



ACCELERATED BRIDGE CONSTRUCTION  
UNIVERSITY TRANSPORTATION CENTER

| <b>UTC Project Information</b>  |   |
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| Project Title   | Use of Advanced Materials to Enhance The Lateral Stability of Prestressed Concrete Girders  |
| University  | University of Washington  |
| Principal Investigator  | John Stanton  |
| PI Contact Information  | stanton@uw.edu  |
| Funding Source(s) and Amounts Provided (by each agency or organization) | \$75,000 (ABC-UTC)<br>PCI Matching Fund   |
| Total Project Cost  | \$75,000  |
| Agency ID or Contract Number  | 69A3551747121   |
| Start and End Dates   | 16 Sept 2023 - 15 June 2024   |
| Brief Description of Research Project                                   | <p>The proposal focuses on pushing the limits of girder spans by using new materials and cross-sections. It is motivated by advances in UHPC, which are delivering high strength in both tension and compression. High-performance materials allow for smaller cross-sections and longer spans. However, this will come with increased slenderness and increased encroachment of instabilities.</p> <p>The proposed work is part of a larger effort to advance the performance of precast girders. Current research by the PIs focuses on exploring new cross-sections to improve in-service performance and stability during hauling and lifting of girders. That research encompasses a broad range of material properties, but as a first step toward generating new girder cross-sections, remains within the current design framework that conservatively seeks to avoid tension and cracking. New UHPC options, with improved tensile strength, and excellent post-cracking performance, will allow this framework to be revisited. In fact, the continued pursuit of longer spans will likely require this change.</p> |

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| Describe Implementation of Research Outcomes (or why not implemented)<br>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/use-of-advanced-materials-to-enhance-the-lateral-stability-of-prestressed-concrete-girders/">https://abc-utc.fiu.edu/use-of-advanced-materials-to-enhance-the-lateral-stability-of-prestressed-concrete-girders/</a> |