

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)
 - Gyration
 - 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

Table 502 - 7

- Lowered Gyration (Level 1 and Level 2)
 - L1: 65 Gyration N_d
 - L2: 75 Gyration N_d
- VTM Remains (Air Voids)
 - 3.5%
- Raised design VFA
 - 72%
- Raised VMA
 - 0.5% Increase for each NMAS

502 - Asphalt Mix Design Changes

- RAP Aggregate – Bulk Specific Gravity ($G_{sb, RAP}$)
 - 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

Table 502 - 7

- 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, $7 \pm 1\%$ air voids) - DL
 - SCB (6 specimen: 60mm height, $7 \pm 1\%$ 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.

502 Asphalt Materials - New Terms

- 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?