2013
APAM Conference
MDOT HMA Update

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3-27-13
Hot Mix Asphalt (HMA) Update

- Longitudinal Joint Specification
- Reclaimed Asphalt Pavement (RAP)/ Recycled Asphalt Shingles (RAS) Specification
- Warm Mix Asphalt (WMA)
- Safety Edge/Every Day Counts (2)
- Crumb Rubber Pilot Project
- Capital Preventive Maintenance (CPM) Binder Selection
- Witness Samples for HMA Binder
- HMA Ultra-Thin Overlay
- Ride Quality- Fine Toothed Mill
- Core Handling Procedure
- Local Agencies
Longitudinal Joint 12SP501Y

• April 2012
  ✓ Joints with same mix and lift on both sides of joint
  ✓ Incentive for densities over 91.5%
  ✓ $1 per foot pay item, reduced for densities below 90.5%
  ✓ Remove and Replace below 88%, no payment

• June 2012
  ✓ All longitudinal joints

• October 2012
  ✓ Removed $1 per foot pay item
  ✓ Incentive/Disincentive Remain
  ✓ Other minor changes
Longitudinal Joint 12SP501Y

Future Changes

• Minimum number of cores on small projects

• Construction staging issues

• Minimum core thickness

• Remove and replace Issue
Longitudinal Joint 12SP501Y

Density History

• 2009- Informational Average Density 89.8

• 2011- Pilot 90.7 (Carrot, Small Stick)

• 2012- FUSP 91.6 (Bigger Stick (hammer))

VS.
• December 2012 Reclaimed Asphalt Pavement (RAP) Specification

✓ Removed exclusion limiting E3 and higher mixes used as leveling or top course to 17% RAP (changed to 27%)

✓ Corresponding change to 12SP904. No longer limiting RAP to 17% when a polymer binder is specified.

• Recycled Asphalt Shingles (RAS)

✓ Working on specification for permissive use of RAS

✓ Once finalized it will be retroactive to December 2012 RAP specification
• Recycled Asphalt Shingles (RAS)
  ✓ RAS materials must not contribute more than 17% by weight of the total binder content
  ✓ Material from manufacturing of asphalt roofing shingles (post-manufacturer RAS) or from tear-off shingles from residential structures (post-consumer RAS)
  ✓ Stockpile separately
  ✓ May blend with 20% fine aggregate
    ➢ Helps avoid clumping and assists in metering from feed bins
    ➢ Blended RAS and fine aggregate considered final RAS product (not fine aggregate)
  ✓ 95-100% passing 3/8 inch sieve, 90-100% passing no. 4
  ✓ Tier 2 and Tier 3 requires blending chart if RAS used
Current Specification

• Permissive use specification

• E10, E3, E1, E03 LVSP

• Water Foaming

• BOHIM12-09- For projects specifying Superpave Mix Types E30, E50 or GGSP, Construction Field Services (CFS) must be consulted and approve of the change.
Warm Mix Asphalt 12SP501Z

Future

- Looking into allowing use on E30, E50 and Gap Graded Superpave
- Looking into allowing chemical additives (mirror Colorado program)
  - Evotherm
  - Advera
- Every Day Counts- Federal Highway Administration (FHWA)
  - Every Day Counts is designed to identify and deploy innovation aimed at shortening project delivery, enhancing the safety of our roadways, and protecting the environment.
Every Day Counts 2/Safety Edge

- The Safety Edge is a simple but extremely effective solution that can help save lives by allowing drivers who drift off highways to return to the road safely.

- Instead of a vertical drop-off, the Safety Edge consolidates the edge of the pavement at 30 degrees.
Safety Edge

- MDOT finalizing policy on Safety Edge
  - All temporary roads
  - Roads without rumble strips and speed limit >= 45mph
Crumb Rubber Pilot Project

M-57 Grand Region

• Allows Wet Process or Terminal Blend (contractor’s option)
• 3 binders (64-22, 70-22P, 70-22 crumb rubber modified)
• 6000 tons HMA 5E3 Crumb Rubber Modified
• Possible Open House/Educational Session
• Bids
  ✓ Low Bidder- $79.45 vs $85.83
  ✓ 2nd Bidder- $71.15 vs $102.97
Capital Preventive Maintenance (CPM) Binder Selection

• Concern over premature cracking on CPM projects

• Focus is on low end of binder grade

• Goal is to have changes in place for 2014. This timeline may be accelerated.
# Capital Preventive Maintenance (CPM) Binder Selection

<table>
<thead>
<tr>
<th></th>
<th>Com. ADT 0-300</th>
<th>Com. ADT 301-700</th>
<th>Com. ADT 701-1000</th>
<th>Com. ADT 1001-3400</th>
<th>Com. ADT ≥3401</th>
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<tbody>
<tr>
<td>LVSP/E03</td>
<td>5E1</td>
<td>5E3</td>
<td>5E10</td>
<td>GGSP or 5E30</td>
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<tr>
<td>PG 58-28*</td>
<td>PG58-28*</td>
<td>PG64-28*</td>
<td>PG64-28*</td>
<td>PG70-28P*</td>
<td></td>
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* Use PG58-34 asphalt binder in the Superior Region for full depth flexible pavements. Use PG58-28 asphalt binder in the Superior Region for composite pavements.
Witness Samples for HMA Binders

• Partnering with the Federal Highway Administration (FHWA)

• Goal is to have one witness sample per asphalt binder grade on every project

• Timeliness- Encouraging witness samples early in process & timely delivery to Lansing
Additional Items/Notes

• HMA Ultra-Thin Overlay
  ✓ Working to convert from Marshall Mix to Gyratory Mix

• Local Agency
  ✓ FUSP for Roller Method Acceptance

• Ride Quality
  ✓ Fine toothed mill- allow on projects with old Ride Quality specification

• Core Handling Procedure
Good Government In Action

• Good Government In Action
  • Adoption of methods to make strategically important changes
  • Focus on closing performance gaps for anything strategically important
  • Customer satisfaction is the primary goal

• HMA Operations Wildly Important Goal
  • Focus on dispute resolution turn around time
  • Ties into customer service
HMA Operations

• HMA Operations
  • John Barak- Asphalt Materials
  • Nathan Maack- Mix Design
  • Tim Crook- HMA Binders
  • Marc Beyer- Materials/Mixtures/Field Expertise
  • Eric Oudsema- HMA Lab

• Capital Preventive Maintenance Engineer/Warranty Administration
  • Erin Chelotti
Questions?

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