North Central Superpave Center News

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Inside this issue

Regional News

National News

NCSC Vision and Mission: To be an industry-recognized source of Superpave expertise and to lead further development and implementation of Superpave technology by providing services to its customers, through excellence in research, training, and communication.

Four States Implement Reciprocity

Following an agreement signed in July 1998, four states in the North Central region are implementing reciprocity of training and certification this year. Iowa, Kansas, Missouri and Nebraska have agreed to train technicians on a common core of material and to conduct performance evaluations and written examinations on that core. The agreement focuses first on hot mix asphalt to be followed with soils, aggregate and Portland cement concrete.

Training programs are in place in each of the four states and initiation of reciprocity begins this year. Some details are still being refined.

The four states support a common approach to training and certification due to the economic and administrative benefits for both the industry and agencies. Reciprocity allows state resources to be pooled and reduces the need for contractors' personnel working in different states to undergo training and certification in each state. Training courses can cost each participant hundreds of dollars and require significant investments by the agencies.

Under the agreement, two levels of certification in the asphalt area will be implemented. The Asphalt Field Inspector certification "is required for persons on the construction site and at the production facility who are testing asphaltic materials and making decisions on its quality or acceptability." Certification as an Asphalt Mix Designer "is required for persons developing, checking and approving the mix design." Asphalt Field Inspector certification is a prerequisite for Asphalt Mix Designers.

The basis of the training materials used by the four state group is the recently released *Hot Mix Asphalt (HMA) Technician Training Manual* developed by the FHWA-sponsored Multi-Regional Training and Certification Group. (See related article on page 2.) Manuals developed by this group in the other subject areas will also be used.

States may supplement these manuals with their own state-specific information, but will not omit the core materials from training courses or examinations. For example, contract administration requirements differ from state to state and may need to be covered individually in a short training course. Efforts are underway, however, to expand the training materials to include state-specific information. This will provide one manual that can be used by all personnel.

The FHWA is also signatory to the agreement and agrees to work with the M-TRAC task groups to complete training manuals for field and laboratory inspectors in the four subject areas, provide copies of the completed manuals to the states and help to keep the manuals current.

continued on page 2

Multi-Regional Training/ Certification Efforts Continue

Beginning in 1994, states in FHWA Regions 5 and 7, which covered the North Central region, met to discuss the possibility of regional certification. Annual meetings since then have drawn in as many as 22 states from all across the country. The discussions have broadened beyond certification reciprocity to include sharing ideas and experiences with training and certification, training tips, national issues and more. This group, renamed the Multi-Regional Training and Certification Group (M-TRAC), worked together to help meet the Federal requirements calling for "qualified" personnel to conduct quality control/quality assurance testing. (These requirements went into effect June 30, 2000.) This group has prepared technician training manuals for soils and hot mix asphalt and is working on aggregates and concrete.

The M-TRAC group met again in St. Louis June 6-8, 2000, to continue their cooperative efforts. Representatives of 14 states, FHWA, industry groups (NAPA, ACI and many state paving organizations), the NCSC and academia attended. States represented included Florida, Indiana, Iowa, Kansas, Louisiana, Maryland, Michigan, Minnesota, Missouri, Nebraska, New Mexico, North Dakota and Wisconsin. All the states reported that they should be able to meet the FHWA qualification requirements, though some had an easier time than others.

The approaches taken towards meeting the training and certification requirements varied widely between the states. An example of one such contrast is that Iowa offers some 220 training schools a year, while Louisiana mainly offers training through interactive or self-instructed methods and has very few classroom courses. The level of commitment needed to offer classroom hours can be a large burden on the states, prompting many to establish relationships with colleges or universities that can help them manage their programs.

The types of training and certification offered also vary widely. All states have some sort of program in soils, aggregates, hot mix asphalt and concrete. Nebraska added a nuclear gauge course for soil and asphalt for agency personnel this year. The Minnesota DOT described their program on Bituminous Street Certification, which they have used since 1989-90; the two levels of this certification cover basic materials, plant types, testing and laydown and compaction in the first level and trouble-shooting, segregation, joints and other advanced material in the second level.

Some common themes arose during the states' presentations on the status of their programs. Both the states and industry expressed concern over the difficulty in finding people with the necessary skills for certification. Attracting and retaining qualified personnel is a prevalent problem. Low unemployment and the lure of high paying computer-related jobs were cited as contributing factors.

Although the states all reported being prepared for the new FHWA qualification requirements with their permanent staff, how to handle seasonal help was still unresolved in some areas. Some states, like Iowa, require certification of their summer help and even schedule special training courses early in the summer to accommodate them. Other states, such as North Dakota, give one-on-one training to their seasonal help only on those tests they will be assigned to do during their term of employment.

Another topic that came up frequently during the discussions was providing ready access to training and certification programs. The use of computer-based courses is growing in importance. This type of course can offer greater flexibility to the student in terms of when and where they obtain their training. Interactive web-based or two-way video courses are also growing in popularity. Pooling efforts to develop courses using these new technologies could be extremely efficient.

Greg Doyle, from the FHWA Massachusetts Division, reported on one area where work is underway to pool resources. He stated that 80% of the states use consultants for geotechnical investigations and none of the states require certifications. The states in the Northeast are working with the New England Transportation Technician Certification Program (NETTCP) to develop and administer a geotechnical certification program. Interest in this topic appears likely to grow beyond the New England states.

Reciprocity continues to be a discussion point at the M-TRAC meetings. Four states in the region have entered into a reciprocity agreement (see related article on page 1). Woody Hood of the Maryland DOT reported that they will soon have reciprocity among seven states in the Mid-Atlantic region.

As productive and informative as these M-TRAC meetings have been for the last seven years, this may have been the last meeting. Efforts are underway to coordinate training and certification on a national level. The M-TRAC group is supportive of those efforts and may be absorbed into the national group. The group has expanded well beyond old Regions 5 and 7, so joining a national effort appears reasonable. See page 9 for a summary of the proposed national coordination efforts.

Reciprocity *continued from Page 1*

A multi-state certification program requires the use of standardized test methods and procedures. The recommendations of the North Central Asphalt User Producer Group (NCAUPG) to standardize AASHTO procedures used in Superpave were followed in the development of the HMA training manual.

The specific AASHTO test methods covered in the two certification levels include the following:

Asphalt Field Inspector

Prerequisite qualifications: certification as Aggregate Field Inspector

- TP4, Method for Preparing and Determining the Density of Hot Mix Asphalt Specimens by Means of the SHRP Gyratory Compactor
- PP19, Practice for Volumetric Analysis of Compacted Hot Mix Asphalt
- T40, Sampling Bituminous Materials
- TP53, Method for Determining the Asphalt Content of Hot Mix Asphalt by the Ignition Method
- T166, Bulk Specific Gravity of Compacted Bituminous Materials Using Saturated Surface-Dry Specimens
- T168, Sampling Bituminous Paving Mixtures
- T 209, Maximum Specific Gravity of Bituminous Paving Mixtures

Asphalt Mix Designer

Prerequisite qualifications: certification as Aggregate Field Inspector and Asphalt Field Inspector

- TP4, Method for Preparing and Determining the Density of Hot Mix Asphalt Specimens by Means of the SHRP Gyratory Compactor
- T269, Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
- T283, Resistance of Compacted Bituminous Mixture to Moisture Induced Damage

States Summarize Mix Design Procedures, Philosophies

In response to a request from industry, the North Central Superpave Center conducted a survey of states in this region regarding their mix design review/verification practices. The implementation of Superpave and, in many states, the initiation of contractor mix designs prompted the survey. While Superpave initially offered the opportunity to implement uniform mix design procedures and material quality standards, the mix design submittal process itself usually grew out of past practice, which varied widely from state to state.

All ten states responded to the survey, providing a good snapshot of the state-of-the-practice in the region. There is quite a bit of similarity in many areas and a few areas where there are definitely different philosophies in place. (Full responses are available state by state on our website.)

All states were asked if they used a review or a verification process to approve contractor mix designs. Review here implies an examination of a contractor's written documentation of the mix design; verification implies checking that mix design by laboratory testing.

Most states report verifying the contractors' designs by doing various levels of lab testing. For example, Ohio largely relies on reviewing the design on paper but also verifies the bulk specific gravity and Rice (maximum theoretical specific) gravity of prepared specimens. Missouri batches the designed mix at the target asphalt content as well as 0.5% above and below the target, then checks air voids, VMA, VFA, dust to binder ratio and moisture sensitivity. Other states that do lab verification of various parameters include Illinois, Michigan, Minnesota and Nebraska.

Some states routinely do reviews of the design on paper and will do lab verifications under some circumstances, such as when a new aggregate source is used, when designs just meet the minimum requirements, or with inexperienced designers. States using this hybrid approach include Iowa, Kansas and Wisconsin. Wisconsin clarified that their philosophy has changed "so that the primary function of Mix Design review isn't … to 'eliminate' or 'fail,' but rather … to ensure limited problems or changes once we get to production…. The Design itself is only one step of the 'start-to-finish' process in getting an acceptable product in place."

The Indiana DOT approves mix designs based on a review of contractor submitted paperwork showing data and calculations. Mixture properties are checked only after production has begun. INDOT used to verify mix designs in the lab prior to production, but stopped when they required AMRL approval of mix design labs and participation in the AMRL proficiency program. The Michigan DOT is doing a pilot study this yearusing field verification of mixture properties using test strips after a paper review in the central lab.

Most states in the region do not require AASHTO accreditation of design labs. Indiana is the only state requiring accreditation of mix design labs, and streamlined the design review process when this requirement was implemented. Missouri noted they require third party labs to be accredited; this is a requirement under FHWA QC/QA regulations. Kansas waives technician certification requirements in accredited labs. Other states in the region do not require or give consideration to accredited labs, although Wisconsin and Illinois indicated that some consideration is in the works. Illinois has its own inspection program for QC and design labs that they report is at least as rigorous as AMRL.

The time required for the review/verification process varied widely, since the procedures themselves vary widely in terms of level of effort. Typical review/verification times range from a low of 1-3 hours to 14 days, although the states report they can usually turn the designs around in five days or less.

There was quite a bit of consistency between the states on allowable tolerances on the typical parameters verified. Most adopted the acceptable range of two results (D2S) from the applicable AASHTO specifications, such as +/- 0.02 for mixture bulk specific gravity and +/- 0.019 for mixture maximum specific gravity (multi-laboratory).

The states had mixed opinions on the value of establishing a uniform mix design review process. Though most were in favor of uniformity in testing, most saw little value in standardizing the review. Any uniform review/verification process would have to be adaptable to suit the needs of each state. Iowa even commented that each design is not handled the same within their state, but varies depending on the level of "familiarity with the Contractor and materials." Differences in the required submittals and the review/verification process can be handled on a state-by-state or even case-by-case basis, as needed.

The states were in agreement, however, on the impact of the Federal regulations requiring qualified technicians. None of the states felt this change, which took effect June 30, 2000, would affect their operations. All of the states have already implemented a training and certification procedure that will address these requirements. In addition, Illinois, which has a long-standing training and certification program in place, pointed out that mix design is not an acceptance test and therefore is not covered by the Federal requirements. Overall, the states are well-positioned for the changing Federal requirements and are comfortable with their procedures.

NCAUPG Plans Next Meeting

The NCAUPG Annual Meeting will be held January 16-18, 2001, at the Omni Hotel in Indianapolis, Indiana. A preliminary agenda is below. A registration form and final agenda will be available on the NCSC website by Fall.

Tuesday, January 16 12 noon - 5 p.m.
Technicians Workshop Session I

Wednesday, January 17 8 a.m. - 12 noon
Technicians Workshop Session II

Wednesday, January 17 8 a.m. - 12 noon
NCAUPG Management Committee Meeting

Wednesday, January 17 1 - 5 p.m.
NCAUPG Annual Meeting Session I

Wednesday, January 17 6 - 9 p.m.
Reception and Dinner

Thursday, January 18 8 a.m. - 12 Noon
NCAUPG Annual Meeting Session II

Thursday, January 18 12 Noon - 4 p.m.
NCSC Steering Committee Meeting

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Calendar of Events 2000

Sept 11-12	FHWA/TRB Mixture/Aggregates ETG Meeting Embassy Suites, Indianapolis, IN
Oct 11-13	Second International Symposium 3D Finite Element for Pavement Analysis, Design & Research Embassy Suites Hotel, Charleston, WV Contact: Dr. Samir Shoukry, WVU, shoukry@cemr.wvu.edu, (304) 293-3031
Oct 22-23	NCAT Open House Auburn, AL Contact: Doug Hanson, (334) 844-6240
Nov 14-19	Asphalt Rubber 2000 Conference Vilamoura Marinotel, Portugal http://www.consulpav.com/AR2000
Nov 15-17	Eighth Annual HMA Conference Regal Cincinnati Hotel, Cincinnati, OH
Nov 28-Dec1	Transportation Research Forum Lowes Annapolis Hotel, Annapolis, MD Information call (202) 879-4701
Dec 10-13	Asphalt Technology 2000 University of Texas, Austin Contact: scampos@mail.utexas.edu or http://lifelong.engr.utexas.edu/conferences/asphalt.html
Jan 7-11, 2001	Transportation Research Board Annual Meeting Washington, DC Contact: TRB (202) 334-3214 website: http://www.nationalacademies.org/trb/
Jan 16-18	North Central Asphalt User Producer Group Annual Meeting, Technician Workshop and NCSC Steering Committee Meeting Omni Hotel, Indianapolis, IN

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