

## Evaluate Concrete Creep and Shrinkage Under Field Conditions Through the Monitoring of Loads on an Integral Abutment and Shrinkage of Concrete on a Bridge Back

### Principal Investigators:

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### Project Sponsor:

Paul Santo

### Need:

A design method to eliminate or minimize joints in bridges.

### Objective:

To develop design method for integral abutment bridges with concrete foundation elements

### Duration:

3 Years

### Cost:

\$320,000

### Update:

- Vibrating wire strain gages were placed in prestressed planks
- Strains were monitored from initial casting to completion of bridge
- Vibrating wire strain gages were placed in bridge deck topping and monitored
- Concrete cylinders were cast to measure creep and shrinkage
- Using concrete cylinder data, a computer model is being developed to simulate measured field data
- Abutments and drilled shafts were instrumented with earth pressure cells, inclinometers and strain gages
- Measurements of earth pressure, deflection and strain in the abutments and drilled shafts have been made for the past 2.5 years and are still continuing
- Design procedure for integral abutment bridges with concrete foundation elements will be investigated in light of these measurements