Process Review for Hard Deck Overlays

April 23, 2001

M . ....., P.E.
Director of Highways
..... Department of Transportation
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M . ....., P.E.
Acting Division Administrator
Federal Highway Administration
.....
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Dear M . .....:

Subject: Process Review for Hard Deck Overlays

2001 ...../FHWA Joint Review Guidelines

Enclosed are the guidelines that the 2001 Hard Deck Overlay review team will be using during their District visits over the next several months. The team members for the review are:

If you have any questions or comments regarding this review, please contact Gerald Varney at (217) 492-4620 or Brian Pfeifer at (217) 785-1386.

Sincerely yours,
/s/ .....
....., DOT
Review Co-Coordinator

Sincerely yours,
/s/ .....
....., FHWA
Review Co-Coordinator

Enclosure

2001 Hard Deck Overlay Process Review
Questionnaire for Districts

Planning Stage

1. Who at the District determines which type of overlay is used?
2. Does the District follow the guidance from the 1995 review for selecting overlay types?
3. What criteria does the District use in selecting overlay types if the 1995 guidance is not used?
4. What is the District's experience with surface preparation methods? (Scarification, water blasting, hydrodemolition, shotblasting, other)
5. Is the District Bureau of Materials involved in the deck overlay process other than normal plant inspection? (i.e. pull of tests, special testing, coring)
6. Does the District do a post construction acceptance and evaluation? When? What does this include? (sounding, visual inspection, other)

Bridge Maintenance

1. How many hard deck overlays have you had to repair? (Different question for D-1?)
2. What age are your oldest overlays? (Oldest in state should be about 16 years old - 1985 overlays in D-1 and D-8)
3. What type of repairs have you performed on hard deck overlays?
4. Are any repairs related to corrosion of steel in the existing deck?
5. Are repairs related to delaminations (between overlay and deck)?

6. How old were overlays that required repairs?

Implementation

Materials

1. Do you typically use fly ash? Have you seen an advantage in using fly ash?
2. Do you typically use CA11, CA14, or CA16, and why?
3. Is a low or mid-range water reducer used at the plant and superplasticizer dosed in the field?
4. What range of superplasticizer dosage is used (with and without fly ash)? Have you experienced problems with short slump life when using large dosage rates?
5. What range of w/c ratio is used in the field?
6. Has the District noticed or encountered a problem with micro-balling when microsilica is used?
7. Do you allow the contractor to add water at the job site? Only in extreme circumstances?
8. Have you had fresh concrete temperatures at or above 90° F? If so, was ice used to lower temperatures? Were stockpiles watered? Were high cement temperatures responsible?

Construction

1. What is the most common type of final cleaning used in your District (water, grit, sand, or shot)? Are there any types you do not allow or is it at the contractors option?
2. Would you object to the elimination of high-pressure water as a final cleaning method?
3. (Districts 6, 7, and 8) On contracts that required pull-off testing, what type of cleaning method was used and was it successful?
4. Are prepared surfaces always covered with plastic after final cleaning?
5. Do contractors normally use the grout or direct bond method?
6. Do you allow or require contractors to spray water immediately in front of the pour if the surface is dry? Is the specification clearly worded on this issue or should it be clarified?
7. Where do contractors mount fogging nozzles?
8. Does fogging result in ponding of water on the concrete surface? Do contractors adjust fogging controls throughout the pour? Are there controls to adjust volume?
9. How much effort and time do contractors take for finishing? Is the finishing machine normally leaving an acceptable finish?
10. Do contractors use bull floats or 10-ft. straight-edges? Do finishers make more than one or two passes with the float/straight-edge even when bumps or low spots are not found? How far behind do finishing operations fall behind the finishing machine?
11. How quickly/closely do contractors typically apply curing compound?
12. How quickly after applying curing compound do contractors place wet burlap?
13. Would you be in favor of eliminating curing compound and requiring early placement of wet burlap or cotton mats (within 35 feet of placement)?
14. Would you be in favor of eliminating burlap and requiring cotton mats?

15. How often do contractors re-wet burlap during the curing period? Is burlap ever dry when checked? Is burlap already dry at the end of the curing period?

16. Would you be in favor of requiring continuous soaking during the 7-day curing period?

17. How often are cracks found upon removal of curing blankets?

18. Are delaminations ever found during sounding?

19. The new special provision removes wording about sounding. It is still recommended that sounding be performed. Should this be clarified?

20. In what situations would you envision using the overlay pull-off test mentioned in the "Overlay Testing" section?

21. Do you ever require contractors to seal shrinkage cracks with epoxy? What products are allowed?

22. What is your opinion of the special provisions? (Any problems? Recommendations?)

Hard Deck Overlay Construction Evaluation Form (2001 Contracts)

Planning

Structure number:

Route:

Area of deck:

Type of overlay:

Age of structure and history of repairs:

Type and condition of existing overlay (if any):

Condition of existing deck (amount of transverse cracking, any leaching?):

Life expected from overlay:

Surface Preparation

Type of milling machine used:

Depth of removal:

Amount of partial depth patching:

Type of final cleaning equipment used:

Time spent performing final cleaning (approximate time per sq. yd.):

Pull-off test results for start-up area:

Pull-off test results for remainder of surface:

Overlay Pour

Date of overlay:

Start time:

Bond method used (direct bond or grout):

Environmental conditions (RH, wind speed, air and concrete temperatures):

Any ponded water on deck surface?:

Mix design details, superplasticizer dosage on site, consistency of mix:

Finishing machine performance:

Type of fogging nozzle configuration:

Performance of fogging nozzles:

Any application of water to facilitate finishing?:

Overlay Pour, continued

Amount of hand finishing:

Distance/time between placement and application of curing compound:

Distance/time between placement and application of wet burlap:

Finish time (for placement):

Total quantity of mix used:

Finish time (for placement of wet burlap):

Curing

Type of curing used (burlap, burlene, cotton mats, etc.):

Did deck remain saturated for entire 7 days?:

Number of times water applied during curing period:

Evaluator's Comments

Existing Hard Deck Overlay Evaluation Form

Background Information

Date:

Structure Number:

Route:

Year of Overlay:

Type of Overlay:

Area of Deck:

Deck Evaluation

Approximate Area of Delamination/Debonding:

Cracking (approximate width & length):

Other Surface Distress Features:

Pictures:

Evaluators Comments/Notes