

Superstructure Summary

Prestress strand corrosion

States are largely unaware of concerns regarding this issue due to lack of inspection methods.

Inspection techniques: Magnetic flux method used to limited extent on external strands only. May need to consider a number of techniques to get single bridge answer. **NEED A WAY TO DETERMINE CONDITION**

Best practices: Quality grouting, adequate venting, duct prep before grouting. For precast girders, maintain the joints to keep water off the beam ends.

Research: Oregon has done destructive (invasive) testing and Caltrans is planning destructive grout duct research.

ASR

Treatments – Eliminate water by waterproofing, lithium nitrate treatment got mixed reviews.

Best practices: Lithium treatments not effective even under vacuum. No experience with partial vacuum resin.

Prevention is best approach. Keep the water out by sealing. New construction can use type F fly ash and require low alkali cements.

Paint QP Requirements

States feel that QP programs result in better painting projects.

Approximately 50% of WBPP states require a pre-qualification for painting contractors.

Lessons Learned: Defining what a near white metal blast finish. Considering adding reference photos into specs.

Best practices: Washington State washes bridges and pays for pigeon removal. Maintain the paint system (spot paint chips, thin cover areas, nicks early)

Out of Plane Bending of Steel

Best mitigating measures – Drill stops, mandriling, clip angles, relocate or remove unnecessary bracing members,

Best Practices: Make the connection more rigid instead of flexible.

Concrete girder/deck interface issue

Caltrans has had issue with broken stirrups likely caused by smooth finish in stem pours.

Multiple states were having issue with cracking in older AASHTO Girders.

Strengthen concrete girders

Carbon fiber wraps being used with success.

Cathodic Protection

Passive systems are working. Active system will work if they can be kept operational.

Passive treatments include sacrificial anodes primarily.

Keeping active systems operational is a problem with power supply, wire theft, ability to validate the system is operational.

Where do we go from here?

PS strand inspection needs to be improved through the development of techniques or tools.

Consider a proper application/installation/construction guide for preservation treatments. Is there a performance specification that could be developed for preservation activities?