

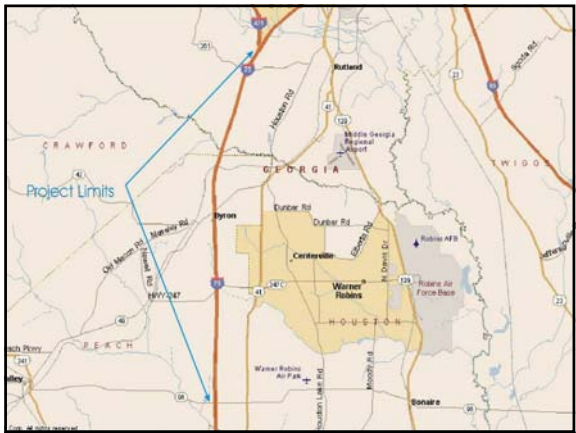
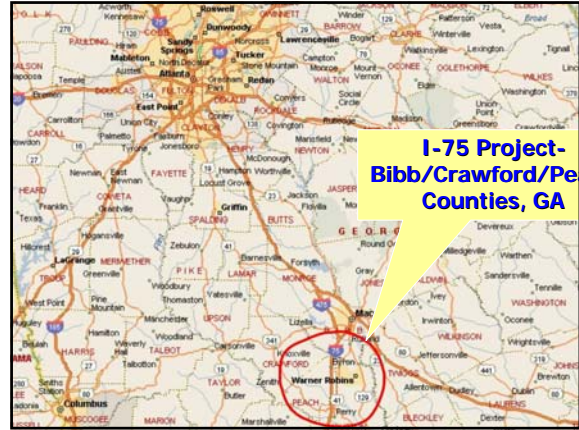
Fast Track Concrete Paving Contractor's Perspective



Virginia Concrete Conference
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Project Information

I-75 Peach, Crawford, & Bibb Counties, GA

- 141,200 SY Outside Lane Replacement
 - 10 inches thick; 12 ft wide
 - Reconstruction completed in 16 weeks
 - Winter & Spring 2003
 - All major work was done at night
- Project Letting Date: April 19, 2002
- Bid Amount: \$19,125,146.20
 - 88.4 Traffic Lane Miles
 - 29.5 Shoulder Miles
 - 20.1 Concrete Lane Replacement Miles



Scope of Project

- Removal and Replacement of outside lane
- Full Depth and Partial Depth Patching on the middle lane
- Diamond Grinding of all 3 lanes
- Reconstruction of outside shoulder



Existing Slabs

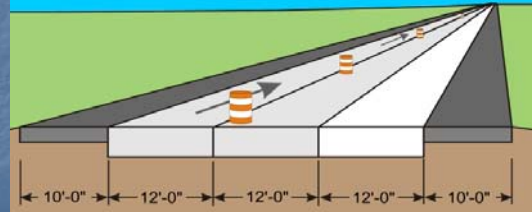
- No Dowels
- 10 inch thick
- Joint spacing 30 feet
- Base: Soil Aggregate with top three inches bituminous stabilized.



New Slabs

- Thickness 10 ½- 11 inches (Payment by CY as measured in place)
- Maximum Joint Spacing 15 feet
- Dowel Bars
- Structural Welded Wire Reinforcing Grade 80 equivalent to #5 Rebar @ 12" centers
- Strength of concrete 2500 psi in 24 hours
 - 3500 psi in three days.

I-75 Outside Lane Replacement



Remove Existing Slabs



Joint Seal Removal



Steel Mat in Place



Cutting Steel Mat



Concrete Plant Site



Mix Designing in the laboratory

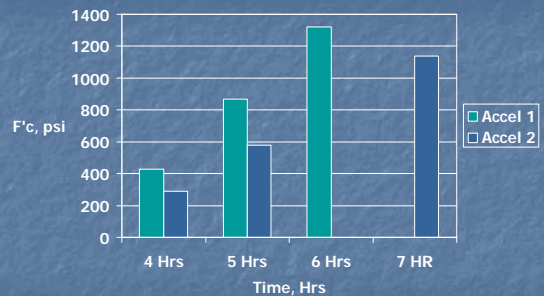


Bibb Co. Mix Design October 2002

- 5 Non-Chloride Accelerators
- Cure box vs. floor
- Heated water vs. tap

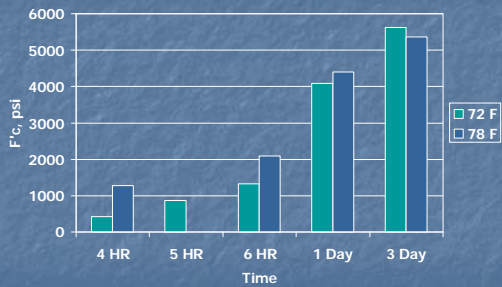


Comparison of NCAs



3 gal of Accelerator 1; 3.5 gal of Accelerator 2

Effect of Temp on Mix Performance




2 in slump, 5.4% air vs. 2.5 in slump and 5.5% air

Boiler for Hot Water

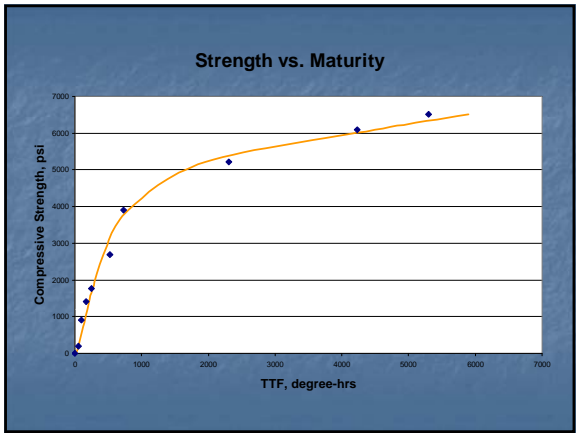


Concrete Mix

- 8 sacks Type I cement
- 3 gal NCA
- 0.351 w/c ratio
- Boiler for hot water
- Specified 2,500 psi in 24 hours
 - +/- 1200 psi in 4 hrs
- Target of 5% air
- Slump -- 1.5 inches maximum



Maturity

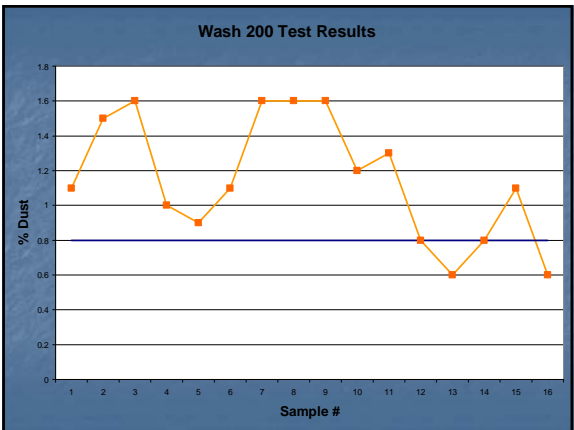



Field Laboratory



Consistency

- Materials
- Mixture

Slip-Forming Concrete



Next Day Open to Traffic



Lessons Learned

- Provide separate bid items for lane removals and for different types of full depth patching.
- Use cubic yard/cubic meter units of measure for replacement items.
- Off-set the longitudinal edge joint of the lane being replaced into the adjacent remaining pavement 1" to 2" to eliminate the seal reservoir so as to reduce the potential for spalling at that joint.
- Re-establish Underdrain outlets/french drains at low points through shoulder.

Lessons Learned

- Perform concrete pavement repairs in adjacent lanes prior to lane replacement when possible.
- Perform diamond grinding of adjacent lanes prior to lane replacement when possible.
- Allow the use of maturity for opening to traffic.

Questions or Comments?

