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## SEAUPG Central Region Update - 2009

### Central SEAUPG States

- Kentucky
- Tennessee
- Alabama
- Florida
- Georgia

### Basic Survey

- Current asphalt-related issues in your state
- Ongoing research activities
- Findings from recently completed research
- Warm Mix
- Recycling
- Thin Lift
- Joint Density
- Cost-cutting measures

### What are the top asphalt-related issues your state is facing right now?

- Kentucky – WMA, longitudinal joints, cost cutting, recycled shingles
- Tennessee – WMA, density acceptance by cores, pavement preservation.
- Alabama – Advantages/disadvantages of WMA, increased %ages of RAP and shingles, QC/QA methods and frequencies
- Georgia – “Currently we are experiencing ongoing poor quality issues related to construction and paver operation.”

### What are the top asphalt-related issues your state is facing right now?

- Florida –
- ARRA (Stimulus Money) Projects – trying to provide oversight on Local Agency projects
- Warm Mix Asphalt – trial projects. Will implement on all jobs in Jan 2010.
- Discrepancies between FDOT test results and Contractor test results that are used for acceptance.
- Decision to either continue using asphalt rubber binders in their current form or implement a GTR/Polymer hybrid binder (similar to asphalt rubber terminal blend as used in other states).

### What are the top asphalt-related issues your state is facing right now?

- Florida (cont'd) –
- Trying to correlate pavement friction to crash data in order to establish a minimum acceptable friction number.
- Asphalt plant staffing by FDOT. We still staff asphalt plants when a contractor is producing mix for our projects and generally believe we don't need someone there full time. Looking at a roving staffing plan. FHWA is hesitant to approve.
- Pavement performance is improving quite a bit. Cracking is still the biggest problem we face – currently 13% of our system is deficient due to cracking. Only 0.6% of our system is deficient due to rutting.

## What research activities are currently underway in your state?

- Tennessee –
  - Moisture Susceptibility of WMA
  - WMA and HMA Containing High Percentages of FRAP
- Alabama –
  - Increasing RAP and recycled Shingles in Asphalt Mixes
  - Warm mix processes and product approvals – QPL list
  - Joint Bond Strength and Density
  - Bond strength study between layers.

## What research activities are currently underway in your state?

- Georgia –
  - Crumb rubber/TOR being used as a modifier of conventional PG 76-22. Using this process via the dry method by adding crumb rubber/TOR blend to aggregate in the drum.
  - Just completed test sections on 3 different WMA additives.
  - In September, completed Intelligent Compaction project as a part of the FHWA sponsored pool fund.

## What research activities are currently underway in your state?

- Florida –
  - Dominant Aggregate Size Ratio (DASR) Study looks at how aggregate particles pack together in a mixture and their relationship to rutting. Currently evaluating test sections on Heavy Vehicle Simulator. Has a lot of potential.
  - Top down cracking. Trying to create top down cracks on our HVS so we can evaluate various methods of reducing them.

## What research activities are currently underway in your state?

- Florida (cont'd) –
  - Developing a 4.75 mm mix to be used as a possible leveling course, thin-overlay and as maybe as a crack relief layer.
  - Bonded friction course (NCAT Test Track). Open graded friction course placed with a spray paver on top of a thicker polymer modified tack coat. Potential to minimize raveling and top down cracking.

## Any significant findings from recently completed research activities?

- Tennessee –
  - UT RAP study determined that >20% RAP in surface mixes reduces fatigue life
  - Longitudinal joint study developed a method for evaluating penetrating joint sealers
- Alabama –
  - Increased RAP to 35% in underlying layers. Research not complete.

## Any significant findings from recently completed research activities?

- Georgia –
  - Evaluations are ongoing.
- Florida –
  - Dominant Aggregate Size Ratio (DASR) Study conducted by the University of Florida seems to correlate very well and has quite a bit of potential.
  - Hybrid binder study conducted by UF. Looked at various blends of ground tire rubber and polymer. In some cases performance was as good as a PG 76-22 with SBS modifier, and in most cases was better than our current asphalt rubber binders.

## Warm mix?

- Kentucky –
  - Nearly 20 asphalt mixing plants equipped to produce WMA with water-injection/asphalt foaming system.
  - Searching for suitable projects on which to specify WMA produced by wax and chemical additives.
  - Considering trial demonstrations of WMA placement at ambient temperatures below those minimum values currently specified.

## Warm mix?

- Tennessee –
  - New specification allows WMA on any project <10,000 ADT.
  - 0.5 mile HMA comparison strip required
  - Must pass all verification tests (including TSR) prior to production
  - Use technologies/ additives listed on QPL

## Warm mix?

- Alabama –
  - Currently General application special provision allows for the use of Warm Mix Asphalt on all Superpave mix types except ESAL range E mixes
- Georgia –
  - Placed three different WMA test sections using Evotherm-3G, Rediset and Ceca on SR 42 in Monroe County. Also placed a control section using conventional mix. Evaluation is ongoing.

## Warm mix?

- Florida –
  - To date, FDOT has constructed 16 projects, totaling approximately 250,000 tons with five different processes (Aspha-Min, Evotherm DAT, Meeker, Astec DBG, Terex). No problems have been encountered. WMA will be allowed in all jobs beginning Jan 2010.

## Recycling?

- Kentucky –
  - Several contractors have recently expressed an interest in utilizing recycled asphalt shingles, occasionally in combination with reclaimed asphalt pavement. Currently revising reclaimed asphalt pavement and shingle specifications to accommodate the use of these material combinations.
- Tennessee –
  - Added columns to allowable RAP % table for fractionating
  - Currently considering HIP.

## Recycling?

- Alabama –
  - Maximum 25% in underlying layers and Maximum 20% in wearing surface layers.
  - Maximum 35% in underlying layers but must use WMA
- Georgia –
  - Typically use 15-25% RAP

## Recycling?

- Florida –
  - Began HMA recycling in 1980, and it is a very common practice. Currently, the average RAP content in our mixes is around 25%. Have done several higher RAP projects recently (ranging from 40 – 45%). A few contractors are now fractionating their RAP.

## Thin lifts?

- Tennessee –
  - Developed and implemented two “thin lift” provisions for pavement preservation program in 2008.
  - ~NMAAS 9.5 and 4.75-mm.
  - “8’s” and “Screenings” mixes
  - Rates ranging from 45-85 lb/yd<sup>2</sup>.
  - Very popular amongst districts.
- Florida –
  - Current thinnest lift is a 9.5 mm mix placed 1” thick. In the process of developing a 4.75 mm mix.

## Joint density specs?

- Kentucky –
  - In an attempt to permit gradations more conducive to good joint construction and long-term performance, reduced each gradation level by 25 gyrations.
  - Hope to increase the optimum asphalt binder contents of mixes and promote better pavement durability.
  - By special note on selected projects, requiring higher levels of density for the cores obtained at the longitudinal joint.

## Joint density specs?

- Tennessee –
  - Special provision for density acceptance by cores requires cores be taken on top of joint.
  - Minimum 89%. No single test less than 87%.
  - Must seal joint if fail to meet requirement.
- Florida –
  - Don’t have a joint density specification.
  - Don’t have too many problems with freezing weather.

## Special measures to cut costs?

- Kentucky –
  - In response to reduced budget, KY now only specifies PG 76-22 asphalt binder in the top base course and surface for all Interstate applications and any other roadway with 20-year ESALs greater than or equal to 30 million. Also, eliminated the opportunity for “net incentive” payments for mixture volumetric properties, core density, and smoothness.

## Special measures to cut costs?

- Tennessee –
  - In 2008, devoted 10% of resurfacing budget (~\$10 mill) to pavement preservation.
    - Micro-surface
    - Chip seals
    - Thin lift
    - Scrub seals
    - Fog sealing (shoulders and mainline)
    - Etc.

## Special measures to cut costs?

- Georgia –
  - We are scheduled to let our second micro-milling project in December. In the process, we remove aged Open Graded Friction Course using micro-milling and then inlay a new layer of same.
- Florida –
  - Started allowing up to 20% RAP in friction courses (previously we didn't allow any RAP in friction courses due to frictional issues). Also now allow up to 20% RAP in mixes using a PG 76-22 binder – the previous max was 15%.

## Special Thanks to!!

- Kentucky – Allen Myers
- Tennessee - Me
- Alabama – Randy Mountcastle & Lyndi Blackburn
- Florida – Jim Warren
- Georgia – Sheila Hines & Peter Wu

## ???Any Questions???

