



ACCELERATED BRIDGE CONSTRUCTION  
UNIVERSITY TRANSPORTATION CENTER

<b>UTC Project Information</b>	
Project Title	A Predictive Computer Program for Proactive Demolition Planning
University	FIU
Principal Investigator	Lee, Jae
PI Contact Information	
Funding Source(s) and Amounts Provided (by each agency or organization)	\$51830 ABC-UTC Department of Transportation
Total Project Cost	
Agency ID or Contract Number	Accelerated Bridge Construction University Transportation Center (ABC-UTC)DTRT13-G-UTC41; 69A3551747121
Start and End Dates	2017/06/01–2019/05/31
Brief Description of Research Project	<p>Proactive planning of controlled bridge demolition is of great importance to proceed with the rest of construction project in a timely manner; otherwise, it can cause major impact such as project delays and disruptions to traffic. Utmost priority should be given to secure safety of workers, for which any feasible emergency events should be proactively prepared. Maintaining the integrity of neighboring infrastructure, e.g., permanent roadways, nearby buildings, from the potential impact of demolition debris is another critical issue. The significance of proactive demolition planning is even greater for accelerated bridge construction (ABC) project due to the urgency of completing bridge replacement work. However, there has been difficulty in developing a general procedure/protocol for safe and efficient demolition planning due to inherent uncertainty hard to characterize ahead. Information has been often limited to the engineers regarding how to proceed with the demolition, which has often caused unpredictable failures in the projects. Potential hazards and inefficiency associated with demolition may be better controlled and possibly eliminated by realistically predicting the most likely scenarios, for which numerical simulations can be leveraged. Communication between structural engineers, contractors and stakeholders will be become more transparent if visualized simulation result is utilized. Therefore, predictive numerical simulation will enable better and faster decision making for proactive planning in demolition project where uncertainty is the only certainty.</p>

Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	The outcomes will be tracked and reported once they are identified.
Impacts/Benefits of Implementation (actual, not anticipated)	The impacts will be tracked and reported once they are identified.
Web Links <ul style="list-style-type: none"><li>• Reports</li><li>• Project website</li></ul>	<a href="https://abc-utc.fiu.edu/research-projects/fiu-research-projects/predictive-computer-program-proactive-demolition-planning/">https://abc-utc.fiu.edu/research-projects/fiu-research-projects/predictive-computer-program-proactive-demolition-planning/</a>