District 61
Pilot Asphalt Specification Review
502 Mixture Design Changes

November 10th, 2015
Sam Cooper
Materials Research Administrator
District 61 Conference Room
502 Mixture Design Specification

- Mixture Design Requirements
- Production Inspection
- Laboratory Evaluation
502 Asphalt Mixtures – General Changes

- Added SMA (Old 508), and Asphalt Treated Base
- Added binder substitutions; Allow:
  - PG82-22rm, latex modified, hydrated lime mixture,
  - PG 70 for PG 76 if LWT is passing
- Require Contractor QC data entry into data system
- Pay on Roadway Density of ton received on project.
- Measure smoothness of “project” instead of lot
- Changed Localized Roughness
Brief Summary of 502 Design Changes

• Two levels of design (1 and 2)
  – Gyrations
  – VMA
  – VFA
  – LWT
  – SCB
  – Rap $G_{sb}$ to replace $G_{se}$

• Note lift thickness limits of mix on JMF

• $G_{mm}$ from validation replaces design $G_{mm}$

• All laboratories must be accredited by AMRL or CMEC.
New Mix Design is Required

• No existing mix design will be accepted.
• Lab Tech to design new mix and all submittal will be done through LaPave
• District Lab Engineer will approve mix for the validation process.
502 - Asphalt Mix Design Changes

- Lowered Gyrations (Level 1 and Level 2)
  - L1: 65 Gyrations $N_d$
  - L2: 75 Gyrations $N_d$

- VTM Remains (Air Voids)
  - 3.5%

- Raised design VFA
  - 72%

- Raised VMA
  - 0.5% Increase for each NMAS
• RAP Aggregate – Bulk Specific Gravity ($G_{sb, \text{RAP}}$)
  – Replace $G_{se}$ for composite mixture $G_{sb}$
  – Determine $G_{mm}$ of RAP mixture – Rice
  – Determine Asphalt Content – Ignition
  – Compute $G_{se}$
  – Back-calculate RAP Aggregate $G_{sb}$ – QA Manual
    • Assume asphalt absorption ($P_{ba}$) = 1%
  – Use back-calculated RAP $G_{sb}$ to compute composite $G_{sb}$ on JMF
502 - Asphalt Mix Design Changes

- LWT required for all mixtures – verified by DL
  - L1: 10mm @ 20K passes (maximum)
  - L2: 6mm @ 20K passes (maximum)

- SCB required for all mixtures – verified by LTRC – Pilot Projects
  - L1: PG 70-22m, 0.5 kJ/m² (minimum)
  - L2: PG 76-22m, 0.6 kJ/m² (minimum)

- Allow for 5% increase in RAP if “fractionated” -split on the 1”. (still must meet LWT and SCB)
502 Production Changes

- Plant Inspector is being removed from the Hot Mix Plant on a daily basis.
- LADOTD is instituting the roving Asphalt District Inspector (ADI).
  - This inspector can inspect HMA on the roadway, at the plant, and at testing laboratories.
- The regular roadway inspector will inspect the roadway project as always.
502 JMF Validation

- Validation Lot is 2000 tons.
- ADI and Lab Tech will work together to produce the best mix in the middle of the spec.
- All mix information will be reported into LA Pave daily (cob)
- 5 roadway cores will be evaluated by PWL for mix design CONDITIONAL validation approval.
- 10 gyratory specimens for laboratory verification
  - LWT, SCB
502 JMF Validation

- Laboratory Verification
  - LWT (4 specimen: 60mm height, 7 ± 1% air voids) - DL
  - SCB (6 specimen: 60mm height, 7 ± 1% air voids) - LTRC
- LWT must pass for FINAL Validation Approval
- SCB verification for Information Purposes
  - Specimens evaluated by LTRC for Pilot Projects
502 JMF in Plant Production

- NO PAY PARAMETERS for the plant.
  - It is assumed that the mix produced is 100%, contractor QC
- No daily Inspector present, he is roving.
- Contractor Lab Tech is running daily QC
  - reporting results: LA Pave excel spreadsheet emailed to Lab Engineer daily.
- JMF (#1) is reported as a P-Lot.
  - P-Lots are associated with JMF and are not job specific and have NO PAY parameters.
- JMF’s are revalidated every two years but never expire.
• Minor mix,
  – pay with mainline or paid per mainline methods if paved >7’ separately.

• Other Minor mix, pay per tons received, 100%;
  – If voids at plant are out of spec; adjusted pay 5%.
Quality Manual

• Design Requirements, submittal forms, detail of mix design data required by DOTD, etc.
• QC/QA; Requirements of Contractor and minimum requirements of DOTD ADI.
• Example 1000 Ton “P Lots”,
• Outline of Quality level analysis procedures, PWL etc.
• Example roadway lot and pay calculations
Independent Assurance Team

- Will be available on all large pilot projects in Contractors lab and District lab to review and assist quality team as needed. And will provide resolution testing.
- Team established to provide system analysis of contractors plant lab and DOTD district labs
- Provide performance review for every technician.
- Provide and analyze proficiency samples for all asphalt lab certified technicians
Certification

- Roadway Equipment is not certified, it is “verified” on the roadway by DOTD roadway inspector check list.
- Plant Certification every other year
- Technician Certification - 5 year cycle
  - Must have successfully demonstrated all performances.
  - All Proficiency samples to be distributed to each technician a minimum of once per year
- Accreditation
  - Every other year (AMRL or CEMC)
502 Acceptance, Verification, and Resolution – JMF By Lot

• Method 1:
  – 15 Acceptance – DOTD District Laboratory
  – 5 Verification – Contractor
  – 5 Resolution – Independent Certified Laboratory

• Method 2: (if contractor and dotd sufficiently agree)
  – 15 Acceptance – Contractor
  – 5 Verification – DOTD District Laboratory
  – 5 Resolution – Independent Certified Laboratory
Questions?