Bituminous Percent Within Tolerance (PWT)

March 30 – April 1, 2015
What Does PWT Drive?

• Strict adherence to producing the job mix formula

• Strict adherence to field density spec. requirements
Advantages of PWT

• Well suited to a low bid system
• Contractors with tighter adherence to targets are able to achieve bonuses
• Contractors with loose adherence to targets have reduced payment
• Moves focus to targets rather than achieving minimums
What’s different with PWT spec?

• Adds a bonus structure (maximum 4%)
• Adds mix gradation as part of payment
• Eliminates the current “field goal” approach for 100% payment (good or no good)
• Results in many fewer 100% payments and spreads these out (bonus and penalty)
Payment Equation Changes

- Current specification (50% mix, 50% density)
  - 25% asphalt content
  - 25% #200 sieve
  - 50% field density

- PWT SSP (50% mix, 50% density)
  - 30% asphalt content
  - 10% #200 sieve
  - 10% primary control sieve (new)
  - 50% field density
Common to All PWT Specs

• Defective lots can be left in place at 70% pay by DE (previously 50% pay)

• Now allows a contractor to terminate a lot
  ➢ Allows contractor to limit risk when early QC results indicate an issue
  ➢ Must stop paving
  ➢ 90% maximum pay
  ➢ Must R&R if defective by test results
How different are these materials?

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<thead>
<tr>
<th>Target</th>
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How is PennDOT Implementing PWT?

• Three methods have gone through the CT process:

  1. PWT-LTS
  2. PWT-HOLA
  3. PWT-LA
PWT-LTS

• LTS = Laboratory Testing Section in Harrisburg
• Very similar to current process
• Allows a contractor option to expedite sample delivery to Harrisburg (LTS)
  ➢ Inspection staff secures samples
  ➢ Secure samples given to contractor
  ➢ Contractor delivers to LTS at their cost
  ➢ LTS to verify security prior to testing
PWT-LTS Use Guidelines

• Draft memo includes the following:
  
  • Number of projects
  
  • Impact to total cost of project
  
  • Federal Aid/NHS and 100% State/Non-NHS
  
  • Projects constructed in 2015 and beyond
  
  • Appropriate projects to use PWT-LTS on
What is Local Acceptance?

- HMA/WMA Material samples collected as usual
- Acceptance testing performed at the producers lab or another mutually acceptable lab
- No acceptance testing at the LTS, except for a dispute resolution situation
Staffing HOLA Testing

- Districts will need to allocate certified plant inspectors to perform testing
- Shortage in qualified staff
- May need to coordinate testing for out of District sources
Contractor’s Lab Assessment

• Local acceptance lab will need AMRL on-site proficiency assessment
• Every two years
• Assessment on the equipment to be used for acceptance
Independent Assurance

• Required by 23 CFR 637
• First lot and randomly once for every ten thereafter
• Performed at the LTS
• Ensures sampling and testing is performed correctly
• Ensures testing equipment used is operating correctly and remains calibrated
Local Acceptance QC Plan

- Separate LA QC Plan required to detail specifics

- Must submit at least 3 weeks before start of paving

- Must identify lab and equipment for testing
Local Acceptance Equipment Requirements

• Equipment for Department use
• Representative reviews equipment
• Can remove from service if it does not meet requirements
• Department may reject lab if insufficient equipment available
Sample Transportation and Security

- Tamper proof coolers with clasps and unique, unopened padlock
- Must be capable of relocking for storage
Sample Transportation and Security

• Alternative: Coolers with uniquely numbered security tags
• Only one lot per container
Sample Security

• Sealed containers first inspected for security. Upon opening, samples and paperwork to be examined.

• If evidence of compromised security, Dept. may reject for testing, suspend paving operations and require additional samples to be taken.
Sample Paperwork

- Paperwork (TR-447) is the same
- Worksheets keep records of test results
- Paperwork to be retained for 3 years
Lot Testing

• Testing to begin once lot is complete
• LA testing takes priority over other testing
• Contractor’s technician may be present to witness, but not required
• Contractor may saw cut density cores for testing
Lot Density Testing

• Cores to be cut to remove extra material
• Sample to be dried, weighed, saturated, etc.
• The quickest of the tests to perform
Lot Mixture Testing

- Samples conditioned, then reduced in size
- Ignition oven or solvent extraction testing for asphalt content
Lot Mixture Testing

- Gradation by shaker after asphalt removed
- Wash test required to account for all fines

Wash testing a sample
Gmm Verification Testing

• Gmm verification testing will still be required on federal aid projects and project on the NHS
Testing Productivity

• How many samples can an inspector test in a normal day?
  ➢ 3-4 loose boxes OR 2 loose boxes, 5 cores and 1 Gmm
  ➢ On a good day 4-5 loose boxes, on a bad day 1 or 2
  ➢ 4-5 loose samples per day
  ➢ Consensus was that cores are pretty quick once dried.
District Concerns/Issues

Equipment:
- Having enough equipment
- Inspectors familiar with equipment
- Space for QC testing and acceptance testing at same time
District Concerns/Issues

Manpower:
• Need more trained and certified inspectors
• Challenge to dedicate staffing to LA testing and meet all other Materials Unit duties (aggregate, concrete, SOS, records audits, etc.)

Training:
• Many inspectors are certified, but have little experience in testing
District Concerns/Issues

Samples outside of District:
- If material is coming from another District will require up front coordination
- Districts may need to test material going into another District
- Again, staffing demands may make this difficult, depending on the amount of local acceptance
Pros

• Quicker test results (less than 1 week compared to around 16 days for LTS)
• Producers lab equipment (ignition oven wash methods) provides test results most closely linked to design procedures
• Real time results enable corrections to be made for placement improvements
• Department inspection staff enhanced knowledge and technical ability
Cons

- Increased demand on Materials Unit staff
- Lack of experienced personnel able to conduct testing as required (improving in this area)
- More producer equipment required
- AMRL proficiency assessment required
- Staffing coordination between Districts can be challenging when material is produced and placed in two separate Districts
- Extra testing required due to IA component
Questions?