State Discussion Topics – 2003
Montana

1. What is the status of Superpave implementation for both binder and mixtures?

   Montana is 100% PG binder, and has been for several years.

   Superpave Gyratory Mixtures are generally used on all projects with tonnage above 10,000 MT. This is about 50% of the tonnage produced. Other projects are designed using the Marshall method.

2. What are the primary PG binder grades being used? Does your state use any SHRP plus tests and the reason for their use? Do you have any plans to implement AASHTO MP1a?

   Main "Work Horse" Binder
   PG 70-28

   Other Binders
   PG 64-28
   PG 64-34
   PG 64-22
   PG 58-28 Primarily used in RAP mixes.

   Modified asphalts are required to meet the following "SHRP +" spec. This was implemented in response to problems with EVA modified binders.
   PERFORMANCE GRADED ASPHALT BINDER - DUCTILITY
   Ensure PG 64-34, PG 70-28, and PG 64-28 meet the following, after Rolling Thin Film Oven aging, and testing under AASHTO T-51:
   Ductility: 30 cm minimum @ Pull Rate: 5 cm/minute @ Sample temperature: 25°C

   There are no plans to adopt MP-1a at this time.

3. There has been much recent discussion on the affects of acid modification of binders. Is your state concerned with the issue of chemical modification? Does your state have any specifications to address chemical modification of PG binders?

   There is no spec to address this, and will not likely be unless a problem is found.

4. There has been a concern that Superpave mixtures may be over compacted, resulting in low binder contents and reduced durability and fatigue life. Is your state doing any testing, other than gyratory compaction, do determine if the mixture has adequate binder? Has your state taken any action or modified the Superpave procedures to insure adequate binder in the mixture?

We are concerned with the low asphalt contents, and have found that the move away from back calculating to Ndes has exasperated the problem, resulting in about 0.2% further lowering of the asphalt content. We have moved the void target to a range of 3.4 to 4%, required to be the lowest void content within that range such that the other volumetrics are met. There is also a Hamburg requirement on our newest version of the Superpave specification.

5. What procedures does your state use to specify aggregate durability for HMA (sodium sulfate, magnesium sulfate, freeze thaw, or other)? Have you done any research with Micro Deval and do you have any plans to replace your present specifications with Micro Deval?

   We have recently changed from our old "petrographic" analysis to the sodium or magnesium sulfate soundness test. No research into Micro Deval, but are interested.

6. Does your state routinely specify Stone Mastic Asphalt (SMA) mixtures? Approximately how many tons of SMA is placed each year? Do you use AASHTO MP2 and PP41 for specifications and design or what significant modification to these have you made? Do you have any construction quality issues and how are SMA mixture performing?

   Montana has not used SMA mixtures.

7. Has the performance of longitudinal joints been as issue? What type of joint is required or generally constructed by contractors? Do you require any QC or QA procedures such as density or permeability at the joint?

   There have been some longitudinal joint problems, but not a big problem. The required joint has a square corner at the top, then 5:1 slope. Density tests are not taken for QA within 1 foot of a free edge, however once the meeting pass is constructed and the joint is formed, the joint is eligible for the random density tests. No separate testing is done of the joints.

8. Do you regularly see paver related segregation (linear streaks either at or just below the mat surface) and do you have a specification to address it? Do feel temperature segregation is a problem and do you have a specification to address it?

   Observed paver related segregation is not common.. The Contractor is required to address any problem like this as it occurs to eliminate it. There is no specification to address temperature segregation.

9. Are there any recent or pending rule changes by your state EPA that may impact specifications or changes to products? Has there been any recent legislation that will impact the refining or HMA paving industries?

   Unaware of anything specific.

10. What is the single most concerning issue with the quality of HMA in your state?

The long term durability of the coarse graded Superpave mixes we use is a concern. We are experiencing stripping in several of our recently placed mixes after only two or three winters. We have found no apparent cause for these problems, except a possible binder connection.