

# District 61 Pilot Asphalt Specification Review 502 Mixture Design Changes

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# 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/m<sup>2</sup> (minimum)
  - L2: PG 76-22m, 0.6 kJ/m<sup>2</sup> (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?

