Pavement Preservation Training Opportunities

For

Chip Seals, Slurry Seals & Micro Surfacing

MId West Pavement Preservation Partnership

11-11 – 11-13 2013

Indianapolis, IN

PRESERVING ROADS
SMART NOW & TOMORROW
INTERNATIONAL SLURRY SURFACING ASSOCIATION

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 PRESERVING PAVEMENT

PRESERVING ROADS SMART NOW & TOMORROW
INTERNATIONAL SLURRY SURFACING ASSOCIATION

Slurry Systems Workshop

INTERNATIONAL SLURRY SEAL ASSOCIATION

SLURRY SEAL NEWS

1101 CONNECTICUT AVENUE, N.W.
WASHINGTON, D.C. 20036
202-857-1160

MARCH/APRIL 1986

1986 ISSA Operators School: Teaching the Way to Jobsite Excellence

PRESERVING ROADS
SMART NOW & TOMORROW
INTERNATIONAL SLURRY SURFACING ASSOCIATION

Inside: Convention '86
New Guide Specifications

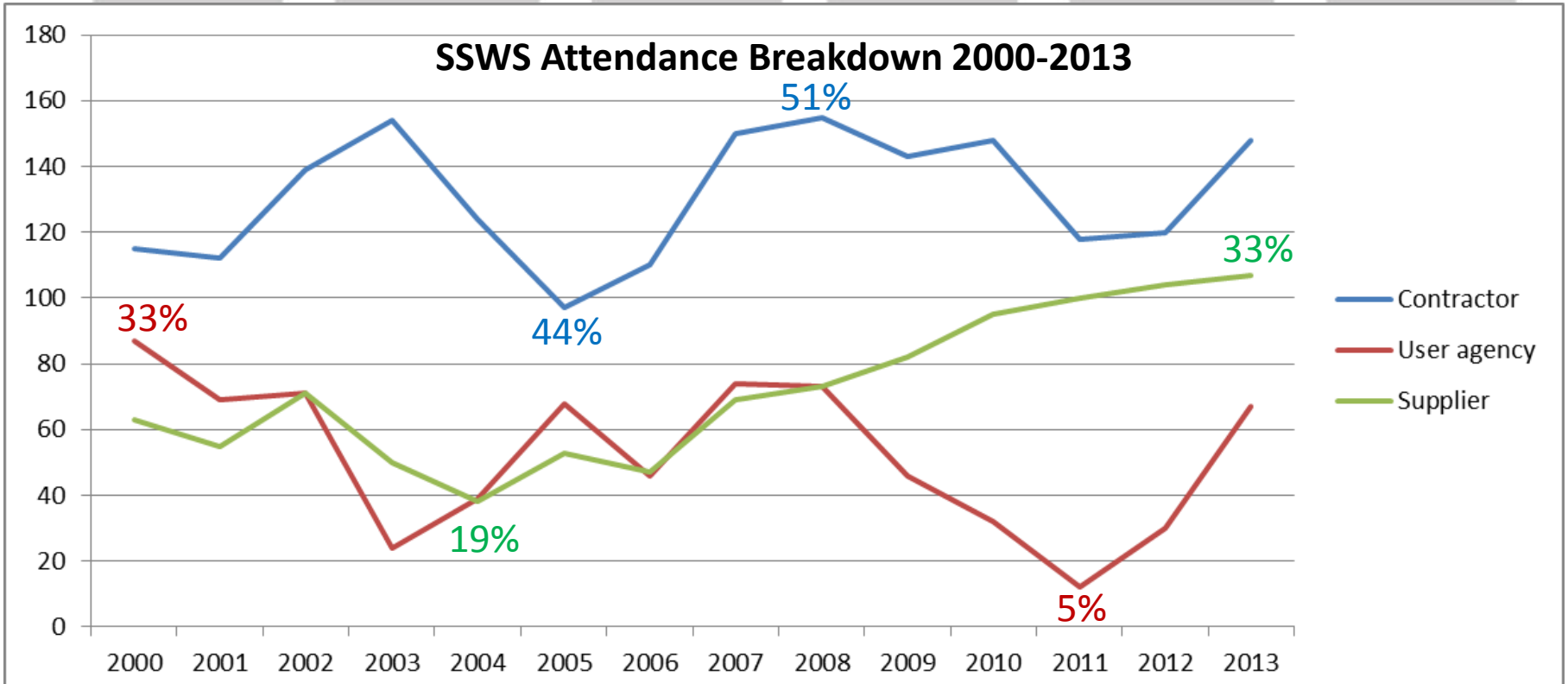
ISSA
PRESERVING PAVEMENT

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)*

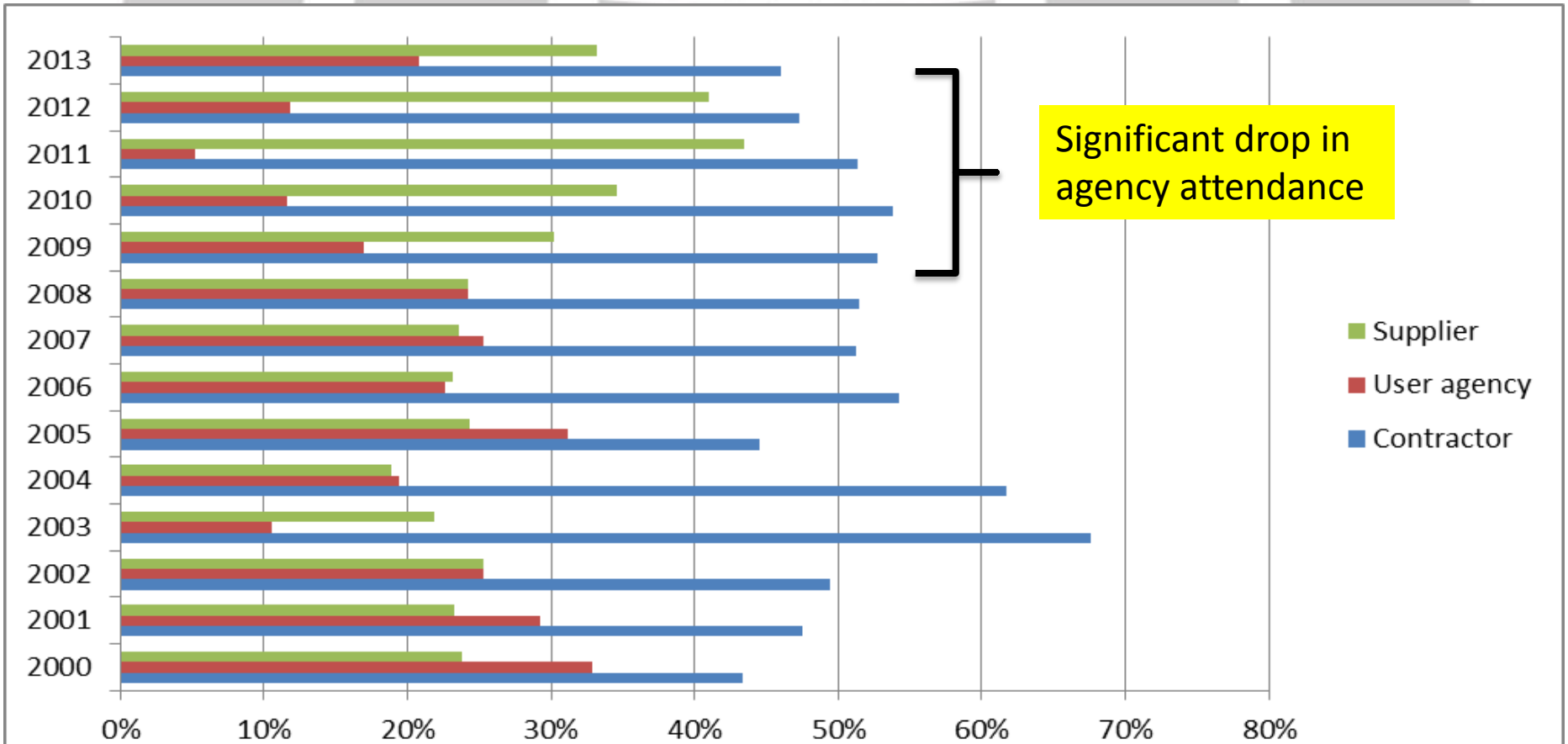
ISSA
Slurry Systems Workshop

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
Contractor	115	112	139	154	124	97	110	150	155	143	148	118	120	148	1833
User agency	87	69	71	24	39	68	46	74	73	46	32	12	30	67	738
Supplier	63	55	71	50	38	53	47	69	73	82	95	100	104	107	1007
Total	265	236	281	228	201	218	203	293	301	271	275	230	254	322	3578



ISSA
Slurry Systems Workshop

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
Contractor	43%	47%	49%	68%	62%	44%	54%	51%	51%	53%	54%	51%	47%	46%	51%
User Agency	33%	29%	25%	11%	19%	31%	23%	25%	24%	17%	12%	5%	12%	21%	21%
Supplier	24%	23%	25%	22%	19%	24%	23%	24%	24%	30%	35%	43%	41%	33%	28%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%



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

ISSA
Slurry Systems Workshop

SSWS 2014

January 21-24, 2014
Caribe Royale Hotel
Orlando, Florida

Phone: 410-267-0023
Fax: 410-267-7546
E-mail: cerone@slurry.org
International Slurry Surfacing Association

www.slurry.org

ISSA is part of the Pavement Preservation & Recycling Alliance

For reservation please call 888-258-7501 and be sure to mention ISSA.

www.cariberoyale.com/

Training Opportunities with the National Center for Pavement Preservation (NCPP)

We can deliver training in your area.

PRESERVING ROADS
SMART NOW & TOMORROW
INTERNATIONAL SLURRY SURFACING ASSOCIATION

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National Center for Pavement Preservation

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.

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SLURRY SEAL & MICRO-SURFACING

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National Center for Pavement Preservation

SLURRY SEAL & MICRO-SURFACING

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.

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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

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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

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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.

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Additional One-Day Training Opportunity

Top of the Curve

(Fog Seals, Rejuvenators, Crack Sealing & Filling)

This course is intended to provide a comprehensive understanding of treatments applied early in a pavement's life. Topics range from the perspectives of pavement performance, design, materials, equipment (including best practices), construction, and project administration.

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

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NCPP Training Opportunities

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**.

ncpp
National Center for Pavement Preservation

Interactive Web Based Training

International Slurry Surfacing Association

Slurry & Micro Surfacing, Chip Sealing & Crack Treatments

&

U.S.Department of Transportation

Federal Highway Administration

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**

ISSA PRESERVING PAVEMENT

U.S.Department of Transportation
Federal Highway Administration

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)

ISSA PRESERVING PAVEMENT

International Slurry Surfacing Association

Slurry & Micro Surfacing, Chip Sealing & Crack Treatment

U.S.Department of Transportation

Federal Highway Administration

ISSA/FHWA Web Based Training

U.S.Department of Transportation
Federal Highway Administration

Course Titles & Descriptions

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

U.S.Department of Transportation
Federal Highway Administration

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)

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U.S.Department of Transportation
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Course Titles & Descriptions

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

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U.S.Department of Transportation
Federal Highway Administration

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.

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U.S.Department of Transportation
Federal Highway Administration

Source Documents

How to Construct a High Quality Slurry Seal & Micro Surfacing Treatment, Parts 1 & 2

-High Performance Slurry Systems Inspectors Manual (ISSA) 2010 Edition
-Recommended Performance Guidelines for Slurry Seal & Micro Surfacing, A-105 & A-143 (ISSA) Revised 2010
-TB-2012 Design Technical Bulletin (ISSA) 2012 Edition

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U.S.Department of Transportation
Federal Highway Administration

Target Audience

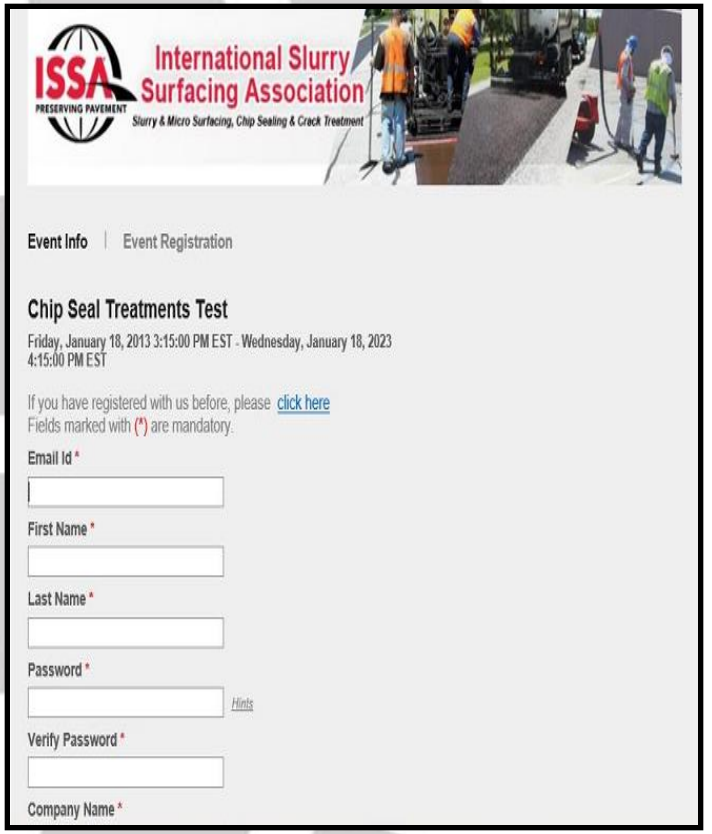
- Contractors and their employees, including (for example):
  - Site manager/foreman
  - Equipment operator
  - General labor
- Consulting and Agency Engineers
- Agency owner personnel responsible for implementing these types of treatments into current pavement management programs
- Agency representatives responsible for inspecting and approving contractor work in the field

ISSA/FHWA
Web Based Training

U.S.Department of Transportation
Federal Highway Administration

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



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Web Based Training

U.S.Department of Transportation
Federal Highway Administration

Training Demonstration

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SMART NOW & TOMORROW
INTERNATIONAL SLURRY SURFACING ASSOCIATION

ISSA PRESERVING PAVEMENT

International Slurry Surfacing Association

Slurry & Micro Surfacing, Chip Sealing & Crack Treatment

Module Objectives

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

This **module** will take approximately 120 minutes to complete.

Slurry Seal and Micro Surfacing - Part 1

Outline | Narration | Search

Slide Notes

The purpose of this module is to provide practical information to assist in the construction and inspection of slurry system projects (slurry seal and micro surfacing). The Federal Highway Administration (FHWA) and the ISSA's Board of Directors have authorized this module's development to provide an educational tool that could be used by persons possessing limited familiarity with slurry system methods.

Contractor performance along with user agency oversight both play an important role in the successful outcome of slurry system projects. This training module will address both sides of the equation.

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; and
• Describe slurry system design and calibration methods.

This module will take approximately 120 minutes to complete.

ISSA PRESERVING PAVEMENT

International Slurry Surfacing Association

Slurry & Micro Surfacing, Chip Sealing & Crack Treatment

Slurry Seal and Micro Surfacing - Part 1

Outline | Narration | Search

Slide Notes

It is necessary to have some familiarity with aggregate properties to understand how the asphalt and the aggregate interact. The aggregate's key characteristics for suitable incorporation into a slurry system are:

- Aggregate Quality;
- Aggregate Gradation and Particle Size;
- Particle Shape;
- Particle Charge;
- Cleanliness;
- Toughness and Abrasion Resistance; and
- Durability and Soundness.

Select each key characteristic to learn more.

15 Minutes 57 Seconds Remaining

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.

Slide 46 / 66 | Stopped 00:00 / 00:30

International Slurry Surfacing Association

Slurry & Micro Surfacing, Chip Sealing & Crack Treatment

Slurry Seal and Micro Surfacing - Part 1

Outline | Narration | Search

Slide Notes

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.

Aggregate Key Characteristics

Close

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.

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International Slurry Surfacing Association

Slurry & Micro Surfacing, Chip Sealing & Crack Treatment

Slurry Seal and Micro Surfacing Treatments - Part 2

Outline | Narration | Search

Slide Notes

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 systems 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.

48 Minutes 52 Seconds Remaining

4. Curbs and Gutters

Unacceptable

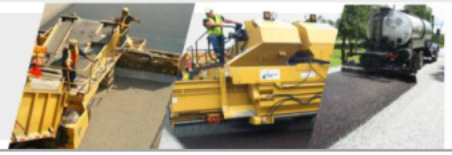
Acceptable

Slide 22 / 85 | Stopped

00:00 / 00:40

International Slurry Surfacing Association

Slurry & Micro Surfacing, Chip Sealing & Crack Treatment



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.

Chip Seal Treatments

Outline | Narration | Search

Slide Notes

The 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. They are:

- Type;
- Gradation;
- Particle Shape;
- Cleanliness;
- Toughness and Soundness; and
- Absorption.

Select each factor to learn more.

63 Minutes 24 Seconds Remaining

International Slurry Surfacing Association

Slurry & Micro Surfacing, Chip Sealing & Crack Treatment

Aggregate – Functions and Selection Factors

Type

Close

Natural

Synthetic

Select each picture to learn more

00:00 / 00:14

Chip Seal Treatments

Outline | Narration | Search

Slide Notes

Let's start with aggregate selection. The first consideration is the type of aggregate that is available in your area. There are predominantly 2 types of aggregates: natural and synthetic.

Select each picture to learn more.

62 Minutes 54 Seconds Remaining

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Slurry & Micro Surfacing, Chip Sealing & Crack Treatment

Chip Seal Treatments

Outline | Narration | Search

Slide Title	Duration
59. 5. Front End Loade...	00:08
60. 6. Haul Truck	00:42
61. Match each piece o...	00:28
62. Match each piece o...	00:23
63. True or false? The...	00:07
64. True or false? The...	00:06
65. True or false? One...	00:06
66. True or false? One...	00:07
67. Lesson 3 Summary	00:23
68. Lesson 4 Objective...	00:26
69. Weather Considerat...	00:59
70. Traffic Control	01:57
71. Construction Seque...	00:22
72. Workmanship	00:46
73. Troubleshooting	00:15
74. Select all that ap...	00:17
75. Select all that ap...	00:11
76. List the construct...	00:17
77. List the construct...	00:21
78. Select all that ap...	00:37
79. Select all that ap...	00:19
80. Lesson 4 Summary	00:20
81. Module Summary	00:32

5 Minutes 11 Seconds Remaining

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.

Slide 73 / 81 | Stopped

00:15 / 00:15

International Slurry Surfacing Association

Slurry & Micro Surfacing, Chip Sealing & Crack Treatment

Chip Seal Treatments

Outline | Narration | Search

Slide Title	Duration
57. 4. Cleaning Equipm...	00:21
58. 4. Cleaning Equipm...	00:37
59. 5. Front End Loade...	00:08
60. 6. Haul Truck	00:42
61. Match each piece o...	00:28
62. Match each piece o...	00:23
63. True or false? The...	00:07
64. True or false? The...	00:06
65. True or false? One...	00:06
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70. Traffic Control	01:57
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74. Select all that ap...	00:17
75. Select all that ap...	00:11
76. List the construct...	00:17
77. List the construct...	00:21
78. Select all that ap...	00:37
79. Select all that ap...	00:19
80. Lesson 4 Summary	00:20
81. Module Summary	00:32

4 Minutes 50 Seconds Remaining

Troubleshooting

Close

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 here

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

00:16 / 00:24

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Slurry & Micro Surfacing, Chip Sealing & Crack Treatment

Troubleshooting

Close

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 distributer

Close

Solution?

Select here

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

00:00 / 00:44

Chip Seal Treatments

Outline | Narration | Search

Slide Title	Duration
57. 4. Cleaning Equipm...	00:21
58. 4. Cleaning Equipm...	00:37
59. 5. Front End Loade...	00:08
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77. List the construct...	00:21
78. Select all that ap...	00:37
79. Select all that ap...	00:19
80. Lesson 4 Summary	00:20
81. Module Summary	00:32

4 Minutes 43 Seconds Remaining

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Federal Highway Administration

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

U.S.Department of Transportation
Federal Highway Administration

Available on the ISSA website at
WWW.Slurry.org

Questions?

Thank You!

Howie Snyder