IDOT HMA Update

William R. Frey, P.E.
Deputy Director, Assistant to the Chief Engineer
Illinois Department of Transportation

Illinois Asphalt Paving Association
PG Liquid Binder Usage
Percent Polymer Usage 2003 to 2009
Tons of Binder Used (in thousands)
2003 to 2009 Grade Usage

Usage Percent

PG 64-22  PG 70-22 Mod  PG 58-22  PG 76-22 Mod  PG 76-28 Mod  PG 70-28 Mod

Colors:
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008
- 2009
AC Price Index
AC/Oil/Gasoline Price Comparison

IDOT AC
Crude Oil
Gasoline
Other State AC *

$/Ton

Jan-07  Mar-07  May-07  Jul-07  Sep-07  Nov-07  Jan-08  Mar-08  May-08  Jul-08  Sep-08  Nov-08  Jan-09  Mar-09  May-09  Jul-09  Sep-09  Nov-09  Jan-10

882.14
520.29
485.68
Liquid AC Sampling at HMA Plants
Samples

• Best sample location is….
  – Representative of what is going into mix
  – Taken just prior to incorporation into mix
• If no sample port – needed per Art 1102.01
Sampling

• Must label all sample locations on plant
  – Tank 1, 2
  – Line 1, 2 and so on

• Sample frequency
  – Doubling to at least 1/week

• Witnessing
  – Contractor supplied samples not allowed
  – Contractor assistance by physically taking sample appreciated
  – Must be witnessed by State
Sample at closest point to the mix - at Injection Line
Material Acceptance for HMA
Evolution of Acceptance

- Method Specifications
  - Served well till 1980’s
- QC/QA Specifications
  - Served well past 20+ years
  - Educated and trained industry
  - Transferred responsibility of mix to contractor
  - System worked while facing staff reductions
NEXT STAGE

Pay for Performance (PFP)
Adjusts Contractors pay +/-
- Based upon quality provided
  - IDOT selects sample time/location
  - IDOT Secures and test samples
- All is independent of Contractor
- Meets all Federal codes
Implementation Goals

- 2010
  - At least one PFP project per district

- 2011 to 2013
  - Roll out period
  - IDOT builds and trains staff
  - Equip labs
  - Refines procedures/specs

- 2014 – All projects over 8,000 tons
Longitudinal Joint Density Specification
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- Joints
  - Traditional low density area
  - Weak link - first location to pothole

- IDOT / Industry developed Longitudinal Joint Density Specification

- Became effective January 2010 letting

- Look for it in projects this summer
FRICION AGGREGATE AVAILABILITY
Steel Slag
- Traditional high friction aggregate
- Steel mills shut down
- Very limited supply

IDOT explored and tested new sources

Seven Wisconsin sources being added
- Diabase (2)
- Granite (2)
- Quartzite (3)
New Sources for “F” Mix Aggregate
RAP Update
What Is RAP Aggregate Quality?

- New aggregate going in:
  - Surface: Only A or B quality allowed
  - Binder: A, B or C quality
  - Shoulders: A, B, C or D quality

- Once milled tracking quality is difficult

- Mixed piles could have multiple qualities
Solution

- Test RAP aggregate for quality
  - Traditional quality test do not work
  - AC coating interferes with test

- Recently developed procedures for assigning aggregate quality of RAP
RAP Aggregate Quality Process

- Crush/screen pile up to 5,000 tons
- Sample – Multi locations and blend
- Extract AC off aggregate
- Send aggregate sample to Springfield for testing
- If passes aggregate assigned “B” Quality
RAP Aggregate Quality
Micro Deval Test

Sample +
with Water

9,500
Revolutions
Before
Note sharp edges

After
Rounded edges
Recycled Asphalt Shingles (RAS)
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1) Waste from manufacturing
   - Tabs/End runs
   - Out of specification material – color & coating

2) Tear-offs from reroofing - old shingles
   - Single layer: 20+/- years old
   - Double layer: 35-45 years old
   - Triple layer: 50-70 years old
   - Very hard asphalt
   - Asbestos????
2009 RAS Efforts

- Demo Project – Manufactures waste
  - District #1
  - Gallagher Asphalt
  - Bishop Ford

- 5% RAS in SMA binder & surface
  - 20% replacement of asphalt binder
  - Sections using PG76-22 & PG70-22
  - Moisture, strength & rheology testing being tested by District #1, U of I & BMPR
Future of RAS at IDOT

- Manufactured Waste
  - Statewide RAS Spec being developed
  - Contractor may propose use anytime

- Tear-Off Shingles - Tollway took lead with ILEPA
  - Established a “Beneficial Use” of waste product
  - Tollway policy developed
  - Uses a self-testing program by processor for asbestos
Tear-Off Future at IDOT

- Asbestos concern
  - Bad taste from bridge deck waterproofing systems that contained asbestos
  - Final owner of asbestos responsible for clean up
  - 1 ton asbestos RAS = 100 asbestos HMA mix

- Self testing programs are very weak

- IDOT needs to be made whole if processor allows asbestos in RAS/roadway

- Will allow once asbestos risk addressed
WARM MIX ASPHALT
Currently all projects let as HMA

Contractor may propose a Warm Mix

District will review

Contractor will be asked to address a number of key issues – Production, Haul time, mix changes, RAP%...

If RAP increased state may be due a credit
Contractors seem excited about using – especially foam
- Foaming technology installed state wide
- Fuel savings
- Improved worker health/conditions

BMPR tracking projects

As technology proves out – will work with industry to develop standard specifications
Senate Bill 51
Senate Bill 54
Questions??