Eastern Region Update - 2013

SEAUPG
Southeastern Asphalt User/Producer Group

Merrill E. Zwanka, P.E.
South Carolina DOT
Baton Rouge, LA

Changes - Updates to Binder Specifications

North Carolina

- Have continued to explore the use of MSCR
- Have developed a draft GTR specification
  - No pavement placed at this time
  - Looking for pilot projects

South Carolina

- For PG76-22 – revisions underway
  - Optional 0.5% PPA and min 7.0% (-30 mesh) GTR – ambient or cryogenic grind
  - MSCR – considering PG76-22 meeting M320 and MP19 (MSCR) for grade of 64V @ 64 deg. C
  - Phase angle requirement of 75.0 deg will be removed

Changes/Updates to Binder Specifications

Virginia

- No changes to binder testing this year
- Receiving more requests for in-line blending for modification of base binders
  - Will be investigating the acceptability of this approach
- Continuing shadow testing of PG+ testing (elastic recovery specifically) with MSCR through 2014
  - Will help to decide how MSCR implementation will proceed

West Virginia

- Only change being evaluated is with MSCR – at this time the equipment does not have the required software but this is being looked into so that testing can start

Asphalt Mixtures Specification Changes

North Carolina

- Continuing to expand use of IRI on asphalt
- Developed thin-lift (S4.75A) mix in 2012. Getting increased use as Divisions develop contracts using it
- Increased use of Shoulder Wedge ("Safety Edge")
- Expanded temperature ranges allowed for WMA – now based on virgin binder grade

South Carolina

- Combined two common mix types for high volume primary routes to assist with workability, improved compaction, and better joints
- Revised the 4.75 mm mix used for preventative maintenance that is placed at ¾" thickness and paid for by the square yard.

Asphalt Mixtures Specification Changes

Virginia

- Made conscious decision not to make contract specification changes for the 2014 contract paving season
- Some other items underway…
  - Instituting a new test method (VTM-102) that will require producers to determine and better account for the liquid asphalt contribution of RAP mixes during designs. Part of the total ignition oven correction factor – separate RAP correction factor to be included
  - Working cooperatively with industry to consider changes to mix design procedures – may be compromising needed AC content with Superpave mixes compared to older Marshall mixes. Considering lowering gyrations, tightening gradation on key sieves, adding more spec sieves, adjusting volumetrics, etc.
  - Working with industry to continue exploring pilot applications of 4.75 mm and porous asphalt – looking to expand use where appropriate

Asphalt Mixtures Specification Changes

West Virginia

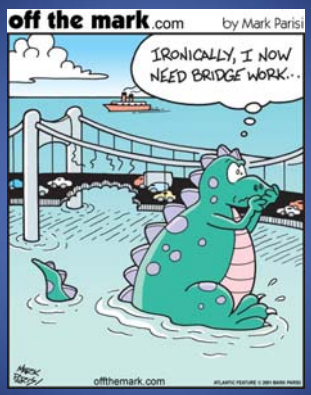
- Wrote an entirely new specification for asphalt pavements and overlays
  - New spec used on four multi-lane highway projects with other multi-lane projects constructed using previous specs
  - Highlight of new spec includes laying out lots based on tonnages converted to a theoretical yield, sampling loose mix behind the paver, and obtaining cores from the mat and longitudinal joint
  - Payment is weighted from PWL of in-place density, AC and gradation of loose sample with separate incentive/disincentive for joint density
- Began using a 4.75mm High Performance Thin Overlay using PG76-22 with design AV of 3.0% at 50 gyrations
- Developing a thin lift overlay as a microsurfacing alternate

Number of tons of HMA and WMA

STATE	HMA 2012	WMA 2012
NC	3,600,000	310,000
SC	2,400,000	54,000
VA	4,500,000 Do not currently track WMA vs. HMA	
WV	2,800,000	35,000

SCDOT - Preventative Maintenance

Treatment Type	Square Yards 2012
Thin Lift Seal Course	308,000
Single/Double/Triple Treatment	600,000
Microsurfacing	850,000
Total	1,758,000



Funding

North Carolina

- In the second fiscal year of a budgeted $400+ million for two years of contract resurfacing

South Carolina

- Still in need of a gas "user fee" increase to fund projects
  - Currently $0.16/gal with last increase in 1986

Funding

Virginia

- Virginia's General Assembly passed HB 2313 – expected to provide significant additional funding for 6-yr program.
  - $15.4 B ($4 B increase) in transportation improvements
  - Program is updated each year to reflect latest projected revenues
  - Expected avg of $500 M a year for six years for paving/resurfacing roads:

FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	Total
$ 315.4	$ 515.0	$ 621.4	$ 513.4	$ 520.4	$ 498.3	$ 2,983.9

Funding

West Virginia

- Funding will cause less asphalt construction due to the cost of HMA increasing and the start of additional treatment strategies
- For 2012 and 2013 – able to offset the program by adding in additional funding for more preservation and rehabilitative treatments
  - Still some projects within the traditional funding using other methods that were not in the equation a couple of years ago such as CPR, and now CIR and FDR

Methods implemented to lower costs

North Carolina

- Began Interstate Maintenance Preservation Program (IMPP) – a planned strategy of cost effective treatments to interstates used in conjunction with the interstate maintenance program
- Expanded use of fog seals

South Carolina

- Doing more crack sealing and microsurfacing in lieu of overlays
- Allowing the use of more recycled materials – RAP/RAS

Methods implemented to lower costs

Virginia

- Investigated the design and use of higher RAP percentage mixes – several projects in 2013 with 40% or higher percent RAP (by weight)
- Continuing to investigate use of RAS and other recycled materials in asphalt mixes

West Virginia

- Same list as 2012 with hope that new paving specs will help lead to longer life overlays which will reduce costs overall in the long run
  - 4.75mm HPTO-modified binder
  - Microsurfacing
  - Chip seals – single and double
  - Fog seals of chip seal work for chip retention and aesthetics
  - CIR and FDR with HMA overlay (more rehabilitative)
  - Developing an HMA ultrathin (lifts less than one inch)

WMA Experience

North Carolina

- General specifications allow WMA at the Contractor's option
  - Special provision exists for field divisions to require WMA where heavy crack sealing exists
- Tiered approved WMA technologies list – limits use of technologies based on tonnage successfully placed in the state and by level of facility
  - Interstates – WMA used in trial mode only
- Have seen most contractors choosing to increase the mixing temperatures for producing WMA
- With relatively cooler/wetter weather in NC in 2013 it would appear that the use of WMA has been curtailed

WMA Experience

South Carolina

- Optional usage allowed – Contractor may elect to use WMA in lieu of HMA on awarded contracts with a no-cost C.O.
- WMA not permitted on interstate routes unless through a special provision for related research

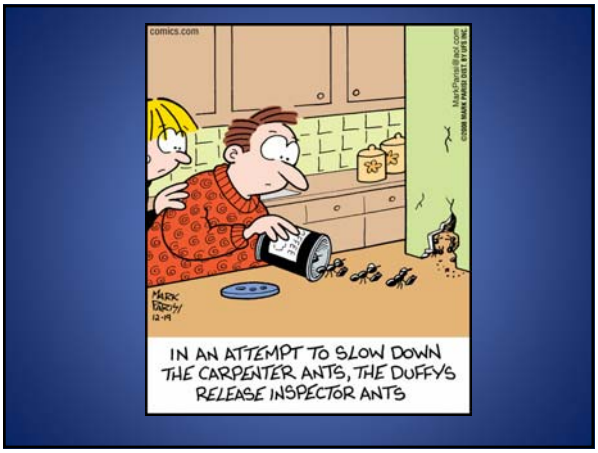
Virginia

- Optional usage allowed – roughly 90% of tonnage placed is with a WMA (foaming and additives)
- Overall performance of asphalt with WMA technologies has been good
- No specified minimum temperature for placement of WMA – however looking to add one in upcoming specifications update

WMA Experience

West Virginia

- Generally positive experience
- Still overcoming some internal reluctance and there is some mild concern about mix characteristics
- Have placed as an alternate bid item in contracts
- Use was way down this year – less use of purchase order mechanism on Federal paving projects and implementation of PWL specs both lead to a reluctance to use WMA



Performance Related Testing

North Carolina

- APA is required for all surface mix types prior to approval of the mix design
- Have AMPT as part of pooled fund – plans are to use it in mix approval process for high risk projects

South Carolina

- Using the APA during mix design approval process
- Starting some limited research using the AMPT and Hamburg

Performance Related Testing

Virginia

- APA is performed and mix needs to meet specifications during mix design, however after that it is only run when directed by VDOT
- Performance testing is otherwise limited to research and forensic efforts at this time – but developing knowledge base and approach for use of ME pavement design beginning in 2014

West Virginia

- None at this time but wanting to implement performance testing for the High Performance Thin Overlay mix

Sampling and Testing Thin Lifts

North Carolina

- Thin lifts are tested/accepted in the same way as other dense graded mixes
- For microsurfacing and chip seals, constituent materials are pretested and approved with aggregate being tested at the last point of stockpiling

South Carolina

- Thin lifts are tested/accepted based on lift thickness and the extraction process
- Sampling the raw materials for microsurfacing and chip seals – emulsions and aggregates - separately

Sampling and Testing Thin Lifts

Virginia

- Thin lifts are tested/accepted in the same way as other asphalt overlays, with minor modifications made to Vol 2 of contracts for field density acceptance

West Virginia

- For microsurfacing and chip seals -
  - Sampling aggregate stockpiles
  - Liquids must be from an approved source or sampled and tested for compliance
  - Checking application rate and AC from the process calibration

Status of MEPDG Implementation

North Carolina

- Have been using it on major projects
- Using research findings and modifying failure criteria to get more reasonable results

South Carolina

- Moving slowly – conducting research on calibration of the design guide to local conditions

Status of MEPDG Implementation

Virginia

- Have a proposed schedule of activities for implementation:
  - January 2014 – ME analysis will be conducted on all mix designs (that used AASHTO 1993 methodology)
  - February 2014 - User manual to be made publicly available
  - January 2015 – All pavement designs will be developed based on ME design procedure

West Virginia

- Still in the early stages of implementing MEPDG
- Continued using the FWD on a more widespread project level basis and trying to document subgrade and layer values better
- Want to work on developing more lab data to supplement FWD values
- Continued use of PerRoad when warranted due to high traffic loads

Type of mix verification being used?

North Carolina

- Using a moving average testing for mix verification
- No statistical analysis is used

South Carolina

- Using percent within limits (PWL)
- Using a separate verification process using the contractor's results and independent samples – F and t testing
- Checking for binder content, AV, and VMA using F and t.

Type of mix verification being used?

Virginia

- Use a system based approach for IA testing of plant produced materials
- Acceptance at the plant based on contractor QC test results – evaluated on a system basis by split samples per 23CFR637.207(a) (2) using a statistical method of IA sampling and testing. See Virginia Test Method VTM 59.

West Virginia

- Still sampling to verify maximum gravity
- On projects that do not use roadway sampling – verify volumetrics and compare to QC testing
- New PWL spec will verify the MSG from a plant sample but check AC and gradation from a loose sample
- Looking into checking volumetrics from loose samples

Other Misc. Items…

Virginia

- First VDOT Porous Asphalt Pavement constructed in 2013
- Moving forward with cold recycled asphalt specs and research
- Participated in SHRP2 R06 study on mixture uniformity measurements with PAVE-IR and GPR

West Virginia

- Overall seeing the use of microsurfacing as a positive
- Evaluating the High Performance Thin Overlay and have identified some issues with scoping the projects – but the combination of HPTO on a micro-milled surface looks like it may become an option for interstate and multi-lane pavements to help control transverse cracking
- Just completed two CIR projects – one was excellent the other not. Evaluating the cause(s) of the poor project with the intent to implement this process further

SEAUPG Eastern Region Update - 2013

Special thanks to:

- **North Carolina – Todd Whittington**
  twhittington@ncdot.gov
- **South Carolina – Cliff Selkinghaus**
  selkinghcb@scdot.org
- **Virginia – Rob Crandol**
  Robert.Crandol@VDOT.Virginia.gov
- **West Virginia – Thomas J. Medvick**
  Thomas.j.medvick@wv.gov