Pavement Preservation Training Opportunities

For Chip Seals, Slurry Seals & Micro Surfacing

Southeast Pavement Preservation Partnership
5-30-2013
San Antonio, TX
Pavement Preservation Training Opportunities

(Slurry Seal, Micro Surfacing & Chip Seal Treatments)

• International Slurry Surfacing Association
  Slurry Systems Workshop (SSWS)

• National Center for Pavement Preservation at Michigan State University
  Slurry Seal, Micro Surfacing, Chip Seals and Crack Treatment Classes (additional topics available)

• Federal Highway Administration & International Slurry Surfacing Association
  Interactive Web Based Training
ISSA
Slurry Systems Workshop

- Workshop topics include:
  - Introduction to Slurry Seal, Micro Surfacing, Chip Seals and Crack Treatments
  - Best Practices for Slurry Seal, Micro Surfacing, Chip Seals and Crack Treatments
  - Pavement preservation concept/ site selection
  - Mix design methods
  - Hand mix sessions
  - Calibration of Slurry & Micro Surfacing application equipment
  - Calibration of asphalt distributors and chip spreaders
  - Troubleshooting in the field
  - Project management
  - Combination treatments
  - Equipment showcase (innovations)
  - Live demonstrations (Micro Surfacing, Chip Seal and Crack Treatments)
### ISSA Slurry Systems Workshop

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<th>Year</th>
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<th>User Agency</th>
<th>Supplier</th>
<th>Total</th>
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### SSWS Attendance Breakdown 2000-2013

- **Contractor**
  - 2000: 33%
  - 2005: 51%
  - 2010: 33%

- **User Agency**
  - 2000: 5%
  - 2005: 19%
  - 2010: 5%

- **Supplier**
  - 2000: 44%
  - 2005: 51%
  - 2010: 33%
## ISSA Slurry Systems Workshop

### Attendance Breakdown by Year and Type

<table>
<thead>
<tr>
<th>Year</th>
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### Significant Drop in Agency Attendance

- From 2000 to 2013, there is a noticeable decrease in agency attendance.

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**Note:** The dataset visualized in the diagram shows a trend where contractor attendance has remained relatively stable, while user agency and supplier attendance have seen significant fluctuations and declines over the years.
ISSA Slurry Systems Workshop

Reasons to Attend

- SSWS/ISSA’s thirty year history of training industry personnel
- Face to face instruction
- A faculty of over thirty industry experts
- Comprehensive topics that cover Chip Seals, Slurry Seals, Micro Surfacing and Crack Treatments
- Attendees include, applicators, user agencies, engineers, suppliers and equipment manufacturers from around the globe.
- Breaks, lunch’s and receptions provide a setting for information exchange
- Hands on mix demonstrations (attendee participation)
- Offers Continuing Education Units (CEU’s)
- All attendees receive a CD with all papers and presentations
- Special registration fees for ISSA members and agency personnel
- Live Demonstrations (chip seal, micro surfacing & crack treatments)
Slurry Systems Workshop
Hand Mix Session
Slurry Systems Workshop
Live Demonstrations
Training Opportunities with the National Center for Pavement Preservation (NCPP)

We can deliver training in your area.
One-Day Training Opportunities

Basic Concepts for Pavement Preservation

This course is intended to provide elected officials and practitioners with an introduction to the concept of pavement preservation and its applicability within road agencies. Topics include definitions, pavement life, road networks, alternative strategies, pavement distresses, guidelines, and preservation treatments.
History of Calibration Process

- In early days, calibration performed by operator judgment
- Worked fine for unmodified, slow set slurry
- Introduction of polymer modified emulsions required conforming to tighter specifications
- Results in better quality control of the product
Course Description

This one-day course is intended to provide a comprehensive understanding of slurry seal and micro-surfacing systems. The principal focus is to offer pavement practitioners the essential skills for selecting good candidate pavements, designing and estimating projects, and gaining awareness of good construction practices for successful projects.
SLURRY SEAL & MICRO-SURFACING

About the Course
• One Day – face to face instruction
• Endorsed – peer reviewed by ISSA
• University Based – approved by Michigan State University
• Credits – 6 PDH’s or 0.6 CEU’s
• Book - resource notebook containing all class materials
• Instructor - practical experience
SLURRY SEAL & MICRO-SURFACING

Course Content

• Fundamentals - differences between these treatment techniques
• Materials - understanding material components
• Design – mix design and test requirements
• Equipment - operating principles of placement machines
• Construction - practical best-practice methods
One-Day Training Opportunity

Chip Seal Best Practice

The course is intended to provide a comprehensive understanding of chip seal design, construction, equipment, and inspection. Because the primary causes of chip seal failure are poor construction practices and inappropriate roadway candidate selection, this course is designed to provide pavement practitioners with the essential skills needed to ensure success.
Cold In-place Recycling

The course will introduce various pavement recycling processes, and discuss the relative economic benefits of adopting in-place recycling methods. Topics include methods to evaluate pavements prior to selecting projects and the pavement design process for various traffic loadings. The best practices for construction inspection will also be covered.
NCPP Training Opportunities

- Low cost classes
- Brought to your area
- Receive class manual
- Face to face instruction
- Experienced instructors
- Accredited through MSU
- Receive Continuing Education Credits
For more information on the Slurry Seal & Micro-Surfacing class, a detailed cost quote, or to arrange a training session for your organization, contact:
Patte at (517) 432-8220, or email ncpp@egr.msu.edu.
Project Scope

- **Topics:**
  - Chip Seal
  - Slurry Seal
  - Micro Surfacing

- **Objective:**
  - Develop three interactive web-based training courses
  - Provide information covering the proper use, application and inspection of Slurry Seal, Micro Surfacing & Chip Seal Treatments
Project Team

- Federal Highway Administration (FHWA) sponsored project
- ISSA subject matter experts provided hundreds of hours
  Larry Tomkins (Ergon A & E), Chuck Ingram (Slurry Pavers),
  Brian Horner (E D Etnyre) & Tim Harrawood (Vance Brothers, Inc.)

(98 years of combined industry experience)

International Slurry Surfacing Association
Slurry & Micro Surfacing, Chip Sealing & Crack Treatment

U.S. Department of Transportation
Federal Highway Administration
1) How to Construct High Quality Chip Seal Treatments

- Provide practical information to assist in the construction and inspection of various chip seal treatments
- Provide guidance relative to the appropriate materials & equipment necessary for various spray applied chip seal treatments, and the application procedures necessary to assure desired results
- Detail areas of importance from system benefits, site selection, specifications, component materials, mix designs, equipment calibration, application of treatments, troubleshooting, contract administration and special application situations
ISSA/FHWA
Web Based Training

Source Documents

How to Construct High Quality Chip Seal Treatments
- Basic Asphalt Emulsion Manual, forth edition (AEMA)
- Seal Coat & Surface Treatment Manual (TXDOT)
- Minnesota Sealcoat Handbook 2006 (MNDOT)
- Maintenance Technical Advisory Guide (CALTRANS)
- Construction of Hot Mix Asphalt Pavements, second edition, (Asphalt Institute)
- NCHRP Synthesis 342, Chip Seal Best Practices 2005
- Maintenance Solutions for Bleeding & Flushed Pavements 2006 (TXDOT)
2) How to Construct High Quality Slurry Seal & Micro Surfacing Treatments, Part 1

- Provide practical information to assist in the construction and inspection of slurry system projects (slurry seal and micro surfacing)
- Provide guidance relative to the appropriate materials & equipment necessary for various applications of slurry systems, and the application procedures necessary to assure desired results
- Detail areas of importance from history of slurry systems, site selection, specifications, component materials, system mixtures, mix designs, and equipment calibration
ISSA/FHWA  
Web Based Training  
Course Titles & Descriptions

3) How to Construct High Quality Slurry Seal & Micro Surfacing Treatments, Part 2

• Provide practical information to assist in the construction and inspection of slurry system projects (slurry seal and micro surfacing)

• Provide guidance relative to the appropriate materials necessary for various applications of slurry systems, and the application procedures necessary to assure desired results.

• Detail areas of importance from construction, specifications, slurry system treatments, contract administration, troubleshooting, and special application situations.
How to Construct a High Quality Slurry Seal & Micro Surfacing Treatment, Parts 1 & 2

Target Audience

- Contractors and their employees, including (for example):
  - Site manager/foreman
  - Equipment operator
  - General labor

- Consulting and Agency Engineers

- Agency owner personnel responsible for implementing these types of treatments into current pavement management programs

- Agency representatives responsible for inspecting and approving contractor work in the field
ISSA/FHWA
Web Based Training

Features

• simple registration process (emails link)
• Completely interactive
• audio & text narration
• self paced
• time out mechanism (pause feature)
• knowledge checks (for each lesson)
• photo gallery (micro & slurry)
• glossary of industry terminology
• navigate through outline
• printable calibration forms w/procedures
• printable recommended performance guidelines
• Links to:
  -Technical Papers
  -ISSA publications order form (manuals & tech bulletins)
  -Source materials
• personal development hours
• certificate of completion

Event Info | Event Registration

Chip Seal Treatments Test
Friday, January 19, 2013 3:15:00 PM EST - Wednesday, January 18, 2013 4:15:00 PM EST

If you have registered with us before, please click here
Fields marked with (*) are mandatory.

Email Id *

First Name *

Last Name *

Password *

Verify Password *

Company Name *
Upon completion of this module, you will be able to:

- Describe the information provided in the Manual for Slurry Systems that is most important to successful slurry system construction
- Explain why slurry systems are used
- Explain why certain materials are used in slurry systems
- Describe slurry system design and calibration methods
Aggregate

- The aggregate’s key characteristics for suitable incorporation into a slurry system are:

1. Aggregate Quality
2. Aggregate Gradation and Particle Size
3. Particle Shape
4. Particle Charge
5. Cleanliness
6. Toughness and Abrasion Resistance
7. Durability and Soundness

Select each key characteristic to learn more.
Aggregate Key Characteristics

1) Aggregate Quality

- For a high performance slurry system, quality aggregate is mandatory.
- In addition to the actual properties of the parent rock, quality includes proper gradation, particle shape, and cleanliness or sand equivalent.
Concrete curbs and gutters are occasionally found on residential and arterial streets and are normally not a problem for the crew to work around. The image on the right illustrates acceptable workmanship whereas the image on the left illustrates unacceptable workmanship.

It is clear that the contractor that applied the material in the acceptable picture had good control of the slurry system mixture, maintained the correct equipment alignment and maintained their spreader box in a professional manner.

If the application contractor cannot produce acceptable workmanship, work should stop. Furthermore, the contractor shall not be allowed to continue any work until he can exhibit acceptable workmanship.
Aggregate – Functions and Selection Factors

- Functions of the embedded aggregate are to resist traffic abrasion, to transmit wheel loads, and improve the surface friction and safety for vehicles.

- There are several factors to consider when choosing aggregate.

  - **Type**
  - **Gradation**
  - **Particle Shape**
  - **Cleanliness**
  - **Toughness and Soundness**
  - **Absorption**

Select each factor to learn more.
Aggregate – Functions and Selection Factors

Type

Natural
Synthetic

Select each picture to learn more
Troubleshooting

1. Loss of Cover Aggregate
2. Bleeding or Flushing
3. Streaked Appearance

Select each topic to learn more about the problem, causes and solutions.
Troubleshooting

Problem:
Loss of cover aggregate

Possible causes are:
- Insufficient asphalt binder
- Dusty aggregate
- Poor gradation
- Cold temperatures
- Allowing the binder to break before chips are placed and rolled
- Excessive snow plow down pressure

Solution?
Select the solution to learn about how to avoid or fix the problem.
Potential solutions to the loss of cover aggregate include but are not limited to:

- Increasing the binder application rate
- Removing the dust by washing the aggregate or switching aggregate all together
- Verifying that the aggregate gradation meets specifications and is consistent with the mix design results
- Applying the treatment only when weather conditions are suitable
- Making sure that the aggregate spreaders and rollers are operating closely behind the asphalt distributor

Select the solution to learn about how to avoid or fix the problem.
Summary

- Increased usage of Chip Seals, Slurry Seal & Micro Surfacing
- Need for training options (contractor & agency)
- Travel restrictions & Budget cuts
- All three training options have great value
- Technology transfer
- Benefits agency & applicator (taxpayer)
- Available for a minimum of two years
- Cost of training = FREE
FHWA/ISSA
Web Based Training
Available on the ISSA website at
WWW.Slurry.org
Questions?
Thank You!

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