



ACCELERATED BRIDGE CONSTRUCTION
UNIVERSITY TRANSPORTATION CENTER

UTC Project Information	
Project Title	Design Guidance for UHPC Connections of Precast Girders Made Continuous for Live Load
University	University of Oklahoma
Principal Investigator	Royce Floyd, Ph.D., P.E., S.E.
PI Contact Information	rfloyd@ou.edu 405-325-1010
Funding Source(s) and Amounts Provided (by each agency or organization)	ABC-UTC: \$44,999 OU: \$25,207
Total Project Cost	\$70,206
Agency ID or Contract Number	69A3551747121
Start and End Dates	03/01/2021 - Active
Brief Description of Research Project	<p>Use of continuous bridge spans can reduce the required section size and can improve bridge durability by reducing the number of deck joints. If not detailed and constructed properly, continuity connections for precast concrete girders using conventional concrete tend to crack from the bottom due to moments resulting from creep and shrinkage effects in the girders. Ultra-high performance concrete (UHPC) has been successfully used in multiple applications related to connection of precast concrete bridge components and is frequently used in accelerated bridge construction. In general, joints replaced or connections made using UHPC will have better durability and will allow for a smaller quantity of material to be used while still obtaining adequate load transfer between connected components. Previous research has shown that connections of precast girders for live load continuity using UHPC are a promising alternative to conventional connections. However, more comprehensive design guidance for continuity connections made with UHPC is needed for a variety of precast concrete bridge configurations. The objectives of the proposed research are to synthesize existing data and research on UHPC and UHPC connections to develop design guidance for UHPC connections of precast bridge girders made continuous for live load and to produce training materials for UHPC continuity joints.</p>

Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	Follow-on research implementation (field) project from the Oklahoma DOT (see also C2-OU01)
Impacts/Benefits of Implementation (actual, not anticipated)	Oklahoma DOT will be incorporating change to allow this output (non-proprietary UHPC) as a standard option (see also C2-OU01)
Web Links <ul style="list-style-type: none">• Reports• Project website	https://abc-utc.fiu.edu/research-projects/design-guidance-for-uhpc-connections-of-precast-girders-made-continuous-for-live-load/