Flexible Pavement Committee Meeting Minutes

June 3, 2005

9:00 a.m. to 3:00 p.m. (or finish)

Turnpike Turkey Lake Facility

Milepost 263 Florida Turnpike

Directions: From Orlando head north on the Turnpike to Mile Post 263. This is north of I-4 and south of Ocoee Road exits (a combination of the E-W Toll Road, Ocoee Road). Turkey Lake Service Plaza, Florida's Turnpike Headquarters Turnpike Mile Post 263 Bldg. 5315 Ocoee, Florida 34761 (407) 532-3999

Gale Page and Jim Warren (co-chairs) opened the meeting and welcomed everyone. A sign in sheet was passed around. Anyone wanting to be added to the mailing list for notice of meeting and meeting minutes should send an email to Jim Warren at jwarren@acaf.org (put FPC in the subject line).

Research Issues

1. Test Track Updates - NCAT/SMO-HVS *Howie Moseley provided a research update on active projects.*
    a. *HVS update on round-three testing of Coarse and Fine mixes 12.5 TL-D using granite with PG 67-22. Construction completed in January; currently testing sections now. 14,000 passes per day and after 6 days one section is completed. 6 sections tested to date. Coarse has 15.8 mm of rutting; fine 14 mm of rutting under temperature controlled conditions at 50C. Data supports Department decision on allowing fine mixes at high traffic levels.*
    b. *NCAT test track overview. Second round of testing underway. As of May 2005, 17 million ESALs have been placed on the test sections. Fine mixes performing as well as coarse mixes. Placed round-one HVS*

mixes in two new sections at test track and relative performance at test track is similar to HVS.

c. *Sealer/rejuvenator research. Products which added slag on the surface after the rejuvenator had good friction properties. Recovered viscosity used to measure rejuvenation. Some products improved, some did not.*

d. *No tracking tack: 2 good results, 1 bad (separation in tank), 1 good. Ongoing work on developing a generic spec.*

e. *APA research (new): Coarse and Fine mix varying AC and dust content. Increasing dust and AC increased rutting significantly. Similar relationship in coarse mixes. This testing has some good potential to be used as it relates closer to performance.*

f. *Rotary wheel rut tester (Pine). Uses a gyratory sample and loads underwater (for temperature control). Evaluating test parameters – Too early to tell how this device compares to other similar devices and how it relates to performance.*

g. *Plant air void determination from cores: Study to re-compact material from roadway cores is ongoing. Should be about 4-5 months before enough data to draw any conclusions. Looking at comparison of air voids after re-compaction to actual plant air voids to determine if this can be used as an additional EAR analysis tool.*

h. *Test sites with different aggregate blends – friction concern. Sections are still showing good numbers, but there hasn't been enough traffic to truly distinguish between different material blends. Safety is a number one concern and DOT is being pro-active particularly with aggregate distribution issues.*

i. *Superpave Gyratory Compactor Internal Angle – waiting on direction for national spec to implement.*

j. *UF research: Gradation study, OGFC study (test section to be constructed next month), Complex modulus, Cracking, Moisture damage (final report being reviewed). Ongoing.*

2. Other Research In Progress – see above. *J. Musselman: Overall system performance: 1.2 % deficient in rutting (improving), cracking still high and is increasing slightly.*

Asphalt Binder Issues

3. PG 76-22 implementation - just on D and E. Where are others seeing it? *M. Uwabi: Flexible Pavement Design and Rehabilitation Manual provides guidance on use of PG 76-22. Currently required for D and E with the new 334 spec. Starting to see it on TL-C mixes in areas such as problem intersections. An agreement was made not to switch all projects from Asphalt Rubber Binder to 76-22 (particularly FC-5), unless there is an engineering reason or if the district/contractor wants to gain experience in using it. Logistic issues on using Asphalt Rubber versus PG 76-22 from contractor perspective were discussed. See item 14 on Construction Memo 10-05 on how to handle the change to the new 334 spec on projects with traffic level D and E with and without PG 76-22.*

4. Status of PG 76 22 asphalt cement index? *Discussed at last meeting referred to construction. Discussion: It would be helpful to have this since modified asphalt price is increasing faster than "neat AC". J. Musselman to talk to construction/estimates about adding one and will report back at the next meeting.*

5. Proposed spec change to 916 to require max viscosity @ 140 of 3600 for 67-22 and 2400 for 64-22. *G. Page provided background information on number of suppliers now versus years ago. Looking to make sure we don't get excessively high numbers on recovered viscosity. Would be open to alternative using DSR if liquid suppliers would provide data. Please forward any comments directly to Gale Page. DOT has experienced a high sample failure rate on recovered viscosity and is looking to make changes to ensure numbers fall into proper range. No negative comments from liquid suppliers present at meeting. Pavement cracking continues to be a big problem and using binders that are unnecessarily stiff will make the situation worse.*
6. Proposed spec change to 916 to require binder QPL on bill of lading. Encourage to do now. *More stringent specifications and requirements for QC plan are being proposed because of some issues with some material suppliers. Gale encouraged suppliers to start putting QPL on bill of lading immediately. Much easier to track use and will be in proposed spec changes.*
7. Proposed spec change to 916 to clarify QC plan requirements. *Changes to 916-1.3 Quality Control Program. Changes added to be more specific and requires submittal of monthly report in electronic format. No major changes. Comments due back to Gale by July 4. Spec will then will go though formal specification review process.*
8. Proposal to develop model QC plans for PG binders. *A model plan was developed for HMA producers during the early implementation of the CQC specs. Gale asked, should there be a model plan? No big interest.*
9. Discussion on practice by Bituminous Lab in identifying RA grades in "even numbers" or "standard manner". *Currently specified in 100 poise increments. Seems to have simplified matters and seems to be working. Will*

maintain the RA viscosity graded binder. Gale not convinced that the Superpave binder spec adequately deals with cracking, so RA's and recovered viscosity will stay until something better is developed.

10. Status/direction on the "hybrid binder" research project. *FWHA Turner Fairbank research center is doing some work with this material and other modified asphalts. FDOT research program will fund this project next year; funding for this year via DEP was cancelled due to hurricane funding efforts.*
11. Any change on FDOT use of polymer modified binder PG76-22. (DUPLICATE - SEE QUESTION 3)
12. Any further discussion on a separate price index for PG76-22 polymer modified binder. (DUPLICATE - SEE QUESTION 4)
13. Issues of terminal supplier compliance with their QC plan. *Proposed changes in 916 should address. DOT is serious and will be closely monitoring this to ensure compliance. Binder suppliers should make sure they are following their QC Plan.*
14. Issues of handling (pumping, mixing at hot mix plant) and construction laydown and mix temperature with polymer modified asphalts. *Generally, running FC-5 with PG 76-22 10-15°F higher than FC-5 with asphalt rubber. Specs cover max target mix design temperature with PG 76-22 for 334 Superpave mixes (330°F). May need to address FC-5 target mix design temperature with PG 76-22 in spec. In interim, contractors should make a request to change the mix design temperature for FC-5 with PG76-22. Jeff Ferrell commented on use of FC-5 on I-4 using a materials transfer device. Vince H said the laser ride spec will drive the use of materials transfer devices. For extended storage of polymer binders in contractor's tank, consult supplier for recommendations about recommended storage*

temperatures. JAM: recommended a small group to develop best practices for PG 76-22 (storage, handling, mixing and laydown temperatures). Some discussion about storage stability and need of a test to measure elasticity.

Aggregate Issues

15. Aggregate issues - coarse aggregate P-200 limit of 1.75% at terminal and 3.75% at stockpile. *Jim Warren brought up an idea to revisit this specification. Jack Banning described current practices and the efforts aggregate suppliers have made over the last 16 years to meet these requirements and didn't see the need for any changes. Barry McKeon described advantages of opening up the range a bit more. Gale Page: recalled development of original spec – may have had something to do with the coating of dust on the surface or bonded to the surface of the particle. Whether the limit is still valid or what the actual number is could be discussed further -- Gale is neutral. Ed D. May be worth a study now to re-look at the numbers. G. Page indicated this study could be complicated and take time and is also a national issue. Jim Cox discussed FLAI efforts where an aggregate producer with a well run QC plan to work with DOT and an asphalt supplier on some options to deal with specific materials/applications (producer/DOT/contractor partnering). JAM: Some concern/resistance at the district level and also concerns about excessive dust in mixes during production. Contractors may need to be doing a better job controlling dust than they are. Proposed rule changes are due shortly. Jamie Hill: Discussed how they process and handle materials and how they can account for it during design and production. Jeff Ferrell – discussed proposed rule change*

and new changes. Wants to see new changes implemented. Seems like only one producer is having an issue. CJ Potts: discussed the need for some innovating thinking to increase the supply of available and other materials in the state. Has crews sitting idle and under-capacity due to aggregate shortages. John Hull (Vulcan) discussed aggregate producer's efforts in spec change processes. Jim Warren and Gale Page discussed the need to get more rock into the state to build current and future work. Discussed trucking, rail, shipping issues. Need to ask the politicians and anybody we can to help us. Jack Banning: discussed rail issues and shipping issues. A second rail is under construction (Due in March 06) in S. FL and should help increase flow of material out of the mines in south Florida. Situation is very real and is likely to get a whole lot worse before it gets better with increased construction funding. Discussed trucking issue (shortage of drivers, equipment and even tires). Shortage of larger tires for construction equipment including loaders and off road trucks maybe become even more critical this summer.

16. RAP stockpiles? *Some discussion about using RAP in friction courses. The issue of specific aggregate type and type of binder is an issue. Can you rejuvenate the RAP material with asphalt rubber or modified binder? Its difficult to accurately measure the viscosity of a recovered binder if polymers or GTR are present. At this time there are no plans to allow the use of RAP in friction course mixes. Another issue that was discussed was could we do something about renewing old Marshall mixes for non-DOT mixes? TL-A designs have a higher AC demand than equivalent Marshall Design – making them uneconomical to swap. Looking for contractors to compact some S-III designs and reverse engineer the mix to see what*

gyration level would be needed. DOT is open to review the gyration level for lower traffic levels.

17. Clarification on the aggregate requirements for Open (FC-5) and Dense Graded Friction Courses (FC-12.5 / FC-9.5). *Pat Upshaw mentioned the 2002 spec change to make sure contractors know that there are specific requirements: 100% oolite or at least 60% granite with other materials, such as local sand. Other materials must be fine aggregate, not coarse aggregate. Some old FC-6 designs do not meet current specifications. Affected contractors have been notified. Also need to look at FC-9.5 and FC-12.5 designs and make sure they meet current specs. Other reasonable blends of materials maybe considered, but under a "test section" status. Contact Pat Upshaw 352.955.2906 for more information.*

Construction Issues

18. Discuss Construction Memo 10-05 regarding changing existing projects to 07/05 version of 334. *This memo allows early implementation of the July 2005 specification on existing projects. The memo was approved and published May 27, 2005. Jim Musselman discussed some of the applications and uses of the memo. There are a number of stipulations that are required to switch over an existing project. DOT will be looking very closely at mix design verification and field production of the new fine graded mixes. We don't just want to take out AC from a good traffic level C mix to go to a higher traffic level. DOT will be also doing APA testing on mix design and field produced materials to gather information.*

19. Discussion: for contractors doing resurfacing projects their perspective (and solutions) on not being allowed to make U turns on a limited access facility. *When interchanges are far enough apart, there is an Index to allow a u-turn (legally) using a lane closure and officer. It should be part of the contract. Dump trucks are one thing, MOT person in a pickup may be something else – this should be considered. Turnpike is looking at ways to maintain, improve efficiency and maintain safety. Contractors suggest need active FHP enforcement since it is so effective.*
20. Discussion: Also, on resurfacing projects (at any speed) typically brings the work crews very close to the motorist and the material trucks have to decelerate/accelerate into the moving line of vehicles.
21. Tacking on a milled surface: Is it a problem? Do we need it? *Greg Sholar: Bond shear strength results indicate that it <u>might</u> be able pave without tack on reasonably swept milled surface. Cleaning a milled surface is difficult. Might be worth revisiting. D2 will be doing some trial work in this area to see if there is a noticeable difference. Test results will be reported by next meeting.*

EAR Workshop: *JAM: There will be an EAR workshop for firms that do EARs on June 22 in Gainesville to cover the basics and provide more uniformity in reporting of EAR's. Looking to do another workshop for contractors after this one. Discussion on time frame for EAR's to be proposed and completed. More details will be provided at the next FPC meeting.*

<u>Mixture Issues</u>

22. FM 1-T 168 (Sampling hot-mix) discussions for FC-5. *Issue is primarily with polymer using conventional boxes where we are seeing differences in AC content.*

    a. Should non-stick boxes be required? Yes. *It was a general consensus to do anything we can to reduce variability.*
    b. Should non-stick paper be required? Yes. *See above*
    c. Should sampling directly from the truck to the ignition oven baskets be allowed? *NO, everyone needs to do it the same way.* Information on the paper and non-stick boxes is as follows: Boxes: Preferred box is supplied by "dura-fibre" in Menasha, WI. They have various sizes Contact Sara Hansen at 920.969.3606. Her fax is 920.969.3688. e-mail is: sara.hansen@dura-fibre.com

       Paper and less preferred box type: "HMA Lab Supply" in Richmond, VA contact John Muhlke at 888.569.0499 or e-mail: john@hmalabsupply.com

23. Core drying study results. *SMO did an internal study looking at a variety of different mixes and tested cores by drying back over a month's time. No statistical difference in test results. Report to be made available. North Carolina is looking at the vacuum moisture removal device, FHWA will share information when available. Again this device may reduce variability.*
24. Do we need to add precautionary statement to Ignition Oven test for binder content that if moisture in the mix is suspected, dry sample in force draft oven before testing. Yes. *Note will be added.*
25. Asphalt Plant Worksheet Upload: Status. *Pat Upshaw: has been through some beta testing in-house and some bugs are being worked out. There*

needs to be some minimum software/hardware requirements: for hardware, the PC needs to have internet access, either dial-up or high-speed will work. For software, the operating system should be Microsoft Windows XP Professional with Microsoft Excel 2003 with a full (complete) installation. Looking for some contractors to start using it on a pilot project. Contact Pat Upshaw if you are interested in Piloting this.

26. Other? SMO is looking at posting LIMS results in a summary by contractor, average pay factors. *Jim Warren to survey contractors to find out what other types of reports out of LIMS would be of interest to the Industry (i.e. number of failures per ton mix design by contractor plant)*

27. Additional item: Question on finalling out a project on daily reports. Any big issues? What frequency are the contractor supplied forms reviewed? *Discussion indicates there are differences between what project personnel, district personnel, and state final estimates will accept. There needs to be some standards on what is acceptable so the contractor can know what to submit. Ed D volunteered to serve on a committee to help set something up. CEI's want things one way, state final estimates another. Route issues through Ananth Prasad and David Chasen for assistance. There needs to be agreement on what information needs to be collected, what its usefulness is. Getting a working committee together seems to be good course of action.*

28. Waste asphalt: On daily report form. Definition on where temporary asphalt is, what it is called, how to document properly. *Temporary asphalt, over thickness, anything used on the project should not be called waste. Some project people are requiring material used in the project to be called waste. Needs clarification. SMO to look into and make changes. Tonnage not*

included in pay item needs to identified in the remarks section. Look at renaming Waste to Misc.

29. Next Meeting Date? TBA