# Induced Stresses from Lifting and Moving Highway Bridges with Self-Propelled Modular Transporters

## Description

**Meta Fields**
**Project Starting Year :** 2010
**Budget :** 0.00
**Key Words :**

Bridge construction; Bridge superstructures; Prefabricated bridges; Stresses

**Abstract :**

This study discusses five bridges on I-80 in Utah that were replaced in the summer of 2008 by using accelerated bridge construction methods. Each superstructure was built off site and moved into place with self-propelled modular transporters. The bridges were instrumented and monitored during the moving process to investigate the effects of moving an entire superstructure into place. Collected data were analyzed to find the level of stress each superstructure experienced during lifting, moving, and placement of each bridge. Support conditions for these bridges changed considerably. During construction and when permanently placed, they were simply supported structures. During transport, the lift points were in the interior of the bridges, resulting in cantilevered ends and considerable stress reversals in the entire bridge. A two-dimensional analysis was done using the dead load of the structure to find the initial stresses in the superstructure when supported on temporary abutments. The measured change in stress resulting from lifting was compared with calculations. The difference between the two stresses was defined as the lifting stress in the superstructure. Dynamic stresses incurred as a result of bridge movement are determined and compared with recommendations.

**Subject :** SPMTs
**Group :** Systems
**Category :** Completed Projects


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