

# Bridge Deck Preservation Breakout

## Summary of Discussion

What are the best deck preservation activities for specific conditions and what is the optimal timing of the action?

### **Deck Inspections**

Primarily chain dragging.

GPR results were mixed. Montana reported that GPR worked well for rebar depth determination. Infrared thermography being evaluated by Montana. Idaho had uncertain results using GPR. Vermont has a success story with GPR deck patching.

GPR cost may be limiting for a single bridge. Corridor mapping may be more economical.

Crack mapping/quantification – research being conducted by Oregon State University that would use video to record/quantify cracks

### **Guidance on preservation recommendations**

Consider using LCCA to select most appropriate action.

Possibly expand the deck preservation matrix to incorporate action selection.

Key Factors: Delamination percent, degree of cracking, chloride content, rebar depth, soffit condition, degree of spalling, life cycle cost, bridge type (flexibility for partial depth repairs). Caltrans will not do partial depth repairs on steel girder bridges.

Report – Guidelines for selection of sealers, and overlays (NCHRP 20-07 task 234) report available online.

How can we calibrate inspectors to provide more consistent results? Formal guidance would help!

How to ensure that once a preservation method is selected, how can we select a qualified contractor who knows how to execute the action in a low bid environment? There is a need to provide tools to educate field construction inspectors on appropriate prep and application of products.

### **Techniques to get skid friction on bridge decks?**

Effective methods: Steel shot, abraders, deck sealers with broadcast sand, thin polymer overlays.

Washington State: Chip seals have been effective. Asphalt overlays will work.

Gregg Freeman: High friction surface panel for polymer resin with aggregate.

### **Deck crack prevention/minimization techniques**

Everything Paul Krause said.

Issues with tine cutting and water cure. Caltrans does longitudinal, Montana does transverse.

### **Deck Overlays**

Best practices: Idaho limits ultimate strength on silica fume overlays and it seems to be helping limit cracking.

Caltrans has had success with polyester overlays. These overlays perform well in all environments (including snow country). Keep the overlay thickness at 1 inch or greater.

New Mexico – Epoxy overlays have warranties. Contractors pretty good about honoring the warranty.

Midwest states – Latex modified concrete overlays applied are lasting 25 years.

### **Fiber Reinforcement**

RJ Watson – New York has had trouble finishing the bridge decks with fibers. Contractors really didn't like working with the material. Performance was good.

Chris Long – Issue mixing it consistently into the concrete. Finishing resulted in a peach fuzz look. Questions impact on skid friction.

Research planned or underway

High friction report – Kentucky –

Caltrans – Early age deck cracking and evaluation of deterioration and benefits of HWMM.

**Focus Areas: John Hooks to summarize**