

UTC Project Information	
Project Title	MPC-670 – Numerical Simulation of Strengthening of Bridge Decks with Partial-Depth Precast Deck Panels
University	University of Utah
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Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT, Office of the Assistant Secretary for Research and Technology \$50,741 Utah Department of Transportation \$68,800
Total Project Cost	\$119,541
Agency ID or Contract Number	69A3551747108
Start and End Dates	September 24, 2021 to July 31, 2024
Brief Description of Research Project	In several states, bridge deck delamination of reinforced concrete bridge decks built with partial-depth-precast (PDP) concrete panels and cast-in-place decks has been observed. The PDP panels are typically prestressed. Recently, one such failure was observed in the Utah. There is a need to develop strengthening and repair methods to re-laminate the precast concrete panel and cast-in-place (CIP) deck, ensure composite behavior through mechanical connections, or strengthen the panel such that bridge deck delamination does not pose a safety risk. The goal of the study is to develop numerical models to predict the response of structurally delaminated concrete decks and the response of strengthened decks.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	Utah Department of Transportation (UDOT) is currently implementing the main finding of this research using epoxy injection for the retrofit of existing bridge decks in Utah.
Impacts/Benefits of Implementation (actual, not anticipated)	The UDOT and departments of transportation in other states that use partial depth precast panels can benefit from the methods developed in this research to extend the life of bridge decks. The epoxy injection method can be used to create composite action in such deck panels between the precast portion and the cast-in-place portion. This repair method can eliminate damage to such bridge decks which will reduce maintenance costs.

<p>Web Links</p> <ul style="list-style-type: none">• Reports• Project Website	<ul style="list-style-type: none">• MPC Final Report – Numerical Simulation of Strengthening of Bridge Decks Built with Partial Depth Precast Concrete Deck Panels
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