effective contract delivery methods, by highlighting and providing a metric that support ABC stakeholders and contractors recognize the merits of using Alternative Technical Concepts (ATC) on ABC projects. ATC is an effective project delivery method which is achieved through early contractor involvement, thus encouraging early understanding of the project, reducing risks proposing materials and modifications to contract requirements before the bidding or proposal process. That said, employing ABC projects with ATC contract method not only will reduce traffic and travelers' disturbances, but also reduces ABC's contract duration and cost by avoiding change orders as well as eliminating uncertainties within ABC projects. To be able achieve this goal and showcase to ABC stakeholders the advantages of ATC, the first step will be to conduct a rigorous literature review to understand the status of contract delivery methods in ABC projects and identify any potential case studies with ATC methods. Then a focus group/interview to professionals from construction, transportation, and the structural disciplines will be conducted to develop decision criteria that are usually used in the analysis of analytical hierarchical process (AHP). Afterwards, a semi-</p>

	<p>structured survey to representative samples of ABC stakeholders will be conducted to validate the hierarchical decision criteria developed through the focus group discussions/interviews. The obtained results from the survey are also used to develop a binary logistic regression model to determine the benefits of using ATC specifically on time/schedule in ABC projects. The findings of the study foster the development of a streamlined procedure for effective adoption of ATC, which would surely expedite ABC projects' delivery, eliminate uncertainties about the ATC as a contract delivery method for ABC projects, and provide a framework to support early contractor involvement when ATC is adopted thus advance the frontier of ABC. The proposed research project will be geared towards determining the factors which impact the integration of ATC in ABC projects through the analytic hierarchy process (AHP). The objective of conducting this analysis is to develop a hierarchical model that can be used to develop a guideline for effective adoption of ATC thus expediting the contract delivery. These streamlined procedures for ATC would aid to successfully accelerate the design, construction process and procurement of infrastructure assets for either rehabilitation or new projects related to ABC. The integration of ATC in ABC projects not only ensure smooth regulation of traffic and adequate safety but more importantly address the issues of elevated cost and delay in project schedule.</p>
<p>Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here</p>	<p>This is an active research project. Upon completion, outcomes will be reported.</p>
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	<p>This is an active research project. Upon completion, impacts/benefits will be reported.</p>
<p>Web Links</p> <ul style="list-style-type: none"> <li>• Reports</li> <li>• Project website</li> </ul>	<p><a href="https://abc-utc.fiu.edu/research-projects/fiu-research-projects/alternative-technical-concepts-for-contract-delivery-methods-in-accelerated-bridge-construction/">https://abc-utc.fiu.edu/research-projects/fiu-research-projects/alternative-technical-concepts-for-contract-delivery-methods-in-accelerated-bridge-construction/</a></p>