

**THE PROBLEM**

One of the greatest impacts associated with bridge rehabilitation is the lengthy disruption of traffic flow. Cast-in-place concrete construction is a major factor in the duration of bridge construction. Form assembly, false work construction, concrete placement and curing, and removal of forms and false work result in a timeline with few shortcuts. Use of precast deck panels on NHDOT bridge projects has increased since 1991, but use was limited due to concerns with deck performance on continuous long span bridges.

**OUR GOAL**

The objective of this research project was to investigate the performance of partial depth precast concrete deck panels with a cast-in-place concrete overpour when used on a multi-span structure with span(s) exceeding 175 feet. The research studied whether the precast panels act in a composite manner with the concrete overpour.

In addition, the research investigated whether the overpour adequately transfers traffic loads across the interface between panels without the loads causing reflective cracking up through the overpour.

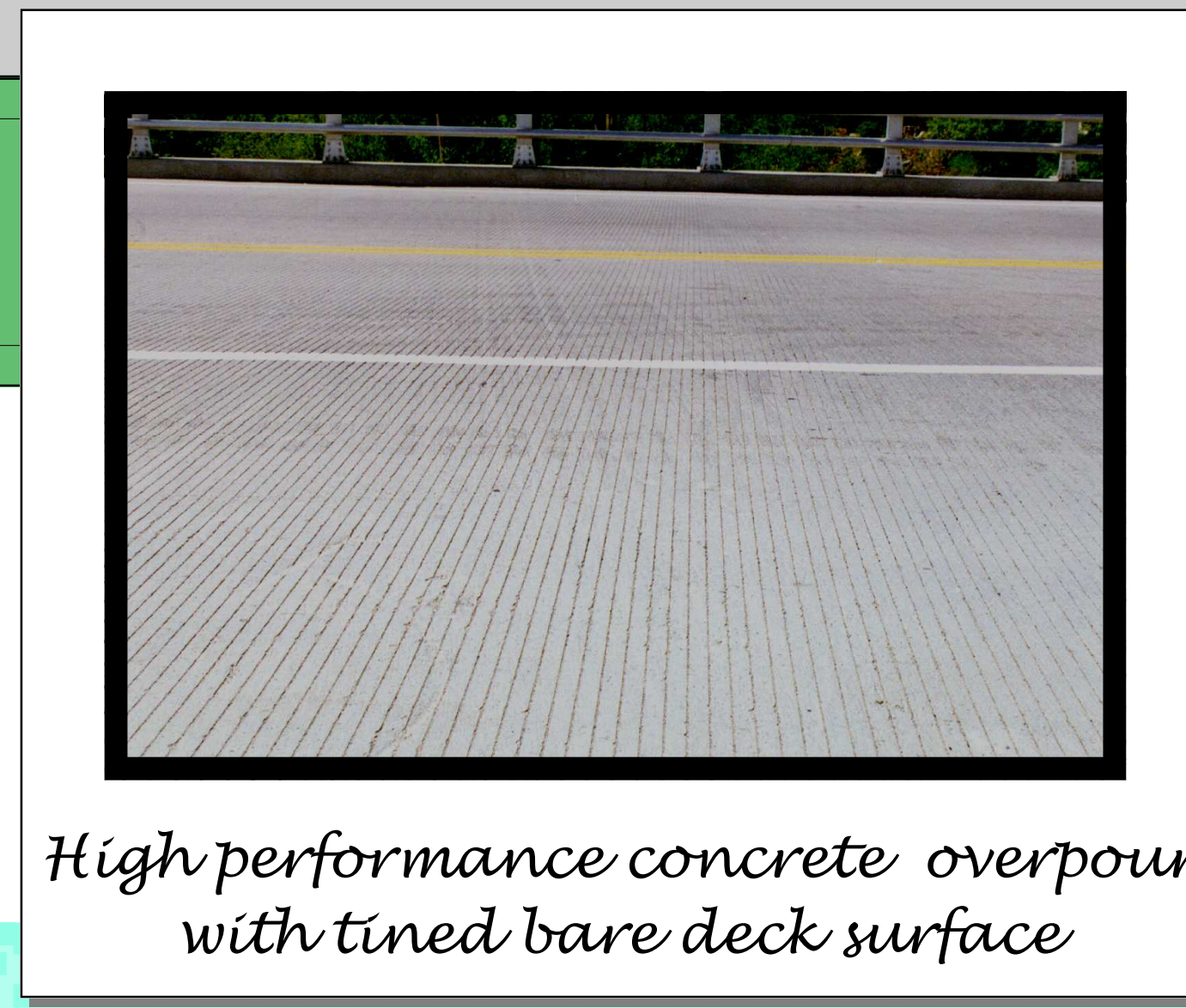
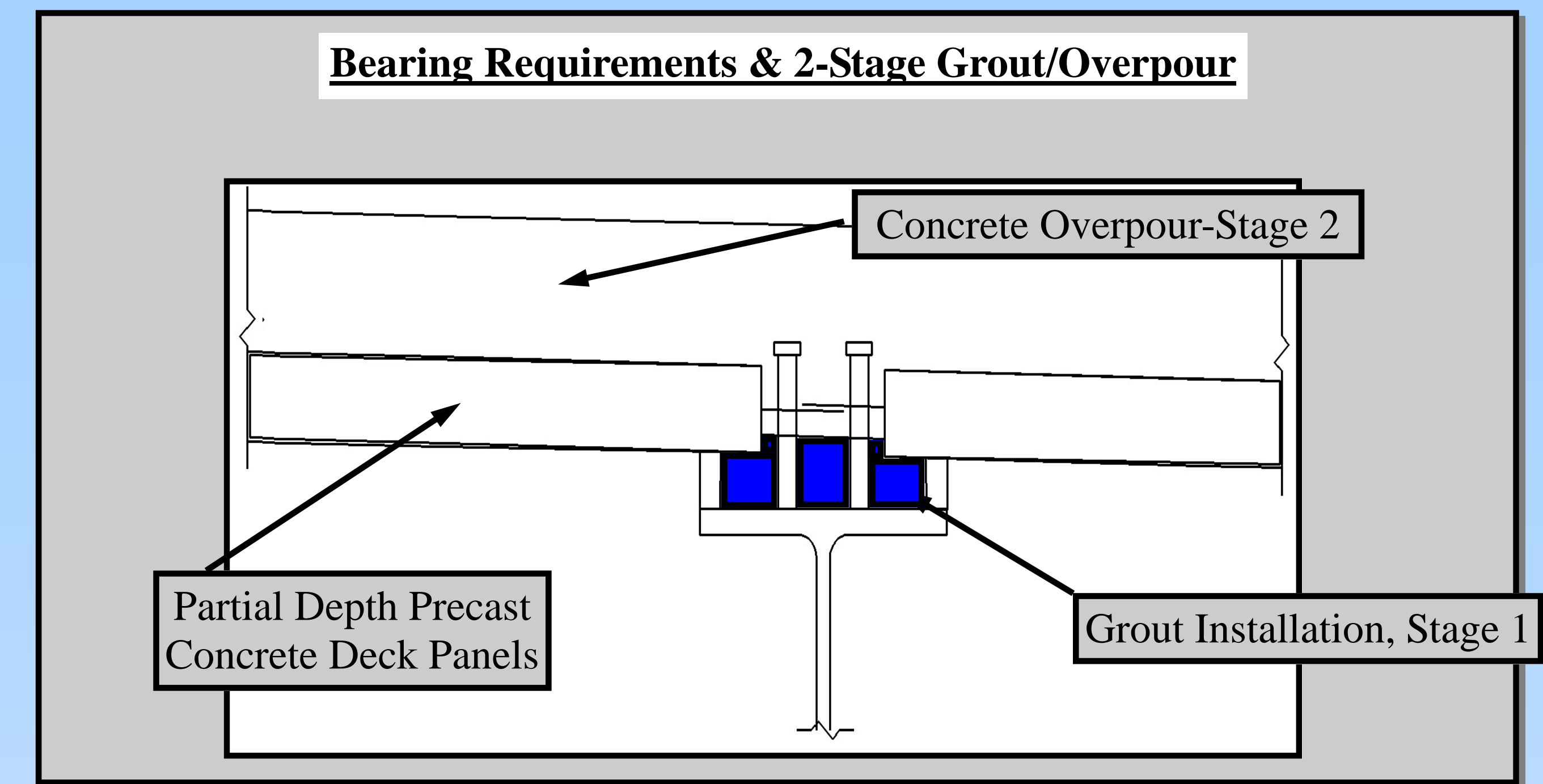
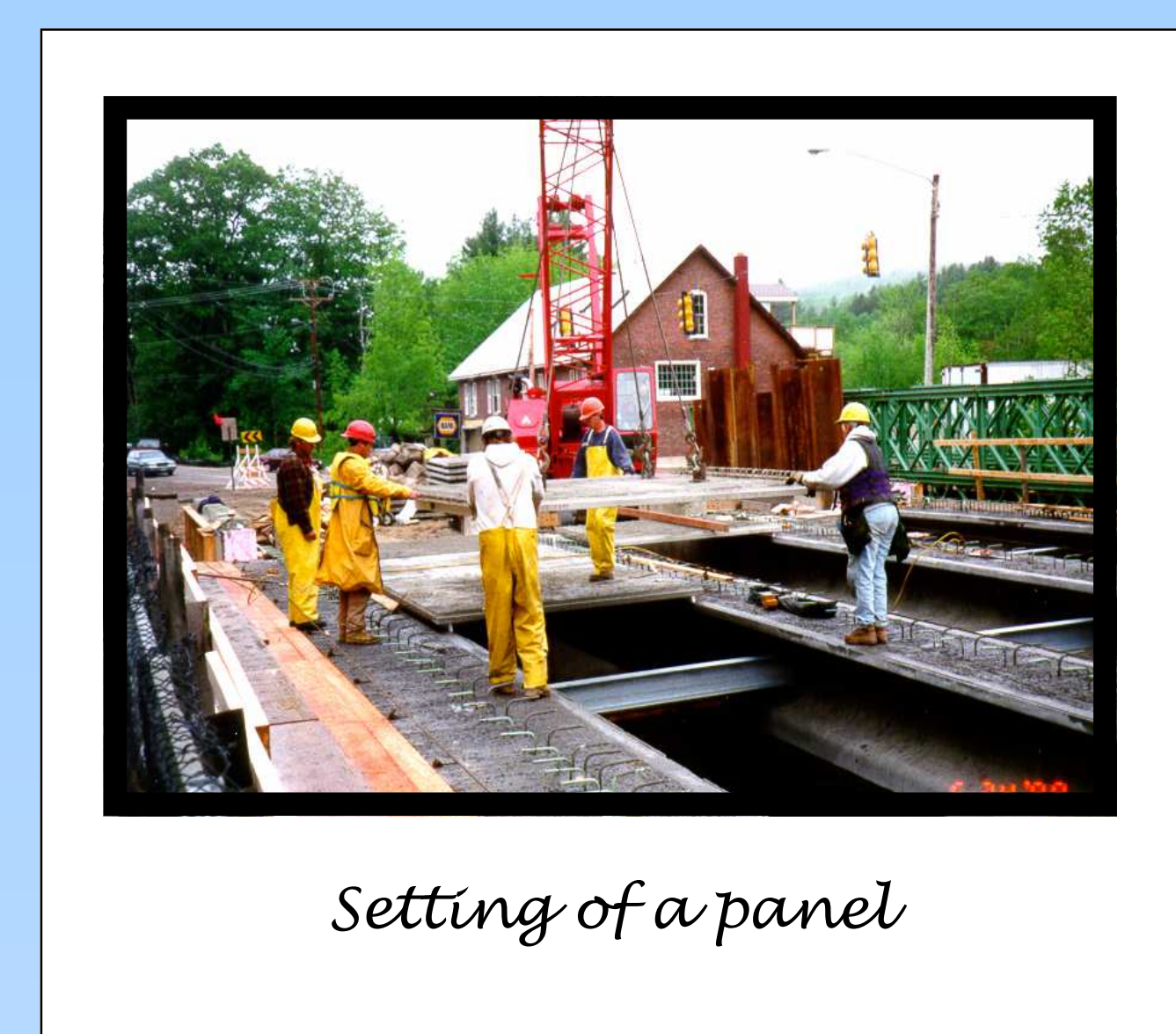
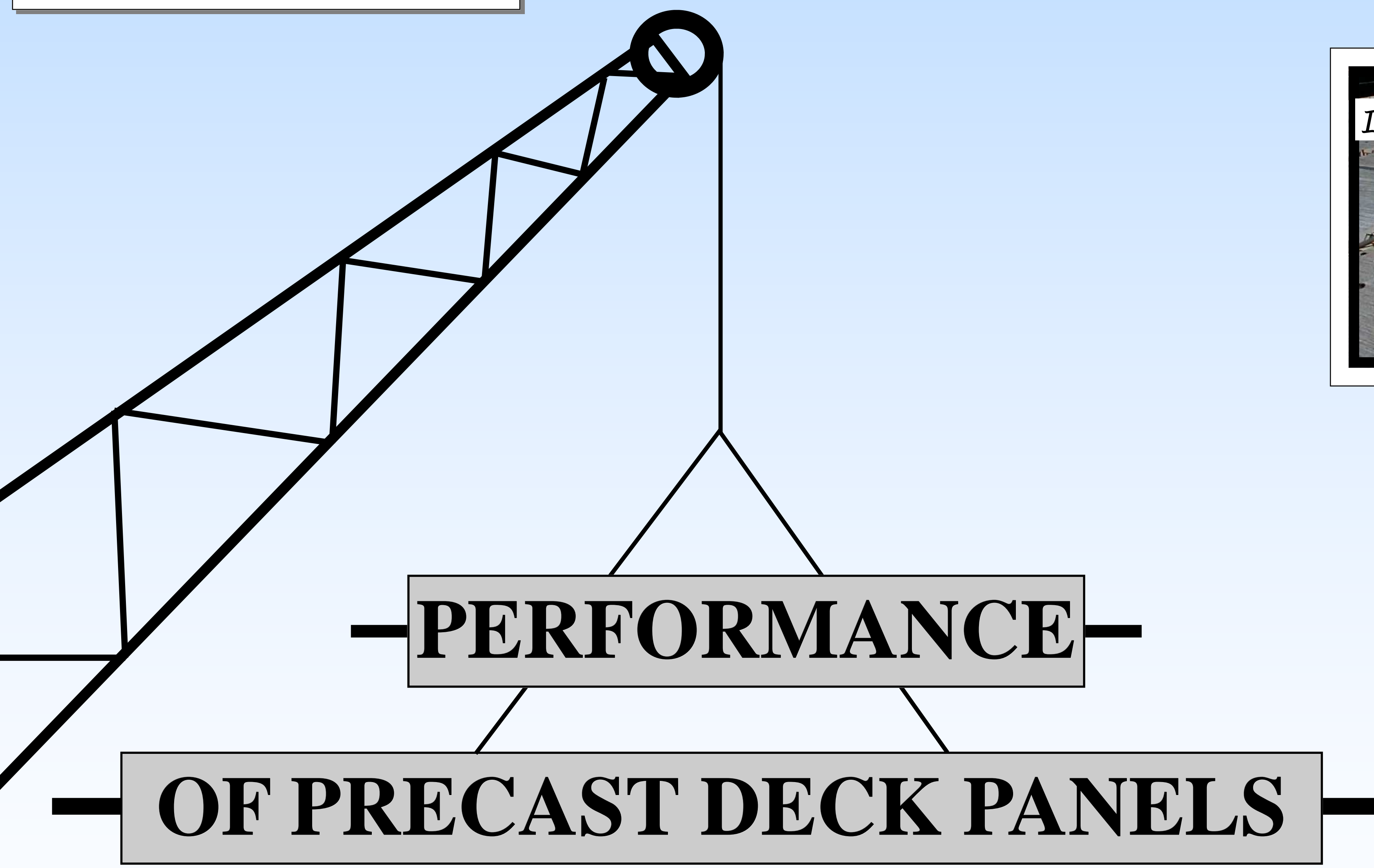
**CONCLUSIONS**

- ❖ No cracking associated with the use of deck panels
- ❖ Excellent bond between panels and concrete overpour; bond unaffected by traffic
- ❖ Precast deck slabs are a viable alternative on multi-span bridges with heavy traffic

**BENEFITS**

When portions of the construction labor can be located off site through pre-fabrication, road restriction or closure time is reduced, resulting in:

- ❖ Cost savings
- ❖ Shorter construction duration and work zone traffic interference
- ❖ Improved worker safety through reduced exposure to traffic
- ❖ Excellent joint performance and ride quality



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