

## **RP 281 – Precast Pier System for Accelerated Bridge Construction in Idaho**

- Project Description:

This project seeks to test a precast pier system proposed by ITD bridge engineers. The new connection is somewhat similar in appearance to the pipe-pin connection investigated by Zaghi and Saiidi (2009) and funded by Caltrans. However, it would be pipe-fix connection designed to carry full moments expected to develop at the top and bottom of the column. Researchers will compare the performance of the proposed precast pier system with the conventional cast-in-place construction. As part of the project, researchers will determine needed adjustments to cap and footing designs and detailing and assess the ductile behavior of the proposed connection. If the tests and analysis shows the performance is satisfactory, recommendations will be provided for design guidelines and details that could be then incorporated into the ITD Bridge Design Manual.

- Project Objective:

The main objectives of this project include:

1. Review currently available ABC technologies and connections in seismic regions
2. Validate experimentally the proposed precast pier system using large-scale testing of cantilever and bent specimens, examining the structural performance, and comparing the system's performance against monolithic specimens
3. Perform analytical modeling and calibrate the numerical models against experimental results
4. Provide guidance and recommendations on design and detailing considerations for the proposed connection
5. Provide information and recommendations for use by ITD Bridge Section staff regarding performance-based seismic design (force-based), repair, inspection, and durability aspects of the proposed connection

- Estimated Completion Date: December 31, 2020

- Budget: \$150,000

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