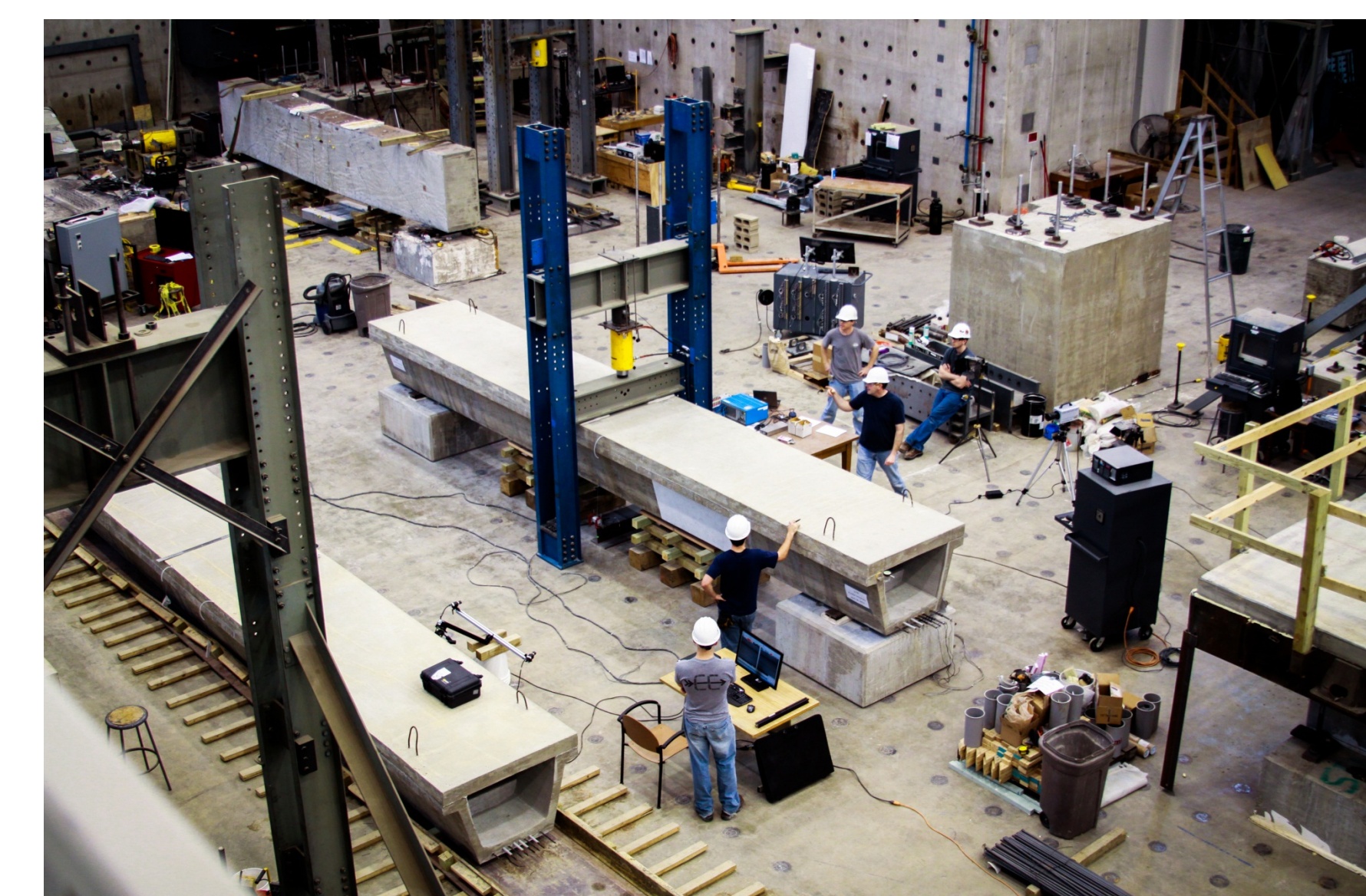




IMPROVING the  
**DESIGN** of  
 U-BEAMS  
 for INDIANA



**JTRP SPR-3144**

The objective of this research is to develop design strategies to improve the efficiency and optimize the design of the Indiana modified U-beam. The research program has been focused in three areas (1) evaluating the live load distribution appropriate for the design of U-beams, (2) assessing the behavior and design of the bridge deck when supported by U-beams, and (3) evaluating both the shear strength and shear design of the composite U-beam system.

*Robert Frosch, Principal Investigator  
 Michael Kreger, Co-Principal Investigator*

**LABORATORY TESTING DETAILS**

The final phase of experimental testing is currently underway verifying the overall system behavior of U-beams. Of particular interest in these tests is the influence of strand debonding which is currently limited by AASHTO. The specimens are half-scale models of the 21st Street bridge over I-465 in Indianapolis. Two beams with a composite deck and 50% debonded strands (twice that currently allowed by AASHTO) are currently being tested. The primary variable is the shear reinforcement. These final proof tests will provide information needed to modify current AASHTO limits while improving the safety and economics of this cross-section.

