

# SEAUPG 2003 REGIONAL UPDATES

## Central Region Update

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What are the top asphalt issues that your state is facing right now?

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## Alabama



- Materials:
  - Need a Superpave mix design procedure that puts more binder in the mix
  - Can  $N_{initial}$  be eliminated?
- Construction:
  - Uniform enforcement of specifications
- Performance: (see Materials issue)

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## Florida



- Materials:
  - Temporary shortage of available aggregates in Central Florida
- Construction:
  - Implementation of specifications using Contractor test data for acceptance
  - Three-year Materials & Workmanship guarantee on all asphalt projects
- Performance:
  - Top-down pavement cracking big problem

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## Georgia



- Materials:
  - Stripping/moisture damage
- Construction:
  - Mix segregation
  - Quality of cold joints
- Performance:
  - Durability

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## Kentucky



- Materials:
  - Determination of asphalt binder content
  - Considering bonus for meeting VMA during production
- Construction:
  - Implementing a longitudinal joint specification
  - When to remove & replace vs. low pay factor
- Performance:
  - Permeability in some HMA pavements

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## Tennessee



- Materials:
  - Fractured faces – How much is enough?
  - RAP in surface mixes – affect on durability
- Construction:
  - In-Place density
- Performance:
  - Longitudinal joint failures
  - Rutting

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What does your state specify for asphalt design type for different facilities?

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## Alabama



- Interstate:
  - >30M ESALs: 50 blow Marshall SMA
- Primary:
  - 1M to 30 M ESALs: Superpave  $N_{\text{design}} = 80$
- Secondary:
  - <1M ESALs: Superpave  $N_{\text{design}} = 65$

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## Florida



- Interstate:
  - Superpave
  - Use the design ESALs for the project
  - Typically  $N_{\text{design}} = 100, 125$
- Primary:
  - Superpave
  - Use the design ESALs for the project
  - Typically  $N_{\text{design}} = 75$
- Secondary:
  - Not on the State Highway System

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## Georgia



- Interstate:
  - Superpave
  - Typically  $N_{\text{design}} = 100, 125$
- Primary:
  - Superpave
  - Typically  $N_{\text{design}} = 75, 100$
- Secondary:
  - Superpave
  - Typically  $N_{\text{design}} = 50, 75$

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## Kentucky



- Interstate:
  - Superpave
  - Use the design ESALs for the project
  - Typically  $N_{\text{design}} = 125$
- Primary:
  - Superpave
  - Use the design ESALs for the project
  - Typically  $N_{\text{design}} = 75, 100$
- Secondary:
  - Superpave
  - Use the design ESALs for the project
  - Typically  $N_{\text{design}} = 50, 75$

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## Tennessee



- Interstate:
  - 75 blow Marshall – rotating base & slanted foot
  - Superpave Test Section ( $N_{design} = 75$ ) - NCAT Test Track
- Primary:
  - 75 blow Marshall – rotating base & slanted foot
- Secondary:
  - 75 blow Marshall – rotating base & slanted foot
  - Four projects Superpave ( $N_{design} = 65$ ) with APA criteria

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**Besides RAP, what recycled items are routinely being used in asphalt mixes?**

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- Alabama: Steel slag – percentage varies
- Florida: Ground tire rubber (5, 12 & 20% by weight of binder)
- Georgia: Some experimental GTR projects – not routinely used
- Kentucky: Occasional use of shingles
- Tennessee: Slag as surface aggregate; foundry sands

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**State's top two asphalt research topics currently underway?**

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- Alabama:
  - $N_{design}$  verification and “lock-up” point concept
  - New OGFC design procedure
- Florida:
  - Development of a test to predict cracking resistance
  - Rutting resistance of coarse versus fine graded mixes using FDOT Heavy Vehicle Simulator (HVS) and the NCAT test track

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- Georgia:
  - Evaluation of RAP in SMA
  - Verification of Superpave compaction levels
- Kentucky:
  - Permeability of HMA pavements using an Air-Induced permeameter
  - Identification and quantification of both aggregate and thermal segregation in HMA pavements
- Tennessee:
  - Fatigue study of RAP in surface mixtures
  - Fractured faces and rutting with gravels

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## What key finding from a recently completed research project might benefit other states?

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- Alabama:
  - N/A
- Florida:
  - Based on HVS, 4 inches of "Hybrid" Superpave mix with PG76-22 / PG67-22 binder performs as well as 4 inches of PG76-22 in terms of rutting resistance
- Georgia:
  - Both mix design and construction process contribute to permeable mixes and the addition of a permeability evaluation requirement in the mix design process will help design more durable mixes

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- Kentucky:
  - Longitudinal joint construction research resulted in a specification and acceptance payment schedule for roadway cores obtained near the joint
- Tennessee:
  - Corelok device appears to be "best" method for determining bulk gravities, especially on "open" mixes

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## What steps in construction and materials are you taking towards implementation of the 2002 pavement design guide?

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- Alabama:
  - Education of employees about the design process
  - Investigating costs and budgeting for equipment to conduct dynamic modulus tests
- Florida:
  - Looking at dynamic modulus values for typical Florida Superpave mixes

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- Georgia:
  - Continuing education and training specifically designed for upcoming AASHTO pavement design guide
- Kentucky:
  - Pavement Design issue
- Tennessee:
  - Waiting for the Product to be "approved" and "trial tested"

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**Has your state modified any structural numbers for various mixes to reflect improvements in performance compared to Marshall mixes?**

**(OGFC, SMA, etc.)**

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- Alabama:
  - No, conducting research using test track and FWD
- Florida:
  - No, handled with 2002 design guide
- Georgia:
  - No, have two comparative sections at the test track
- Kentucky:
  - No, using 2002 design guide
- Tennessee:
  - No

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**Has your state recently performed any asphalt vs. concrete test sections to compare performance?**

**(Conclusions?)**

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- Alabama:
  - No
- Florida:
  - Yes, Ultrathin Whitetopping verse 4 inches of Superpave mix with PG76-22 binder at a weigh station on I-10. Whitetopping "self-rubblized" within a few months – asphalt sections performed well
- Georgia:
  - No
- Kentucky:
  - Five years ago constructed "side-by-side" test sections on heavily loaded intersection. PCC slabs required replacement. HMA performed well
- Tennessee:
  - No

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**Do you have the same ride specifications for asphalt and concrete?**

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- Alabama:
  - Yes, new this year
- Florida:
  - Yes
- Georgia:
  - Essentially the same
- Kentucky:
  - No, HMA use IRI; PCC use IRI and PI
- Tennessee:
  - No, HMA use HCRI; PCC use PI

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**How is your state handling compaction on secondary roads where the vibration of compactors may do more harm than good to the structure?**

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- Alabama:
  - Not well.....
- Florida:
  - Specifications allow us to reduce the density requirement by 1% when compaction is limited to the static mode only (fine graded mixes)
- Georgia:
  - Vibratory rollers have to be operated at LOW AMPLITUDE, field engineer may establish a maximum Practical Target Density
- Kentucky:
  - Roads with less than 5000 ADT, use standard rolling pattern normally in the static mode
- Tennessee:
  - No problems.....

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**What one thing would you like to see be changed or developed to improve asphalt performance testing, or construction in your state?**

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- Alabama:
  - N/A
- Florida:
  - Salary increases for Asphalt engineers
  - A simple test that can be clearly related to performance
- Georgia:
  - Simple performance test for the field
- Kentucky:
  - Remedy for the permeability problem despite finer gradations and excellent levels of compaction on the roadway
- Tennessee:
  - More attention on longitudinal joint construction and compaction; improved density in general

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