THIS MEMEO IS EXPIRED

23rd Asphalt Conference Minutes

September 14, 1999

QC 2000

1. We need to do a better job of getting Supplemental Agreements to enough jobs to really test the QC2000 spec. than we did with the inception of Superpave. Is the word getting out? These do not all need to be coarse graded. Some fine graded jobs should be represented, as well. (ACA)

   Agreed, we are searching and "getting the word out". While we want to expedite the evaluation phase of the QC 2000 program, it is important to make controlled and reasonable additions. For example, the Phase II asphalt specifications define the LOT size based on time and estimated production. After the initial pilot project, this proved to be unrealistic and some adjustments were made for reasonable assurance that the revised specifications could be tested on other projects.

   The Department has selected four pilot projects for the QC 2000 specifications at this time.

2. What are the QC 2000 qualifications for technicians on asphalt and aggregates? (ACA)

   An overview of the new QC-2000 asphalt training and certification requirements was presented. Details can be obtained from FDOT. There will be 6 stand-alone qualifications: Plant Level 1 and 2, Paving Level 1 and 2, Mix Designer, and QC Manager. The Level 1 Qualifications are focused on testing. Level 2 Qualification on construction practice. There are 3 self studies in asphalt testing, plant operation and paving operation, which are parts of this program.

3. Update on status of new Asphalt Certification Program. (FDOT)

   Each of the 6 training modules went or is going through 3 phases before delivery: development, technical content review, and pilot program. Plant Level I, Paving Level I, and Mix Designs will be piloted in 1999. An optimistic view is the QC-2000 Asphalt Training/Certification will replace the current Asphalt Paving and Plant Review Sessions in 2000.

4. What is the target date for implementation of the new Asphalt Certification/Qualification Program? (FDOT)

   Current FDOT Paving Qualification will be replaced by QC-2000 Paving Level 1 and 2, and FDOT Plant Qualification will be replaced by QC-2000 Plant Level 1 and 2. This does not mean that you need to have an additional person at the plant/paver. One person having both Level I and Level II will satisfy the requirement. We will need to change specification to allow this to happen. We anticipate that new persons seeking qualification in Asphalt will be under the QC-2000 program in 2000.

5. What will the policy be on "grand fathering" previously certified people? (FDOT)

   FDOT's position is that there will not be "grand fathering" but its obvious we cannot push everyone through the QC-2000 Qualification program even in 1 year. At this point, FDOT position is that as those whose current FDOT qualifications expire will be required to become qualified under QC-2000 Qualification program. Some may choose to become QC-2000 qualified before their current FDOT qualification expires. We may have to make some adjustments and establish a priority or requirement.

Results from the completed QC 2000 asphalt projects (FHWA)

Under the QC 2000 asphalt specification, pay factors for each lot are generated for density, air voids, asphalt content, and gradation (percent passing the No. 8 and 200 sieves). A Composite Pay Factor (CPF) is then determined by assigning a weighted percentage to each pay factor (i.e. 35% density, 25% air voids, 25% asphalt content, 10% P-200, and 5% P-8). The pilot project on I-10 in District 3 that is under construction (C. W. Roberts) has to date completed 20 lots, with an average CPF of 1.00. For detailed information regarding the test results from this project, contact Maurice McReynolds of the State Materials Office (352) 337-3129 (SC 642-3129).

Research Projects:

7. NCAT Test Track (ACA)

The FDOT has provided funding for the construction and evaluation of 2 test sections at the NCAT Test Road. FDOT has decided on evaluation of the coarse versus fine Superpave mixes with limestone aggregate. We are in process of working with aggregate industry to get donations of aggregates, FDOT will do mix design; getting aggregates to NCAT is an issue being worked on. Test Sections are 200 feet long and 2 lanes wide. Loading will be by actual trucks. Note: There will be other coarse/fine Superpave mixes with different aggregates constructed by other States, so hopefully we may be able to lift coarse restriction for high traffic.

8. Accelerated Pavement Tester at State Materials Office (ACA)

An Accelerated Pavement Test facility will be constructed in Gainesville at the new State Materials Office location. A load frame using a full-scale tire or tires will apply loads to a full-scale test strips. With input from Industry problems and issues will be identified. FDOT will have some dedicated research dollars to fund research by external organizations (i.e. State Universities) to use APT for pavement research. It is similar to how research is currently handled in FDOT. As always we will have internal research using APT with our own limited staff. These projects will be looking at short term research activities.

9. Absorption/Conditioning Study (ACA)

The Department recently conducted a study to determine 1) if two hour conditioning of Superpave mixes at design is representative of actual roadway conditions, and 2) is it necessary to condition plant produced Superpave mix prior to testing (which is not permissible under current AASHTO Test Methods). The study looked at seven different projects and a variety of aggregate sources. The findings indicated that 1) two-hour conditioning at design is appropriate and 2) one hour conditioning of plant produced mix best matches the mix behind the paver. FDOT has submitted a request to FHWA to allow the use of one hour conditioning prior to testing. A response is expected by the end of September. At that point instructions will be issued from the central office on how to initiate these changes.

10. Discuss the results of the aging study and how it will affect sampling, testing, and the mix design process. If aging is permitted, will it be applied for all tests on that mix design? The concern: inconsistency of results, if aging is applied intermittently. (FDOT)

During the design process, there would be no changes; the mix would be conditioned for two hours. During production, samples would be taken from the truck, reduced down to sample size, covered with aluminum foil and conditioned at the compaction temperature for one hour. At that point, the gyratory samples would be compacted and the maximum gravity samples would be “broken down” and then tested. (Extraction samples would not need to be conditioned.) Conditioning would not be applied intermittently, it would be required on all mixes at all times.

11. Update on asphalt stripping studies – Superpave, FC-5. (FDOT D-5)

    Superpave – The Department continues to monitor the stripping performance of several early Superpave projects that were constructed with the old density specification, and were excessively permeable. They are showing some moderate to severe signs of stripping approximately three inches below the surface, although there has yet to be any signs of the distress on the surface. Tensile strength values also continue to drop, which seems to correspond with the stripping problem. These projects reinforce the need for a higher density in order to reduce permeability and prevent stripping.

    FC-5 – The Department has plans to conduct a study in the future to determine the need/effectiveness of hydrated lime in FC-5 and Superpave mixtures that contain granite. The purpose of the studies will be to determine 1) is hydrated lime necessary in open-graded mixes where pore pressure is very low? and 2) are liquid anti-stripping agents as effective as hydrated lime in preventing stripping?

12. Anti-strip additives and QPL list - Is this changing? (ACA)

    FDOT has required T-283 Moisture Testing as a part of Superpave mix designs. This testing has identified that at least one antistrip, ARR-MAZ Ad-Here 1500, will not be effective. It has been removed from the QPL and should no longer be used in accordance with the Standard Specs. It should be noted that recent Superpave spec. change now requires freeze thaw. FDOT has done this testing and the process of requiring Contractors to do this testing as required by specifications. FDOT is in the process of looking at revising requirements for QPL testing and defining testing for Contractors for T-283. This will raise the bar for antistrip agents. This is a work in progress.

13. What is the status of Hydrated Lime/anti-strip debate? (ACA)

    Lime is required as an antistrip agent for FC-5 mixes that are not Oolitic limestone. FDOT is working on a field research project looking at comparison different antistrip agents with FC-5. Recent Superpave specification changes have changed test requirements: T-283 with 1 freeze thaw cycle, 90% saturation, 80% TSR, with a minimum TSR required.

Contract Administration/Construction

14. Discuss modifying the requirements/test material for Asphalt Paving Technicians to only pertinent subjects. (ACA)

    QC-2000 Paving Level 1 includes the acceptance testing aspect of paving, i.e. random sampling, straightedging and cross slope. It does also include nuclear density even though no longer required by Superpave because it is anticipated that there will still be Marshall (Type S) in the pipeline, and would be a disservice to FDOT and Industry not to include this during the time of transition.

15. New DBE program-discussion. (ACA)

    The new DBE program will be discussed at the quarterly Contractor's meeting on October 20, 1999 by the DBE Office. All details of requirements for Contractor and Department have not been completed yet.

16. Accident damage beyond control payment should include asphalt payment. (ACA)

    The Department will not reimburse the Contractor for accidental damage to the asphalt pavement. Contractor should go after the party who damaged asphalt (insurance company). Industry has asked the Department to review this policy.

17. We need to extend lane closures lengths on 2 lane roads with milling, ARMI layers and Superpave mixes. There is not enough room in the closure for all the equipment and work too. (ACA)

    There is no easy answer to such a general statement. Longer lane closures increase production and can shorten overall contract time. However, the down side with longer lane closures is the increase in delays to motorists. The Department must also ensure that there is adequate capacity to handle the existing traffic. The longer a lane closure is the lower the capacity. If a Contractor feels that a closure length could be increased over what is specified, then a request should be made through the Project Engineer. The request will need to be reviewed by the District Traffic Operations Office.

18. At what point will the Department stop a Superpave design from being used?

    The new Superpave specification (7/99) states that a mix design will be considered as conditionally verified when it gets verified by the State Materials Office in Gainesville, and will receive final verification when a successful test strip (meeting the requirements of 334-4.4.2) is placed. Once the Department has assigned mix designs to plants, a basic condition of assigning the mix to the plant will be that it has to have final verification, and have been produced from that specific plant. It is anticipated that additional wording will be added to the specifications that will stipulate the conditions when a verified mix design can be revoked.

19. Should we ever have three plant Acceptance technicians sampling asphalt concrete mixture to represent one lot? QC 2000 addresses this problem, but we're not there yet. (ACA)

    (This question was further clarified as a situation where a different Acceptance technician shows up on three consecutive days, and each pulls a sample from their respective sublot and runs the test. At that point operator variability starts to over-shadow the normal sampling and testing variability that is typically encountered.)

    Ideally all Acceptance technicians should be sampling and testing in the same manner, in order to minimize the operator variability. As the QC 2000 System comes on-line, these types of problems should happen less frequently due to: 1) a better training program, 2) proficiency samples, and 3) the Contractor will sample the mix, not the Acceptance technician (the sample will be taken as directed by the Department). If these problems occur in the meantime, contact the District Materials Office or the District Bituminous Engineer.

20. Discuss the Construction of the Notched Wedge Joint (FDOT, Exhibitor)

    The notched wedge joint is a longitudinal joint that has a 0.5 to 1 inch notch on top of a wedge. A small adapter is attached to the screed, which creates the notch and the wedge. The purpose of the notched wedge joint is to create tighter longitudinal joints that will be more durable. At this time the Department does not have a density requirement on the joint (we don't measure density any closer than 0.3 m from the joint), nor does it have a method specification requiring such a device. However, with the utilization of coarse graded Superpave mixes, it is possible that Florida may experience some problems with longitudinal joints in the future. At that time, the Department could conceivably develop a density requirement for longitudinal joints, and these types of devices may be necessary to meet the density requirement.

21. Two separate CEI's recently attempted to pay us for misc. asphalt (under guardrail) based on a field measured square yard basis converted into tons at a 100 lb. per square yard per inch of thickness. I can't locate this method in the specs and even Structural Courses allow pay for a limited amount of overthickness. Is this method a policy, specification, or a particular CEI? (ACA)

    In general, the method of calculation indicated above is considered to be acceptable for the quantity of Miscellaneous Asphalt Pavement. The asphalt unit weight of 100 lbs. per square yard per one inch of thickness can be found in the Standard Specifications, Section 330-3.2.2. and Section 331-6.4. In

consideration of field surface irregularities and construction tolerance, the Department will review Section 339 and consider a tolerance for a limited over thickness of asphalt pavement under guardrail through the specification change process.

22. Scale Checks - Describe the preferred sequence of obtaining weights for weekly scale checks. Are printed tickets from both scales required? Some contractors have expressed difficulty in obtaining them. (FDOT)

    The preferred sequence of obtaining weights for weekly scale checks can be summarized as follows:

    A. Truck Scale:
    (a) The Engineer randomly selects a loaded truck of asphalt mix and records the truck number and gross weight from the Contractor's delivery ticket.
    (b) Weigh the selected truck on a certified truck scale and record the gross weight for a comparison check.
    (c) The gross weight of the loaded truck as shown on the Contractor's delivery ticket is compared to the gross weight of the loaded truck from the other certified truck scale. The maximum permissible deviation is 4 lbs. per 1000 lbs. of load.

    B. Batch Scales or Load Cell Scales:
    (a) The Engineer randomly selects a truck loaded with asphalt mix and records the truck number, tare and gross weights of the truck and net weight of the asphalt mix from the Contractor delivery ticket.
    (b) Weigh the selected truck on a certified truck scale. The Engineer will record the gross weight of the loaded truck.
    (c) Deliver the asphalt mix to the project, then weigh the selected empty truck on the same certified truck scales. The Engineer will record the tare weight of the truck.
    (d) Compare the net weight of the asphalt mix from the Contractor's delivery ticket to the net weight of the asphalt mix as determined by the certified truck scale weights.

    The maximum permissible deviation is 4 lbs per 1000 lbs.

    Basically, the printed tickets from both scales are required for the weekly comparison checks. Under certain special cases, a certified documentation of the weight results on the company's letterhead, duly signed and dated by the authorized person in charge, may be acceptable.

Density/Compaction

23. Monitoring In-Place density on HMA Paving Projects during construction (Exhibitor)

    Current Superpave specification requirements for density require that the Contractor monitor the density of the pavement as part of their Quality Control program. Specifications require that a nuclear density gauge be used, although it is permissible to use other density measuring devices (PQI, etc.) provided that they are approved by the Engineer.

24. Using continuous Mat Temperature Monitoring to manage Compaction of Superpave mixes, especially tender zones. (Exhibitor)

    Compaction of Superpave mixes is highly dependent on the pavement temperature, and it is strongly recommended that Contractors monitor the pavement temperature in addition to the nuclear density (which is mandatory). Several methods can be used to monitor the mat temperature such as a hand-held infrared temperature device, or an infrared device that mounts on the roller and monitors the mat temperature continually.

25. Update on use of only static rollers for Superpave compaction. (FDOT-D5)

To date, the trend in compacting the majority of Superpave pavements has been to use large, vibratory rollers. Several projects in District 5 have recently had success in compacting fine graded Superpave mixes in the static mode only and obtaining density. The breakdown roller was a 12 ton, 84 inch static roller (2 coverages) that was "bumping" the screed, followed by an 8 ton, 60 inch static roller (2 coverages) that held off until the mat temperature dropped below 180_F. The mix was a fine graded FC-6, which is a SP-12.5 TL-4.

260 Pavement test-strip compaction. (FDOT)

(There was no clarification of the question at the conference.) The Department encourages using the test strip to figure out the most optimal rolling pattern for the pavement.

270 Why doesn't FDOT allow the use of nuclear/other devices (other than cores) for fine-graded traffic level 4 and less Superpave mixes? (ACA)

Over the past two years, the Department has conducted three separate studies to determine how accurate and repeatable a nuclear density gauge (as well as an electrical impedance device) is with coarse graded Superpave mixes. The results have not been encouraging. The Department is in the process of conducting one additional study to evaluate nuclear density and electrical impedance gauges with fine graded Superpave mixes. If there is a poor correlation, no additional studies will be conducted and the Department will continue to use roadway cores for density acceptance. If there is a good correlation, then additional work will be done to see if a nuclear density acceptance specification can be developed for fine graded Superpave mixes.

28. Is there a method to determine whether a core is damaged or not? (Superpave) (ACA)

The problem was further defined as a situation where five density values are obtained and one of the five is very low (i.e., 92.1, 92.3, 92.0, 89.1, 92.3), resulting in an average density that is less than the target (in this example, the average is 91.6). Is it possible that maybe one core might be damaged? Is there any check the Department has to account for a damaged core?

Obviously, a damaged core should not be tested. However, making the assumption that one low value constitutes a damaged core is not correct, either. (There are a number of instances where the one low-density core is the core that represents the last mix that was placed that day – and did not necessarily receive the same compactive effort as the rest of the pavement.) Since it is possible that a roadway core might become damaged prior to testing, the Department will look into this issue further, and will try to come up with a solution to these types of problems.

290 HMA & soil density measurements; longitudinal joint construction; and, importance of temperature measurements when rolling Superpave. (Exhibitor)

These issues were addressed previously.

300 Eliminate Superpave density cores on extremely small paving areas. (ACA)

The new Superpave specification states: "The Engineer will not perform density testing on patching courses, leveling courses, open-graded friction courses, or any course with a specified thickness less than 1 inch [25 mm] or a specified spread rate less than 105 lb/yd^2 [57 kg/m^2]. In addition, density testing will not be performed on the following areas when they are less than 1,000 feet [300 m] in length: crossovers, intersections, turning lanes, acceleration lanes or deceleration lanes. Compact these courses (with the exception of open-graded friction courses) in accordance with the rolling procedure as approved by the Engineer." It is anticipated that this new wording will address the majority of situations related to measuring density on extremely small paving areas.

310 What have Contractors found helps the most in achieving Superpave density? (FDOT)

Most contractors that have had successful experiences with Superpave have kept an open mind when starting Superpave projects. Re-focusing on the basics of good construction practice is a very important component to a successful project. Proper haul truck loading and operation, proper paver setup and operation, and a strong focus on compaction. Equipment selection has become an important issue as well as constant focus on rolling operations. Achieving density has been the biggest of the issues facing the contractor, all have gone to using vibratory rollers on coarse graded mixes. Fine graded mixes are similar to S-type mixes and can be compacted with either vibratory or static rollers.

Design Issues

32. Why is FDOT continuing to design small projects with FC-5, FC-6, TL 5 Superpave? (ACA)

FC-5 and FC-6 friction courses are being phased in to replace FC-2 and FC-3 on all projects. Small projects are often at intersections that have high accident potential and friction courses are essential for safety. FC-5, an open graded friction course, similar to FC-2, will be used only on high-speed multi-lane facilities. FC-6, a dense graded Superpave mix, will be used on most other facilities. Traffic Level 5 Superpave mixes are only used where sufficient truck traffic warrants it. Often severe rutting of Marshall mixes occurs at high truck volume intersections and the higher traffic level Superpave mixes are needed to avoid this. Also, modified binder Superpave mixes are being tested to provide additional rut resistance and can be expected to show up on more projects, often in relatively small quantities. Another option being tried for intersections that repeatedly rut is concrete inlays.

330 With all the I-10 concrete pavement scheduled to be rubblized, why isn't the FDOT evaluating both types of rubblizing equipment (resonant type and multiple head breakers)? Most states allow contractors the option to bid either device. (ACA)

The Department has evaluated other rubblizing equipment by reviewing reports and talking with individuals in other states. Several field trips have been made to Alabama to observe rubblizing in progress. I-10 has a soil-cement subgrade and limited select material over plastic soils. The resonant pavement breaker has lower amplitude of drop and may not damage the soil-cement subgrade as much as the multi-head breaker potentially could. However, this has not been verified in the field. It is important to keep the soil-cement intact to bridge over the plastic soils.

Friction Course

340 We continue to have to deal with intersection projects that require friction course mixes with rubber. As the smallest quantity most blenders can blend is 1800-2000 gallons, we often end up with 1000 plus gallons that we have to deal with. We still feel that rubber needs to be eliminated on those small projects. -- Can the intersection projects be increased in size/mix quantity to account for this? DOT will get a better binder where it is needed the most. (ACA)

Intersections and other similar areas are generally the portions of the pavement that need modifiers the most (either asphalt rubber or a PG 76-22 binder). Since the bid prices on these items are typically higher, it is the Department's determination that they be built as they are designed, and as stipulated in the contract.

Materials and Mix Design

350 Project environmental condition and binder grades. (FDOT)

FDOT has determined that we will use the standard PG 67-22 no matter where the project is located environmentally. This is equal to our currently used AC-30 (or previously used 60 pen. Asphalt). FDOT is looking at the use of modified binders (PG 76-22) in specific intersection/weigh station locations, but

this would limit mixes to be all virgin materials since the issue of RAP and modifiers has not been addressed. FDOT will explore use of modifier in last structural layer also.

36. Effective asphalt binder in compacted paving mixtures. (FDOT)

(There was no additional clarification on this question.) Effective asphalt binder in an asphalt pavement refers to the asphalt that is not absorbed by the aggregate. This issue is typically addressed during design. In order to account for additional asphalt absorption that occurs during production, the Department conducted the conditioning study – see Item Numbers 9 & 10.

370 Is the FDOT still planning to eliminate mix design transfers and assign mix designs to the plants, thus saving time and money? (ACA)

Yes. The Department is in the process of assigning asphalt mix designs to individual asphalt plants. The designs will also be accessible to FDOT and consultant personnel through the Department's Infonet (Intranet) system. Additional information will be sent out by the State Materials Office once the system is on-line.

38. Superpave aggregates

FDOT has an internal task team looking at compatibility of gradation requirements for aggregates, Superpave mixes, as well as Type S mixes. We will be working with aggregate Industry to explore these issues.

390 Aggregate delivery issues? (ACA)

No time suspension shall be granted for delays caused by aggregate delivery. The Department may consider the delays in delivery of materials that affect progress on a controlling item of work as a basis for granting a time extension, if such delays are beyond the control of the Contractor or supplier. In such cases, the Contractor shall furnish substantiating letters from a representative number of manufacturers of such materials clearly confirming that the delays in delivery were the result of an area-wide shortage, an industry-wide strike, etc. (See Standard Specifications, Section 8-7.3.2). Documentation must include material was ordered in timely manner.

400 Discuss the possibility of requiring a minimum VMA during production. (FDOT)

Unless there is a drastic change in the absorption of the aggregate VMA can be controlled by Air Voids (V_a) and AC content of the mix during production. If V_a is not able to be achieved with the design AC then VMA probably has changed. This is reason FDOT reviews revisions to target AC content. This is the reason why it is very important to do mix design with aggregate which is intended to be used as well as account for any change in aggregate (degradation) during plant production.

410 Variations between Gmb & Gmm asphalt plant & laboratory. (FDOT)

(There was no additional clarification on this question.) It is expected that the production Gmb and Gmm values will differ from those at design – this is why the target density value is based on the daily average Gmm value. This is also why the specifications now state that a mix design is only "conditionally verified" once it gets tested by the State Materials Office – full verification occurs only when a successful test strip is placed.

Specifications

420 What is the status of the StreetPrint Pavement Texturing Process in the State of Florida and does the FDOT/Association have confidence in the product? (Exhibitor)

Architectural treatment of pavements is not a standard practice with the FDOT, but is often requested by local governments and included in FDOT projects. Textured asphalt, as well as concrete pavers, are often selected by the local governments and included on a project by project basis.

Smoothness/Ride Spec/Straightedge

43. Update on ride specification, where are we at and going (FHWA)

The original smoothness specification on flexible pavement was developed based on the test results of 20 newly built projects by using laser profiler on FC-2 and FC-3. According to the Smoothness Committee, the implementation of smoothness Specification would be carried out in two phases. In the first phase, several trial projects were selected and only a positive price adjustment (bonus) was included in these contracts. Since the first phase started, the Department has changed the design to Superpave system and FC-2, FC-3 were replaced by FC-5, FC-6 respectively.

During the trial period, a large quantity of testing data was collected and both the FDOT and Hot Mix Asphalt Industry were able to obtain some experience with the use of laser profiler. The FDOT gained an understanding of what constitutes a high quality ride. It discovered that on completed Superpave projects, very few lots of Superpave surface could attain the bonus level as stipulated in the specifications. Extensive discussions on whether to revise the ride level (RN number) for bonus were held during the first Smoothness Committee meeting this year. The second Committee Meeting will be held on October 5, 1999 to continue the discussion and to examine whether the smoothness specification need to be revised. For the second phase of implementation, we plan to add a pay reduction system (disincentive system) in the specification and the laser profiler will replace the 15' rolling straightedge device for pavement surface acceptance testing.

44. Update on new cross-slope tolerance spec. (FDOT)

A draft spec has been prepared and presented to the Flexible Pavement Committee that provides for reasonable checking of pavement cross slopes during construction. Spot checks on recent jobs has indicated that additional attention needs to be paid to providing proper cross slope. Proper cross slope is important for safety to remove water from the pavement, particularly if minor rutting is present. The draft spec will be tried on some trial projects initially for evaluation and modification as needed, prior to full statewide implementation. Emmanuel Uwaibi in Central Office Pavement Design is currently working with District 5 Design to identify some pilot projects.

45. What are contractors doing to assure a good ride on coarse graded Superpave projects? We'd like industry input. (FDOT)

Coarse graded Superpave requires a higher density than fine graded mixes. In addition, these mixes are placed thicker and they tend to be tougher to place. Again, proper operation of the paver to minimize end of load segregation/bumps is important – keeping the hopper relatively full between loads and keeping the level of mix in the auger chamber constant. Higher density requires more roller coverages and more coverages can affect smoothness. Roller operators must be trained to recognize their affect on the final pavement smoothness.

46. Laser Profiler - Status. Will Ride Number requirements differ for each surface type (FC-2, FC-5, FC-6, etc.)? (FDOT)

After the Road Profilers Users Group (RPUG) study, the profiling community in U.S. widely recognized that the laser profiler is more accurate than other roughness measuring devices. Based on the RPUG study and recent Research at the Transportation Research Institute in University of Michigan, the presence of coarse macrotexture will increase the potential for aliasing errors in smoothness measurement. However, the effect of surface macrotexture on RN by Laser is quite small and the influence by ultrasonic sensors is pretty large. Although technology has been available for measuring

roughness for decades, it has still not fully matured. So far, no research has been done to justify whether the Ride Number requirements be different on various friction courses and, if so, by how much.

47. What do the new ride number mean? How are they compared to IRI values, or other measurements? (ACA)

The Ride Number (RN) is a mathematical processing of longitudinal profile measurements by simulation method to produce a ride scale between 0 and 5. The following table taken from ASTM Standard E 1489 can give an approximate description of RN Rating Scale.

Description	Ride Number
Perfect	5.0
Very Good	4.5
	4.0
Good	3.5
	3.0
Fair	2.5
	2.0
Poor	1.5
	1.0
Very Poor	0.5
Impassable	0.0

The approximate comparison between RN and IRI values is as follows:

IRI Measurement	Ride Number
(Inches per mile)	
25	4.5
50	4.0
75	3.5
125	3.0
200	2.5
300	2.0
500	1.5
800	1.0

As far as we know, there is no any other comparison table being established between measuring devices.

Superpave

480 Superpave update (FDOT-TP)

The new Superpave specification was approved by FHWA in July 1999. This version of the specification included: clarification on lift thicknesses, changes in the mixture densification criteria, new moisture susceptibility criteria, clarification of test strip criteria (including criteria for a passing test strip), provisions to go up to 1000 tons in the test strip, reduced density criteria for coarse mixes, eliminated density requirement on five foot (or less) shoulders, and eliminated the bonus provisions for wide (greater than five foot) shoulders.

Statewide, there are still some problems being encountered, primarily in the area of meeting the density requirements. Utilization of Florida materials is still somewhat of a concern. However, the number of

problems encountered continues to drop as Contractors (and the Department) gain more experience with the design, production and placement of Superpave.

49. Anyone having any problem getting jobs switched to 7/99 version of Superpave spec? (ACA)

A copy of the blanket approval for specification change to the use of 7/99 version of Superpave specification was developed by the State Construction Office and issued to the District Construction Offices. This specification switch can be handled by Contract Change Order.

500 Have some Districts disallowed the use of SP-9.5 mixes on Primary or Interstate Projects? Why? (ACA)

SP 9.5 mixes have not been disallowed on any FDOT facilities. There have been reports from some projects where getting density with coarse graded SP 9.5 mixes was harder than with a coarse SP-12.5 mix, but this may be as much do to the SP 9.5 being placed on fresh pavement and unconfined edges, while the SP 12.5 was placed on a milled surface with edge confinement at the shoulders.

510 Does the current Superpave Specifications limit the number of tests strips per design, if not, why not? Is it possible for a project to be completed with only test strips? (ACA)

At this time, there are no limitations on the number of test strips that can be placed per mix design. In theory, a Contractor could build a project entirely out of test strips, provided that the Department did not require removal and replacement of the failing test strips. It is not, however, recommended to build projects in this manner. It is likely that a specification will developed at some point in the future that limits the number of test strips per design.

520 What is the implementation schedule for the new TSR requirements for Superpave? (ACA)

The new Superpave specification changes the TSR requirements (moisture susceptibility testing) at design. Beginning in early September, all designs are being tested using this new criteria.

They will be applied to all new Superpave mix designs. Again it is FDOT's intent to have asphalt contractors to do this testing. An Industry FDOT task group will be working to make this happen. (discussed #12)

530 Non-permeable pavement. (FDOT)

(There was no additional clarification on this question.) The Department has concerns about building pavements that are excessively permeable, which is why the density requirement for coarse graded Superpave mixes is set at 93.5%.

540 Discuss the new AASHTO traffic levels for Superpave and when they will be implemented. (FDOT)

Currently, there are seven traffic levels (Traffic Levels 1 – 7) with Superpave. However, on a national level, AASHTO has recently changed and there will only be five traffic levels (Traffic Levels A – E). Consequently, FDOT is changing per the national requirements. It is anticipated that these changes will go on line in the middle of 2000. Stay tuned.

550 How do you make 100% Brooksville materials work in Superpave at levels 5 and above? What specific production and construction techniques are being used to make it work? How is it working so far? (ACA)

Choice of materials or combination of materials to meet mix design and production spec requirements is the responsibility of the Contractor. Volumetric requirements at design and production may be more difficult with some aggregates as it always has. Mix design should anticipate any change in the gradation of aggregate in the as produced mix, as it always should have. Some contractors have

been more successful in using particular aggregates as well as mixing different aggregate type or sources to meet volumetric criteria. This is particularly true for high traffic level mixes.

56. On Superpave projects that has a traffic level of 3 or less, can initial production be raised to a limit of 1000 tons? (ACA)

The new specification allows test strips up to 1000 tons, provided it is approved by the Engineer, for all traffic levels.

There being no other business, the meeting was adjourned.