ASPHALT SMOOTHNESS COMMITTEE MEETING

Minutes

Wednesday, January 5, 2005: 9:30 AM to 4:30 PM
Thursday, January 6, 2005: 8:30 AM to 12:00 PM
Conference Room
State Materials Office
Gainesville, Florida

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ATTENDANCE:

Nour Nazef	State Materials Office
Gale Page	State Materials Office
Jim Musselman	State Materials Office
David Wang	State Construction Office
Bruce Dietrich	State Pavement Design Office
Frank Crawford	D2 Construction Office
Frank Kreis	D3 Materials Office
Phillip Adams	D3 Construction Office
Jeff Fetzko	Turnpike Materials Office
Greg Schiess	FHWA
Jim Warren	ACAF
C. J. Potts	Hubbard Construction
Scott Pittman	AJAX
Todd Trueblood	CTI

(1) Introduction – David opened the meeting at 9:30 am and he explained the contents of the agenda for this meeting. Since some representatives from Industry attended the meeting at the first time, a round self-introduction was made in order for everybody to get acquainted with each other. Prior to the field trip, the RN data and the project information of the test sections from two selected projects in D2 were handed out and all the members were informed that sign attached on the post had been placed at about 15 feet outside the edge of the shoulder to indicate the RN value of the travel lane for each 0.1 mile LOT. David pointed out that the RN less than 3.5 was circled by pencil to help the members to focus at the rough spots during the test ride.

(2) Field Trip – The attendees were seated in 4 cars provided by Nour's Office and the field trip started at 10:00 am and the test ride was completed at about 11:45 am. The two projects being visited are as follows:

(a) Project No. 26260 I-75 in Alachua County (Northbound Travel Lane) from MP 15.700 to 17.300.
(b) Project No. 26130 SR-26 in Alachua County (Eastbound Travel Lane) from MP 8.800 to 10.200.

In general, this field trip had provided the opportunity to the participants to get a better idea how a variety of RN value actually relate to perceived smoothness as felt by the vehicle's user. The results were considered to be satisfactory.

(3) Review the Statistical Summary of Ride Acceptance Projects and the Statewide Distribution Curve of RN – Nour presented the data as shown in the attachment and some discussions among the attendees were followed afterward. *(The presentation material was sent to all Committee members per David's E-mail dated January 23, 2005).*

(4) General Discussion - David addressed that the segment length for the laser profiler testing report had a strong impact on the interpretation of the ride condition of the pavement. The single RN value of a 0.1 mile LOT functioned as a summary value of the pavement smoothness and the rough spot within that LOT could be unnoticed because its roughness was averaged out. When the LOT was divided into 0.01 mile segment, the significant distress would stand out and be pinpointed easily. In order to avoid the huge file of the RN with 0.01 mile segment, currently, the smoothness specification only required to report the deficient sections (RN < 4.0) with 0.01 mile segment so that the rough spots within a LOT can be identified. The 15 foot rolling straightedge was used to find the exact locations of those rough spots. David informed the attendees that a training course of the FHWA Bump-finder software (Proval 2.5) will be held on January 24/25 in SMO. Hopefully, this software can be used with our laser profiler program to determine the rough spots automatically and the 15 foot rolling straightedge can be eliminated from the laser profiler acceptance specification. The attendees felt that the concept of 0.01 mile segment is useful because it gave a better description of the ride condition and the report could provide details of how roughness varies with the distance of 50 feet. Finally, the Committee decided to use the short segment length (0.01 mile) for the evaluation of pavement ride condition and the specification will be revised. The Committee's concerns are the huge data with many RN numbers to be managed in a project and whether the definition of a "remove and replace" segment (RN < 3.5) is practical or not. For the data management issue, Nour said that the task can be done but the computer operation time will be greatly increased. As for the second issue, it was concluded that more test reports with 0.01 mile interval need to be reviewed to verify that the criteria of "remove and replace" of rough spots with RN<3.5 is acceptable.

Jim Warren and Charles Potts suggested that the criteria of smoothness specification should consider the category of projects, the smoothness of milling surface, pavement thickness, the existing ride condition, and the improvement of ride condition after the construction, etc. Based on the research results, Bruce said that the numbers of asphalt layers did not have a direct influence on the smoothness of the pavement.

Jim Warren also requested Nour to provide some information regarding the relationship between the RN and IRI on some projects. He also hope that Nour could ride the section of I-75 NB (with signs), and get a seat of the pants feel for the number of bumps and their locations; then compare the findings to the results from Proval 2.5 Bump-Finder utility.

Based on the statistical summary of ride acceptance projects (52 projects) presented at last meeting, it was found that high percentage of the LOTs with RN ranges being less than 4.0 on several projects. The projects are listed as follows:

INDEX NO.	DISTRICT	FIN. I. D. NO.
19	2	20840645201
52	2	21346915201
66	3	21944815201
78	4	40613015201
86	5	40393715201
97	6	41275715201
116	8	40794515201
125	8	40794815201
136	8	23251315201

David had collected the feedbacks from the DBEs regarding the reasons why the ride conditions of those projects are poor and shared the information with the Committee members. The reasons can be summarized as follows:

D2 Projects

1. There were sections that were originally constructed over muck/swampy area that the vibratory rollers found that created difficulty with achieving density. That could have attributed to part of the ride problem.
2. Due to adding turn lanes with 1.305 miles in length.

D3 Project

1. Contractor’s straightedge operation was questionable.
2. There was eight straightedge deficiencies recorded when the last layer of structural mix was straightedged. There is no record of correction of these deficiencies.
3. This was a CQC project. The contractor's implementation of CQC on this project would be rated as "poor". The CEI firm did not have a full understanding of CQC. This may have contributed to a lack of proper inspection controls.
4. The Resident Office implemented a policy of having the verification roadway inspector also handle the plant. This was a dismal failure. He performed neither job in a satisfactory manner. He was later removed as Plant Verification Technician as a result of a FHWA process review and dissatisfaction from the DBE office.
5. The plans provided an adequate and functional pavement design which would enhance smoothness. The contractor did not employ sound milling and paving practices on this project.

D5 Project

1. Most of the unfavorable ride consists of joints in the outside lane. These joints are visible as you are driving and can be felt as you pass over them, also in this lane there is a patch approximately 100' long that is very noticeable as you pass over.
2. In the inside lane the unfavorable ride seems to consist of rough areas usually created when the asphalt haul truck backs into the paver instead of the paver picking up the haul truck in a smooth manner. This practice causes rough areas in the friction layer that can be felt as you drive over them.

D4/D6 Projects

1. The project in D4 had the smoothness incentive specification but no smoothness payment was paid and no straightedge deficiency was found.
2. The RN values of the D6 project had over 81 % in the range of 3.7 to 4.0. In general, the ride is good.

Turnpike Projects

1. Contractor's straightedging operation is questionable and VT does not perform his/her duties properly either.
2. The calibration of 15 feet rolling straightedge is not conducted correctly.
3. Contractor was inexperienced in FC5 placement.
4. FC5 was placed under cold weather.
5. Problems with putting fiber into the FC5.
6. The Contractor's first project by using one asphalt plant and had tremendous turnover of staff (It had changed 4 QC technicians in one project).
7. Palm Beach aggregates were used in FC-5 on one project that might be considered as one variable for the poor ride condition.
8. Paving crews were incompetent. OPC on several occasions had to send crews from other project to help ECP to pave properly on this project.

After reviewing the above feedbacks, all Committee members felt that the enforcement of the construction specification and the requirements of CPAM are essential to ensure that the QC/VT operations on pavement smoothness are performed properly.

(5) Review the Performance of Joint Smoothness Test Specification (330-11.5) - David explained the joint smoothness test specification to the attendees and also handed out the test results of the three pilot projects on I-95 in D2.

The test results of each project are shown as follows:

JOINTS SMOOTHNESS TEST RESULTS

Project No.1

FIN. ID. No.: 213505-15201 **District:** 2 **Rd. No.:** I-95 **County:** St. Johns

Bridge Description		**L3**	**L2**	**L1**	**R1**	**R2**	**R3**	**Bonus Ct.**
Turnbull Ck	Down-station	3/16	2/16	2/16	1/16	3/16	2/16	6
Turnbull Ck	Up-station	3/16	2/16	1/16	2/16	2/16	3/16	6
SR 16	Down-station	3/16	3/16	2/16	2/16	3/16	3/16	6
SR 16	Up-station	3/16	3/16	3/16	1/16	3/16	1/16	6
RR Bridge	Down-station	3/16	3/16	3/16	3/16	3/16	1/16	6
RR Bridge	Up-station	3/16	3/16	3/16	2/16	3/16	1/16	6
SR 207	Down-station	3/16	3/16	3/16	2/16	2/16	2/16	6
SR 207	Up-station	3/16	3/16	3/16	2/16	2/16	2/16	6
Project Ends	South End	5/16	*	*	*	*	*	0
	North End	3/16	2/16	6/16	3/16	3/16	3/16	5
							TOTAL:	**53**

Contractor: **Anderson Columbia Co.**

Remark: End project and no joint to match.

Project No. 2

FIN. ID. No.: 213516-25201 **District:** 2 **Rd. No.:** I-95 **County:** St. Johns

Bridge Description		**L3**	**L2**	**L1**	**R1**	**R2**	**R3**	**Bonus Ct.**
CR 210*	Down-station	2/16	3/16	4/16	2/16	5/16	5/16	3
CR 210*	Up-station	4/16	3/16	3/16	5/16	2/16	5/16	3
Durbin Ck	Down-station	3/16	3/16	4/16	2/16	2/16	5/16	4
Durbin Ck	Up-station	2/16	3/16	4/16	2/16	2/16	5/16	4
Project Ends	South End	**	**	**	**	**	**	0
	North End	3/16	3/16	6/16	2/16	3/16	2/16	5
							TOTAL:	**19**

Contractor: **Superior Construction Co.**

Remark: ***Bridge was replaced by the Contractor.

**** End project and no joint to match (APAC got there first).

Project No. 3

FIN. ID. No.: 213502/213503-15201 **District:** 2 **Rd. No.:** I-95 **County:** St. Johns

Bridge Description		**L3**	**L2**	**L1**	**R1**	**R2**	**R3**	**Bonus Ct.**
SR 206	South	2/16	5/16	3/16	2/16	2/16	2/16	5
SR 206	North	3/16	7/16	3/16	3/16	5/16	5/16	3
RR Bridge	South	3/16	3/16	3/16	2/16	3/16	3/16	6
RR Bridge	North	5/16	5/16	2/16	1/16	1/16	3/16	4
US1	South	3/16	2/16	6/16	3/16	3/16	3/16	5
US1	North	5/16	2/16	5/16	1/16	2/16	4/16	3
Project Ends	707+94	5/16	2/16	2/16	1/16	0	3/16	5
	0+00 Pelicer	5/16	3/16	NA	NA	6/16	7/16	1
							TOTAL:	**32**

Contractor: Ranger Construction Co.

David shared his test ride experience on the above projects and said that some joints met the incentive payment criteria did provide a smooth ride at the joint location but some of them were not. It seems that even though the average deficiency of the joint is < = 3/16 inch, but when the deficiency at one wheel path is beyond 3/16 inch, then, the overall ride condition is down graded. Unfortunately, the actual deficiency of each wheel path was not documented at the job site during the testing and only the average deficiency of two wheel paths is recorded on the report. David suggested that the acceptance criteria for the incentive payment should be revised to require that a joint qualified for the incentive payment shall have the deficiency < = 3/16 inch at both wheel paths, not the average value. The Committee decided to collect some more test data at the job site to verify David's suggestion.

(6) Modification of 330-12.7 (Pavement Smoothness Incentive/Disincentive Specification) – This test specification was reviewed by the attendees again and it was concluded that the pavement will be divided into 0.01 mile [0.016 km] segments on each lane to evaluate the ride condition and the payment will have a gradual increase/decrease with a plateau at 100 % pay between the incentive and disincentive. Jim Musselman will come up a draft criteria based on the conclusion of the discussion and e-mail to the attendees to review it later.

(7) Review the Draft of 330-12 – Jim Musselman handed out the draft copy of the 330-12 to the attendees and pointed out that the purpose of this modification is to include the CQC concept into this section. The draft was reviewed page by page at the meeting and some comments were discussed and finalized. It was concluded that Jim will include the incentive/disincentive specification and the joint smoothness specification into this Section and a final draft will be prepared and e-mailed to the attendees for a general review.

(**8) Smoothness Acceptance Criteria in 338 (Value Added Asphalt Pavement) –** It was found that design speed (45 mph) specified in the definition of "Category 1 Pavement" in 338-5.2 is inconsistent with the design speed (50 mph) specified in the laser profiler acceptance specification. After some discussions, it was concluded that the design speed in 338-5.2 and 338-5.3 shall be revised to 50 mph.

(8) Tasks being assigned – Finally, the tasks being assigned for the next meeting are as follows:

1. Nour Nazef

1) Give a short presentation about the Proval 2.5 software (FHWA Bump-Finder Utility) at the Flexible Pavement Committee Meeting on January 28, 2005. *(Nour performed the presentation at the Meeting).*

2) Provide RN and IRI histograms at 0.01 mile intervals on some projects (good, bad and ugly) with additional information for each job (number of plots within an RN range, number of lanes, contractor, FC type, thickness, number of layers, etc...) for designs speed > 50 mph. This will include the northbound section of I-75 with posted Ride numbers.

3) Ride the section of I-75 NB (with signs), and get a seat of the pants feel for the number of bumps and their locations; then compare the findings to the results from Proval 2.5 Bump-Finder utility.

4) Process the RN data for all 7 incentive pilot projects in 0.01 mile intervals, and create a histogram plot for each

5) Write some verbiage to be included in the laser profiler smoothness specification for installation of reflective tape to mark the termini of each lane.

2. Jim Musselman

1) Rewrite the 330-12 to include the incentive/disincentive specification and the joint smoothness specification.

3. David Wang

1) Modification of 338-5.2 and 338-5.3. *(The State Construction Office had prepared the proposed specification change of 338 and submitted the document to the State Specification Office for further process).*

Due to the time constraint, the meeting was adjourned at 12:00 noon on January 6, 2005.