

# Southeastern Superpave Center News

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SOUTHEASTERN SUPERPAVE CENTER

## STATUS OF SUPERPAVE IN THE SOUTHEAST

Doug Hanson, NCAT

A telephone survey was conducted of the states in the Southeast to determine the status of Superpave implementation. The following is brief summary of that survey. In general, it appears that the Superpave system is being implemented with few problems. The problems of the first couple of years have been worked through and the roads being paved with Superpave are performing.

**Alabama** - All new projects starting in 2000 will be Superpave including off the Interstate and the high volume roads. They have had no construction problems.

**Florida** - All projects that are in design will be Superpave. They will probably implement the binder specification in January 2000 and will require a PG 67-22. The current requirement is for an AC 30. The contractors have become accustomed to the higher density requirements (93% of  $G_{mm}$ ). Based on a just- completed study they will be requiring one hour of conditioning of plant produced mix prior to determination of Gmm and compaction of gyrotory specimens. They are doing this to account for absorption. The study also validated the two- hour conditioning during design.

**Georgia** - Over one million tons of Superpave mix have been placed. In 1999 the GA DOT let 376 projects with approximately 7.9 million tons of Superpave mix. They are using a 9.5 mm mix with a 67-22 asphalt binder for roadways up to 25,000 vpd; on roadways of over 25,000 vpd they are using a 12.5 mm mix with polymer (76-22). They have had some problems with obtaining density. They attribute these problems to stiff mixes and an increase in the density requirement to 95% of Gmm. As a result of this higher density requirement they are not seeing any permeability problems. They have eliminated the restricted zone from their specifications. They allow no local sands on roadways that have over 2000 vpd and allow up to 20% on roadways with less than 2000 vpd. They do not have a FAA requirement.

**Kentucky** - They are fairly satisfied with Superpave. All projects let in 2000 will be Superpave. They are using a 9.5 mm mix on the lower volume roads and a 12.5 mm mix on the higher volume roads. They have experienced some density problems but no more that what they would have seen with Marshall mixes. Educating their project and design personnel has been a challenge.

*Continued on page 11*

# FLORIDA DOT TRAINING PROGRAM

The Florida DOT is in the process of developing and implementing a statewide construction training program. The program is under the overall direction of the University of Florida. It consists of courses in concrete, earthwork, aggregates and asphalt. The program will be fully implemented in early 2000. It consists of three levels of courses:

1. Level I - Basic knowledge and skills in sampling and testing.
2. Level II - Good construction practices, quality control and interpretation of tests and specifications.
3. Quality Control Concepts - The development of the QC plan and the interpretation of the QC data.

The concrete and aggregates courses are using courses from the American Concrete Institute (ACI). The Earthwork courses are being developed by Williams Earth Sciences, a Tampa consulting firm. The National Center for Asphalt Technology (NCAT) is developing ten asphalt courses.

The ten courses being developed by NCAT are:

**Asphalt Pavement Testing** - This is a laboratory hands-on course that covers field tests run by the FL DOT. It includes random sampling, rolling straight edge, coring and nuclear density testing.

**Asphalt Plant Testing (Self Study - Hard Copy)** - This course presents an introduction to asphalt mixes and asphalt mixture testing. It will eventually become a prerequisite to the lab asphalt plant testing course. The purpose of the course is to provide the students taking the asphalt pavement construction course with a common base knowledge level to improve the learning in the next course.

**Asphalt Plant Testing (Self Study - Electronic version)** - This course presents an introduction to asphalt mixes and asphalt mixture testing. It is approximately the same course as the one above, but it will be provided in an electronic interactive format.

**Asphalt Plant Testing** - This laboratory hands-on course covers lab tests: sampling asphalt cement, sampling bituminous mixtures, maximum specific gravity, bulk specific gravity, mechanical analysis of extracted aggregate, operation of Superpave Gyratory Compactor, operation of ig-

nitron oven and extraction by non-chlorinated solvents. The FL DOT has established training labs in Gainesville and Miami to conduct both the asphalt pavement testing and asphalt plant courses. To obtain a certificate as a qualified asphalt plant tester the student must complete a demonstrated abilities test.

**Asphalt Pavement Construction (Self Study)** - This course presents an introduction to asphalt mixes and asphalt pavement construction. It will eventually become a prerequisite to the lab asphalt pavement construction course. The purpose of the course is to provide the students taking the asphalt pavement construction course with a common base knowledge level to improve the learning in the next course.

**Asphalt Pavement Construction** - This course is a three-day classroom course patterned after the NHI roadway construction course - but adapted for the FL DOT specifications. The purpose of the course is to assure that those doing inspection of HMA pavements are familiar with good construction practice. An examination will be given the last half day of the course.

**Asphalt Plant Production (Self Study)** - This course presents an introduction to asphalt mixes and asphalt plant production. It will eventually become a prerequisite to the lab asphalt plant production course. The purpose of the course is to provide the students taking the asphalt pavement construction course with a common base knowledge level to improve the learning in the next course.

**Asphalt Plant Operation** - This course is a three-day classroom course patterned after the NHI HMA plant course - but adapted for the FL DOT specifications. The purpose of the course is to assure that those doing inspection of HMA pavements are familiar with good construction practice. An examination will be given the last half-day of the course.

**HMA Mix Design** - This is a three-day course that covers HMA mix design with emphasis on Superpave. The course is written based on the FL DOT specifications. A written examination will be given the last half-day of the course.

**Asphalt QC Manager** - This is a three-day classroom course that has been developed to provide students with a basic understanding of statistics

and the provisions of the FL DOT quality control specification requirements, specifically their QC 2000 specification. There is a written examination on the last half day of the course.

## Superpave Gyratory Compactor Comparison Study

Doug Hanson, NCAT

At the request of the SE Asphalt User Producer Group, NCAT has initiated a Superpave Gyratory Compactor (SGC) comparison study. The purpose of the study is to evaluate the variability of the SGC's in total and by brand name. Two rounds have been conducted. The first round used a coarse graded Superpave mix and the second round used a fine graded Superpave mix. The asphalt binder for both mixes was a PG 67-22. Another round will be conducted in early 2000 with a PG 76-22 for a binder.

In the first round the average bulk specific gravity was 2.448 with a standard deviation of 0.027 for a coefficient of variation of 1.10 percent. In the second round the average bulk specific gravity was 2.356 with a standard deviation of 0.027 for a coefficient of variation of 1.14 percent. There were four compactors in use - Brovold, Interlaken, Pine and Troxler. There were only two Brovold compactors used by participants.

The data was analyzed to determine if there was any difference between the compactors. The analysis showed that there was no significant difference between the compactors. In both rounds the Interlaken compactor provided the highest bulk specific gravity (average for both rounds - 2.411) followed by the Pine (average for both rounds - 2.386) and then the Troxler (average for both rounds - 2.395). This difference could result in about 0.5 % in voids in total mix.

## Status of Superpave in the Southeast

*continued from page 1*

**Mississippi** - They fully implemented Superpave by August 1997. They have made adjustments that were needed to meet local conditions and have implemented the lead states recommendations to AASHTO. They have had few construction problems and those that they have had could not be directly related to Superpave.

**North Carolina** - All new projects will require Superpave by next year. They are phasing in Superpave on the secondary overlay program. It is planned to use 9.5 mm one-inch thick mixes for that program. They have not seen any significant construction problems in 1999.

**South Carolina** - The use of Superpave in South Carolina is routine. It is fully implemented on the Interstate and high volume roads. Clemson is evaluating procedures for implementing Superpave technology for conventional mixes (those not quite meeting all the Superpave criteria) for the low volume roads.

**Tennessee** - They are carefully implementing the Superpave technology, which translates into the idea of slowly increasing the number of Superpave projects each year. The current criteria is to use Superpave on roads with over 3 million ESALs and Marshall on roads with less than 3 million ESALs. They have fully implemented the lead state recommendations. They have increased the VMA requirement by 1% but are using effective specific gravity for the computation. They have also lowered the FAA requirement to 43% when the natural sand is limited to 20%.

**Virginia** - They will be 100% Superpave next year. They are using a lower gyrations level for their mixes than recommended by AASHTO due to a concern about durability of the mixes resulting from a low AC content. They are using a 9.5 mm surface mix to reduce the permeability of the wearing course. They have had few construction problems. They have experienced some tender zone problems; but, minor changes in gradation or AC content have solved them.

# Pavement Test Track Project Update

**Buzz Powell, NCAT Track Manager**

The National Center for Asphalt Technology, in cooperation with a number of DOTs and the Federal Highway Administration, is constructing an oval pavement testing facility at Auburn University. The construction of the track up through the asphalt binder course is being funded and administered by the Alabama DOT.

Final grade has been achieved and specification compaction requirements have been satisfied in the last lift of unbound material placed. The final passing density in the 6-inch crushed granite base was verified on November 15, 1999. Subsequently, edge underdrain installation began that will facilitate the placement of the overlying bituminous layers included in the buildup.

It is anticipated that production of hot-mix asphalt for the 4-inch permeable black base will begin on or about November 29, 1999. Prior to the placement of the permeable base, moisture gauges will be installed through (underneath) the granite base to facilitate the continuous measurement of moisture that may influence the performance of the subgrade after trafficking begins. A team of instrumentation experts from the US Army Corps of Engineers Waterways Experiment Station was on campus during the week of November 15, 1999, to assist in the calibration and installation of automated devices that will be used to monitor seasonal subgrade moisture.

Following the installation of the permeable black base, a total of 15 inches of binder will be placed to provide a structural foundation on which it will be possible to differentiate and compare the performance of various surface mixes. The 1 ½ inch nominal maximum aggregate lower binder mix will be placed in three 3-inch lifts, while the 1 ½ inch upper binder mix will be placed in two 3-inch lifts. Construction of the planned binder layers will likely conclude sometime early in 2000, with placement of the sponsor test sections to begin on or about March 15, 2000. Sponsors will likely choose materials local to their operations to construct their 4-inch thick experimental sections in a manner consistent with local materials. Multi-depth temperature instrumentation will be used to monitor the temperature of the completed pavement structure under traffic.

To avoid disrupting the workflow during placement of experimental mixes, it will be imperative that sponsors make their final selection for aggregate type, gradation, and asphalt by the end of 1999. Further, NCAT must be advised of which mixes they will be asked to design and which mixes they will simply be required to verify. Sponsors are urged to require aggregate suppliers to set aside stockpiles now that may be sampled to facilitate the practical design of their mixes, thus requiring minimal adjustment during production. Currently, NCAT has either written or verbal commitments from nine sponsors, including the Alabama Department of Transportation and FHWA. After the completion of the last test section, accelerated loading will begin. Ultimately, it is planned that 10 million ESALs will be applied to the test pavements over their two-year life.

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# Calendar of Events 2000

- January 9-13 **79<sup>th</sup> Annual Transportation Research Board Meeting**  
Washington, DC  
Contact: TRB (202) 334-3214,  
<http://www4.nationalacademies.org/trb/homepage.nsf>
- February 13-17 **45th National Asphalt Pavement Association Annual Convention**  
Hilton Waikoloa Resort, Island of Hawaii  
Contact: DKKAPA@aol.com
- March 12-15 **Association of Asphalt Paving Technologists**  
Nugget Hotel, Reno, NV  
Contact: AAPT, (651) 293-9188
- March 28-29 **Superpave Mix ETG**  
Washington, DC
- April 10-12 **Superpave: Building Roads for the 21<sup>st</sup> Century**  
Denver Marriott Tech Center, 4900 S. Syracuse Street  
Denver, CO 80237 Phone: (303) 740-2531
- April 24-28 **Engineering Pavements for the 21st Century and  
FHWA Workshop on Specific Pavement Studies**  
sponsored by NCHRP, FHWA, and ASHTO  
Newport, Rhode Island and sponsored by NCHRP, FHWA, and AASHTO
- May 22-24 **4th International Symposium on Pavement Surface  
Characteristics of Roads and Airfields** Nantes, FRANCE  
Contact: Michel.Boulet@lpc.fr
- November 15-17 **Eighth Annual HMA Conference**  
Regal Cincinnati Hotel, Cincinnati, OH
- December 10-13 **Asphalt Technology 2000**  
University of Texas, Austin  
Contact: scampos@mail.utexas.edu or <http://lifelong.engr.utexas.edu>



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