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

<table>
<thead>
<tr>
<th>Description</th>
<th>Before Dis. (7 mixes)</th>
<th>After Dis. (12 mixes)</th>
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<tbody>
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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
Doing Business

Construction Guides

Bridge CAD 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 Expenses
Tol 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

Appropriations Materials, Manuals, & Policies
All Bridge Designer Memoranda
Bureau of Construction Memorandums
Bureau of Bridges and Structures Manuals
Bureau of Design and Environment Manuals & Memorandums
Construction Manual
E&O Technical Manual
Highways Manuals Order Form
Illinois Highway Info System Roadway
Info & Procedure Manual
Illinois Highway Info System Structure NEW
Info & Procedure Manual
Manual on Uniform Traffic Control Devices NEW
Oversize/Oversize Permit Policy Manual
Project Procedures Guide
Quality Standard for Work Zone Traffic Control Devices

Materials

Approved Limits for Materials
Materials "M" Specifications
Materials & Physical Research Policy Manuals
Products Evaluation Circular
Project Procedures Guide

Small Business Enterprises

Introduction to Small Business Enterprises
Announcements/Conferences/Workshops

Contact Us

2300 S. Dirksen Parkway,
Springfield, IL 62704
(217) 782-7620

Employment Opportunities
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
- Natural Sand
- Polymerized AC
- Mineral Filler/High AC
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
Prospects

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