

The IDOT Update



RAP

Improvements

Expanded Usage

- **Developed Low Vol. Mix allowing 30% RAP**
- **2000 Began allowing RAP in Superpave mixes**
- **2002 Worked w/ Dist 1 & Industry to improve RAP to expand usage**
 - **Quality Problems**
 - **Locals were not allowing RAP**

Resulting Spec Changes

- **Expanded areas where RAP can originate from:**
 - **Federal, State or Local Agency (incl. airfields)**
- **Added minus 5/8” crushing requirement for Conglomerate RAP**
- **New Conglomerate “D” Quality (DQ) Stockpile**
 - **Contain BAM**
 - **DQ can be used in Stabilized Subbase and BAM Shoulders**

RAP Spec Changes for 2002

- **Added separate listing of wider tolerances for Conglomerate DQ**
- **Added wording to allow crusher (lump breaker) in lieu of scalping screen**

Benefits

- **New RAP more consistent product**
- **Contractors having fewer problems controlling their mixes**

What Now?

- **Industry needs to convince Local Agencies:**
 - **RAP is now a better, more consistent product**
 - **To specify the maximum allowable RAP in the Plans**

FREE CARE-AC



Fact or Fiction?



What is CARE-AC ?

- Bituminous software package
 - Mix designs
 - Daily plant control
 - Nuc/Core correlations
 - Random samples
 - Stockpiles
- Calculations
- Reports

Bureau of Information Processing (BIP)

- Agreed to:
 - Rewrite CARE-AC as Access/Excel Program
 - Support new Access/Excel Program
- Conversion and continued support guided by committee of department and industry members

Features:

- More User Friendly
- New N15 Nuc/Core correlation procedure
- Ignition Calibrations
- Improved interaction between designs and daily work
- Electronic Transfer (MISTIC)

New CARE-AC

■ When?

- Target late Spring
- Beta testing 2003 (*very limited basis*)
- 2004 - Training & Distribution

■ Free?

- Yes, except for purchase of Access/Excel software

■ Special Computer Needs?

- Yes - Must be capable of running Access/Excel

End

Result

Specification

What is ERS?

=> Pay for Quality of Production

- **Select quality parameters**
 - **Plant: AC & Voids**
 - **Field: Density**
 - **Determine pay adjustment**
 - **Based on consistency and accuracy**
-

Single Test vs. Statistical

- **QC/QA - pass/fail**
 - No disincentive to target the minimum
 - Reaction to failing test
 - Never evaluate how much failure
 - **ERS**
 - Incentive to target middle of spec.
 - Reaction to continuous production
 - Evaluate the placed mixture
-

Status

- **2000 - 5 demos (2,3,5,6,8)**
NO Disincentive
 - **2001 - 2 projects (5,6)**
 - **2002 - 8 projects (3,4,5,6,7)**
-

Average Pay

Description	Before Dis. (7 mixes)	After Dis. (12 mixes)
AC (30%)	100.9	
Voids (30%)	98.0	
Density (40%)	96.5	
Combined	98.3	

Average Pay

Description	Before Dis. (7 mixes)	After Dis. (12 mixes)
AC (30%)	100.9	104.4
Voids (30%)	98.0	104.1
Density (40%)	96.5	101.9
Combined	98.3	102.7

Better Pay with Disincentive?

- **Attention to detail**
 - **Improved communication**
 - **Improved reaction time**
 - **Preventative measures**
 - **Increased compaction awareness**
-

Future

- **Spec. updates for 2003**
 - **2003:**
 - **Currently 11 projects (3,4,5,6,8)**
 - **Approval on job by job basis**
 - **Encourage all districts to experience**
-



BMPR

on

IDOT'S

WEBSITE

IDOT Website Address

www.dot.state.il.us

Just a click away

Doing Business

Construction Guides

- [Bridge CADD Support](#)
- [Bureau of Local Roads Special Provisions /Check Sheet/Usage Sheet](#)
- [Construction Inspector's Checklists](#)
- [Equal Employment Opportunity Officers Guide](#)
- [Bridge Special Provisions \(GBSP\)](#)
- [Specifications/Standards/Special Provisions /Highway Standards](#)
- [ICORS Report Tools](#)
- [Schedule of Average Annual Equipment Ownership Expense](#)
- [TSL Drawings](#)

Contractor Services

- [Contractor's Market Place](#)
- [Contractor Pay Estimates](#)
- [Getting Paid Guide To Mechanics Lien & Bond Claims](#)
- [List of Prequalified Firms](#)
- [List of Registered Subcontractors](#)
- [Rules for Prequalification of Contractors](#)
- [Pay Item Summary](#)
- [Subcontractor Registration Form](#)

Consultant Services

- [CADD Standards/Downloads](#)
- [Consultant Forms](#)
- [Consultant Prequalification](#)
- [Facility Cost of Capital Rates](#)
- [Consultants Professional Transportation Bulletins](#)
- [Professional Transportation Bulletin Schedule](#)

Manuals - Memorandums

- [Aeronautics Materials, Manuals, & Policies](#)
- [All Bridge Designer Memoranda](#)
- [Bureau of Construction Memorandums](#)
- [Bureau of Bridges and Structures Manuals & Memorandums](#)
- [Bureau of Design and Environment Manuals & Memorandums](#)
- [Bureau of Local Roads Circular Letters](#)
- [Bureau of Local Roads Manual](#)
- [Construction Manual](#)
- [Geotechnical Manual](#)
- [Highways Manuals Order Form](#)
- [Illinois Highway Info System Roadway Info & Procedure Manual](#)
- [Illinois Highway Info System Structure Info & Procedure Manual **NEW**](#)
- [Manual on Uniform Traffic Control Devices **NEW**](#)
- [Oversize/Overweight Permit Policy Manual](#)
- [Project Procedures Guide](#)
- [Quality Standard for Work Zone Traffic Control Devices](#)

Materials

- [Approved Lists for Materials](#)
- [Materials "M" Specifications](#)
- [Materials & Physical Research Policy Memos](#)
- [Products Evaluation Circular](#)
- [Project Procedures Guide](#)

Small Business Enterprises

- [Introduction to Small Business Enterprises](#)
- [Announcements/Conferences/Workshops](#)

Left Navigation Menu:

- Home
- Traveling Public
- Doing Business
- News
- Public Partners
- Project Information
- General Information
- Site Index
- FAQ
- State Links
- Search Illinois
- Go
- Contact Us
- 2300 S. Dirksen Parkway, Springfield, IL 62764 (217) 782-7820
- Employment Opportunities

Taskbar:

- Start
- Inbox - Microsoft Outlook
- Exploring - A:\
- Microsoft PowerPoint - [Eri...
- Doing Business - Micr...
- Microsoft Office Shortcut Bar
- Local intranet
- 8:19 AM

Materials

- ◆ **Approved Lists for Materials**
- ◆ **Material “M” Specifications**
- ◆ **BM&PR Policy Memorandum**
- ◆ **Products Evaluation Circular**
- ◆ **Project & Procedures Guide**

Asphalt Product News

Asphalt Products Approval Source List

- **Internet**
- **Subscription Service**

New Product

- **Polymer Modified Emulsified Asphalt**
- **Tack Coat for Extended Life Pavements**

New Sources

- **Cutbacks**
 - Spirit Asphalt (Hazelwood, MO.)
- **PG Binders**
 - Seneca (Portage, IN.)
 - ConcoPhillips, formerly ToscoPetro (Forest View, IL.)

Grades Used (2002)

■ PG 64-22	54%
■ PG 58-22	20%
■ PG 70-22(Mod)	16%
■ PG 76-28(Mod)	3%
■ Other	7%

Polymer Modified Binder Usage

■ 1998	13%
■ 1999	19%
■ 2000	22%
■ 2001	24%
■ 2002	25%

Sand Mixture Layer

4.75 mm

Superpave Mix

What is Sand Mixture Layer ?

- ✓ **Mix with 100% Fine Aggregate**
- ✓ **Can be used as a Leveling Binder**

Typical Mix Design

Aggregate:

FM-20	64%	Stone Sand
FM-02	30%	Natural Sand
Mineral Filler	6%	Manufactured

Asphalt Cement:

SBS PG 76-28	8%
---------------------	-----------

Design Criteria

Air Voids **2.5% @ 50 Gyr**

VMA **20 Min**

VFA **80-95**

Drain Down **0.3% Max**

Mixture Composition

✓ Stone Sand/Slag sand

Stability

✓ Natural Sand

Flexibility

✓ Polymerized AC

✓ Mineral Filler/High AC

Waterproofing

Why Use SML ?

- ✓ **In-Place Density & Better Stability**
 - **94% - 97% Max Theoretical**
- ✓ **Resist reflective cracking**
- ✓ **Waterproof**
- ✓ **Improve ride**



District 1 Projects

✓ Ill Rte 83 in Lemont

✓ 147th Street at I-57

✓ I-57 SB Lanes near 147th Street







Summary

- ✓ **In-place density**
- ✓ **Resist reflective cracking**
- ✓ **Waterproof the pavement**
- ✓ **Improve ride**
- ✓ **Eliminate reflective crack control fabric**

Future

- ✓ Evaluate statewide as alternative to 3/4 inch Level Binder (limited basis)
- ✓ Evaluate use of FA21 to reduce FA20 & Mineral Filler

Density Initiative

Improved Density
Yields

Improved Pavement Life



FHWA / IDOT Process Review



- **Density specs & Procedures in Compliance**
- **Correlation using N15 recommended**
- **ERS specs promote improved density**
 - Average 5 vs. Individual
 - Incentive / Disincentive

Lift Thickness Policy Changes



- **Ratio of lift thickness to nominal top size of aggregate should be 3:1**
 - **3 x's NMAS**
- **NMAS = Nominal Maximum Aggregate Size**

Benefits of Increased Lift Thickness



- **Thicker lifts easier to compact, obtain density**
- **Lack of density correlated to increased permeability**
- **Increased permeability = potential oxidation, moisture damage, and rutting problems**

3 X's NMAS



- BDE 29-02 increases interstate binder lifts to 2-1/4"
- Superpave specials will be modified to meet 3 X's NMAS for all HMA applications
 - Effective January 1, 2003



Level Binder Changes

- Lifts that meet / exceed 3 X's NMAS criteria must meet density specs
 - CA-16 → 1-1/4"
 - CA-13 → 1-1/2"
- Define level binder as 12.5 mm or 9.5 mm mix
- Define binder as 25.0 mm or (A mix) or 19.0 mm (B mix)

Level Binder Changes



- **Limit level binder to 2" max thickness**
- **Drop 24-hour delay between placement of level binder and binder**

Joint Sealant

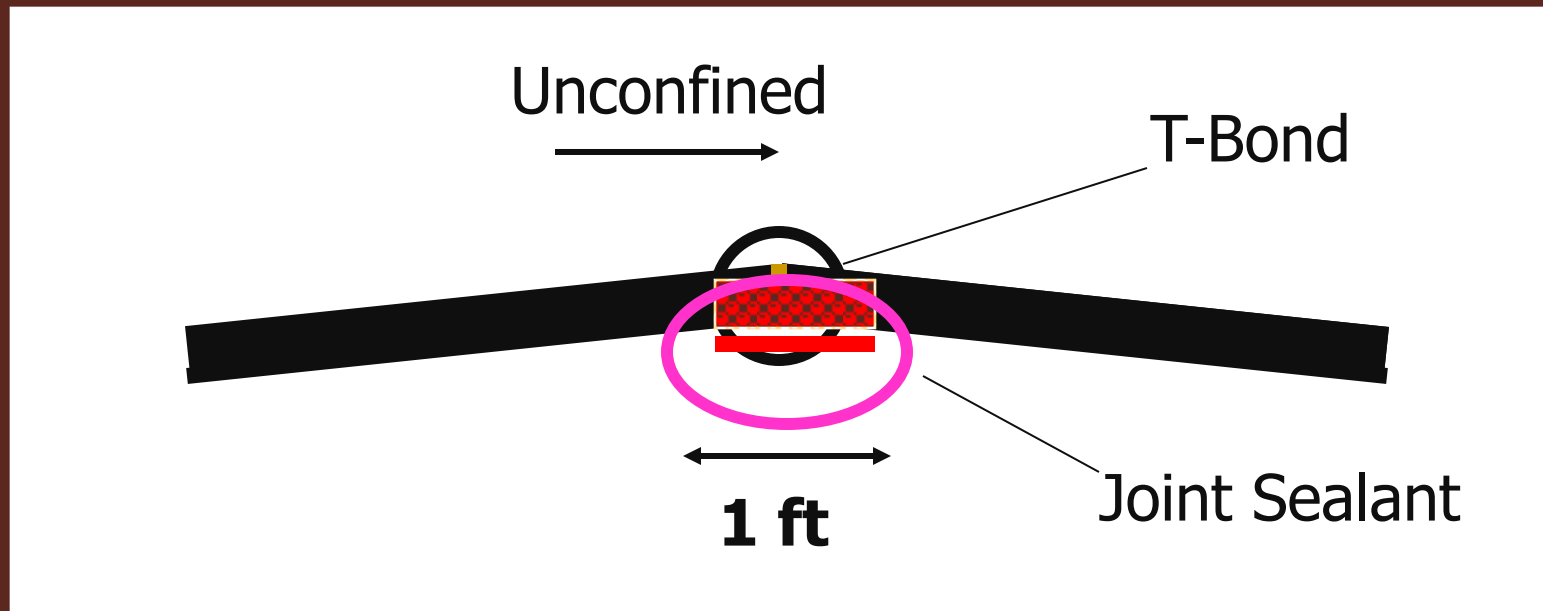


Problem

- **Premature deterioration of center line joint**
- **Caused by:**
 - **Difficulty in obtaining density at center line**
 - **Low density allows water damage and oxidation**

Joint Sealant Concept

- **Tape melts up into the joint thus:**
 - **Increasing density**
 - **Decreasing permeability**
 - **Increases joint life**



Initial Evaluations

□ Heritage

- Liquid application
- retention pond & subdivision

□ Quikpave

- Tape application
- D5 and D6 trials of a few ~3 foot sections
(different formulations)

Test Section 2002

- **D5 IL 51 South of Decatur**
- **2 products reviewed + double prime**
- **5 trial sections (each ~ 100 foot in length)**
- **4 control sections**
- **Nuclear readings, field permeability, and cores**

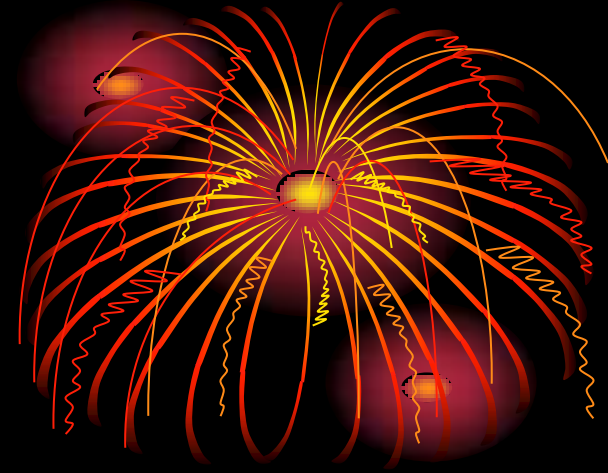
Demonstration 2002 – US 51

**Joint Sealant
Demo**

**US 51 D-5
2002**

Prospects

- **Depending on results: maybe a demo project with full usage**
- **Field review of completed trials**



THANK YOU