UTC Project Information	
Project Title	MPC-595 – Mechanically Spliced Precast Bridge Columns
University	South Dakota State University
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Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT, Research and Innovative Technology Administration $190,062 SDSU, J. Lohr COE, and Industry Partners $237,273
Total Project Cost	$427,335
Agency ID or Contract Number	69A3551747108
Start and End Dates	April 11, 2019 to July 31, 2022
Brief Description of Research Project	Mechanical bar splices, which are commonly referred to as bar couplers, have been utilized mainly in laboratories to connect precast columns to footings or cap beams. Nevertheless, bar couplers are currently banned in seismic bridge design codes for the incorporating in the plastic hinge regions of either cast-in-place or precast columns. This is mainly because the coupler behavior and the seismic performance of mechanically spliced columns are largely unknown. A recent study at South Dakota State University attacked the first problem by testing more than 160 bar couplers including nine products from six manufacturers, and established a comprehensive database of the coupler behavior. Furthermore, they proposed standard test methods to systematically quantify the coupler performance and also proposed acceptance criteria for couplers to be incorporated in bridge columns. The acceptable mechanical bar splices were categorized as "seismic couplers". Nevertheless, test data regarding the performance of mechanically spliced bridge columns is scarce and the available data is for columns with different geometries, confinement levels, and testing procedures. To better understand the seismic performance of mechanically spliced bridge columns, testing of large-scale precast

	columns spliced with different bar couplers is proposed. Establishing a comprehensive precast column experimental database will allow to verify or further modify the current design methods and might provide a justification to relax current coupler ban for bridge columns. Furthermore, the experimental study will identify new and feasible detailing for mechanically spliced precast columns to promote the accelerated bridge construction for bents.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	
Impacts/Benefits of Implementation (actual, not anticipated)	
Web Links • Reports • Project Website	