

**NCHRP 20-44(26)**  
**Implementing Guide Specifications**  
**for the Construction of**  
**Chip Seals, Micro Surfacing, and Fog Seals**

by  
Larry Galehouse, P.E., P.L.S.

# Implementation Project

## Background

Original Guide Specifications Produced in NCHRP Project 14-37

★ Guide Specifications are now AASHTO Provisional Standards

## Objective

The objective of this project is to develop and execute a dissemination and implementation plan to create awareness of the Construction Guides.

# Implementation Project - Partnership

## Cooperative Effort

- National Center for Pavement Preservation (Project Contractor)
- The ETF Subcommittee on Messaging & Implementation (M&I)
- Minnesota DOT (Lead State)

# Implementation Plan - Tasks

Our work effort consists of five tasks:

1. Information Dissemination
2. Outreach
3. Training
4. Demonstrations
5. Final Report

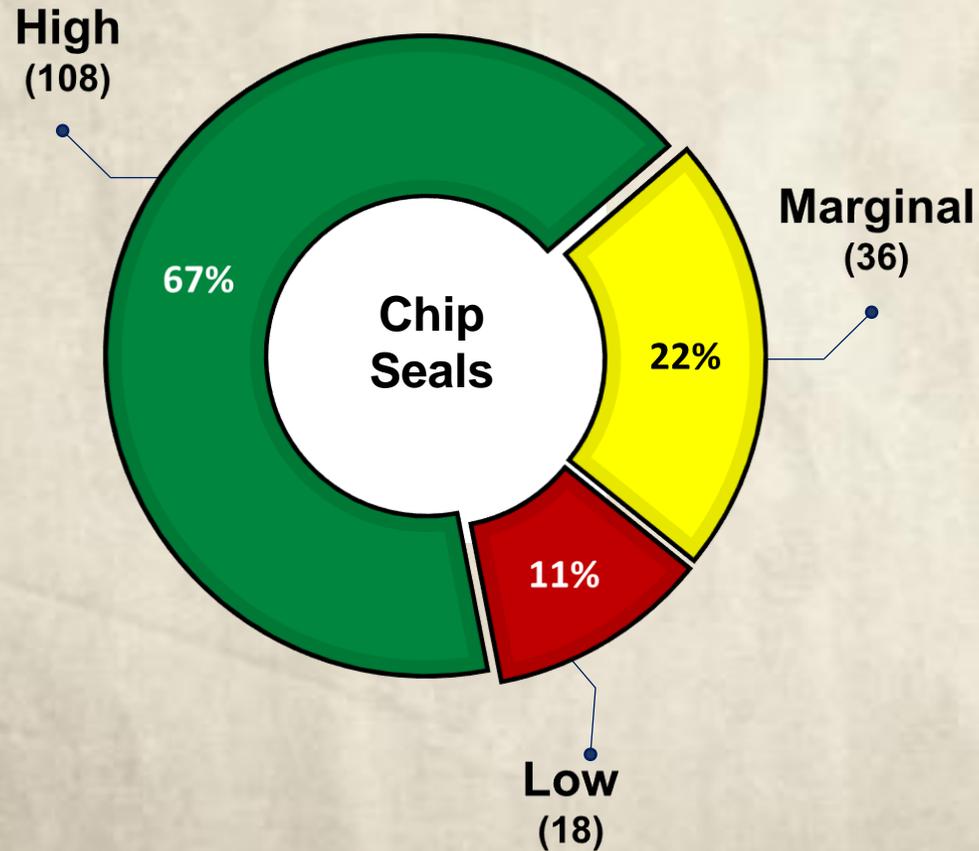
# Implementation Plan - Questionnaire

Our first step was to assemble baseline data from agencies through an online questionnaire. We queried 4 areas:

1. Knowledge of emulsion-based treatments
2. Current specifications used by agency
3. Awareness of new construction guide specifications
4. Familiarity of provisional design and material specifications

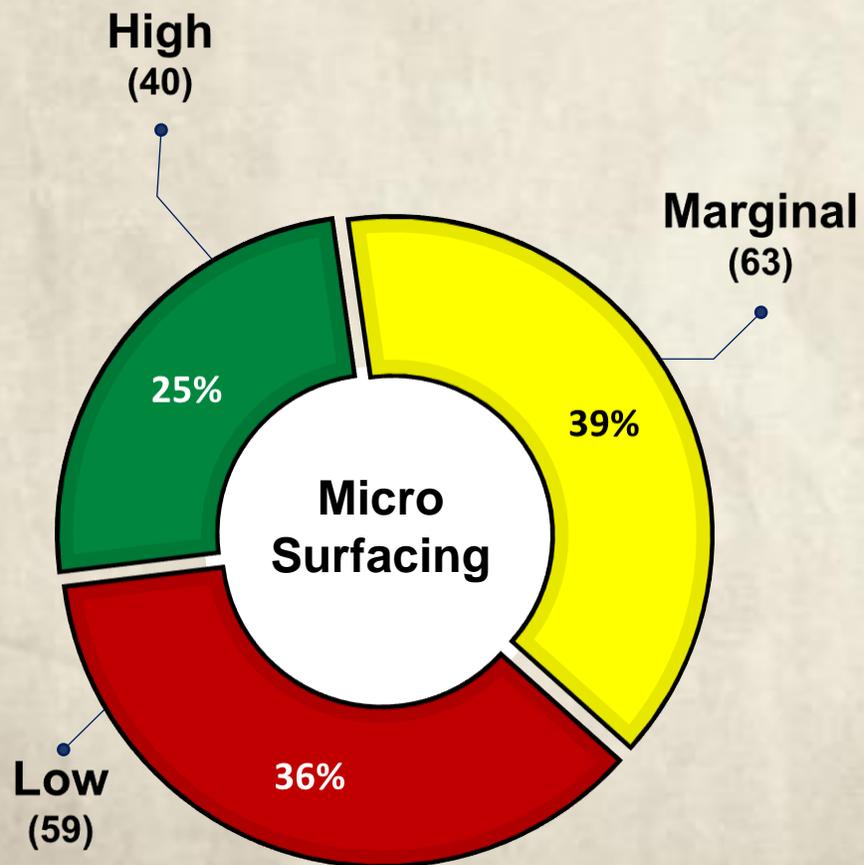
# Knowledge of Emulsion-based Treatments

162 Responses



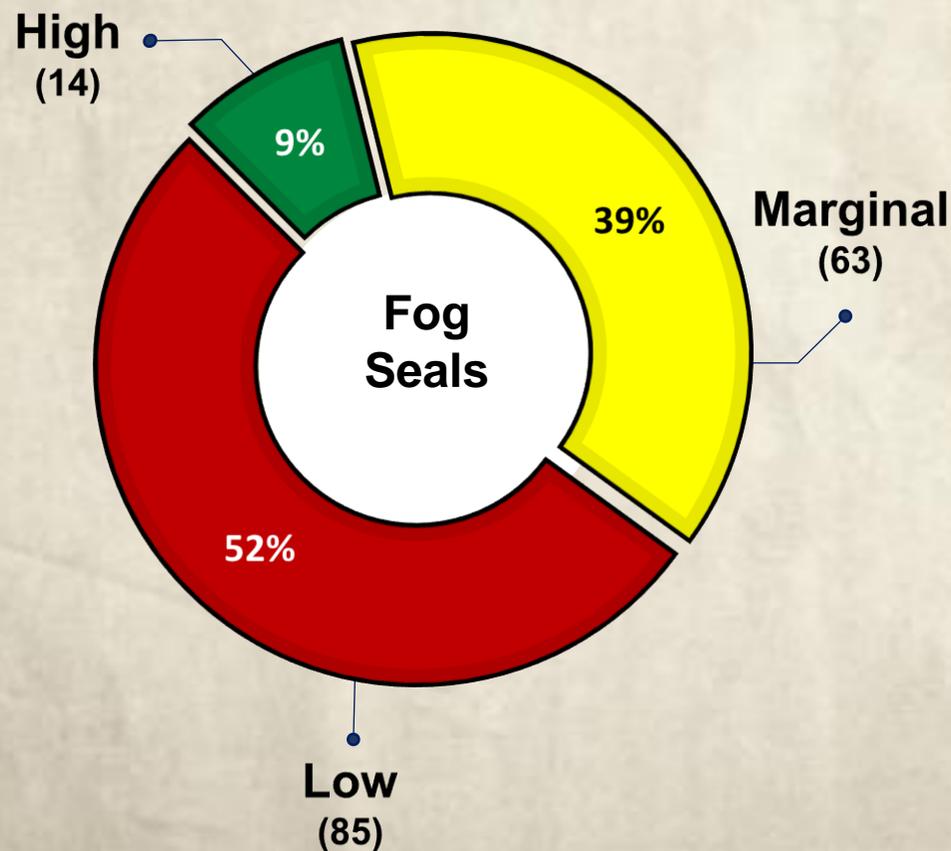
# Knowledge of Emulsion-based Treatments

162 Responses

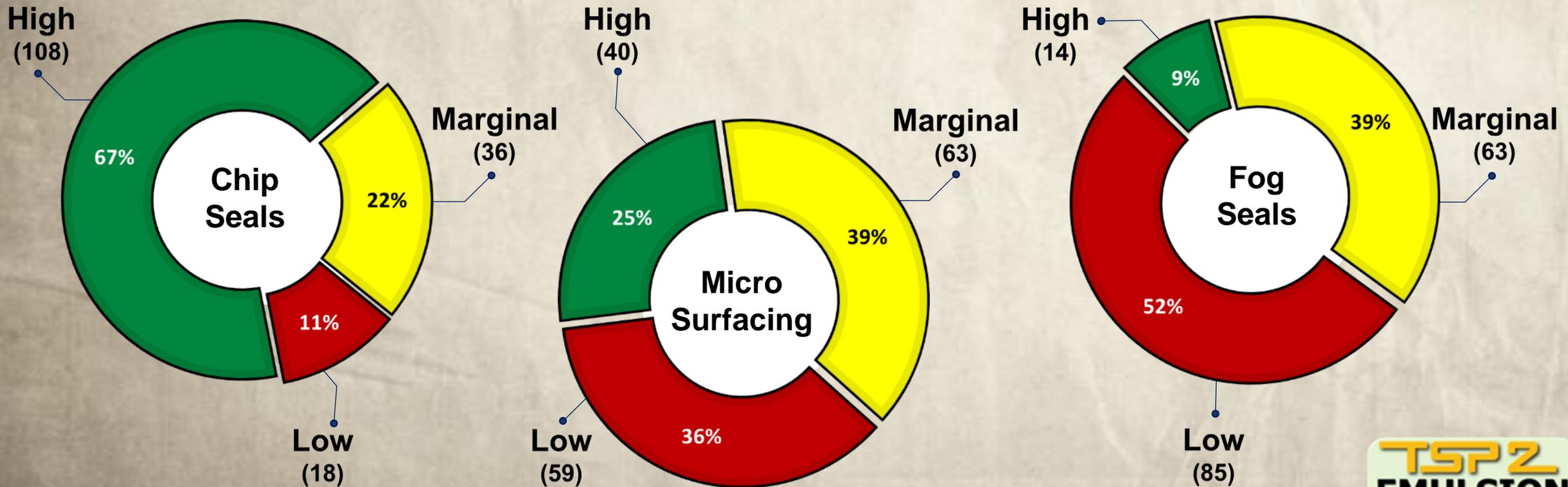


# Knowledge of Emulsion-based Treatments

162 Responses



# Summary of Knowledge



# Current Specification Source Used by Agency

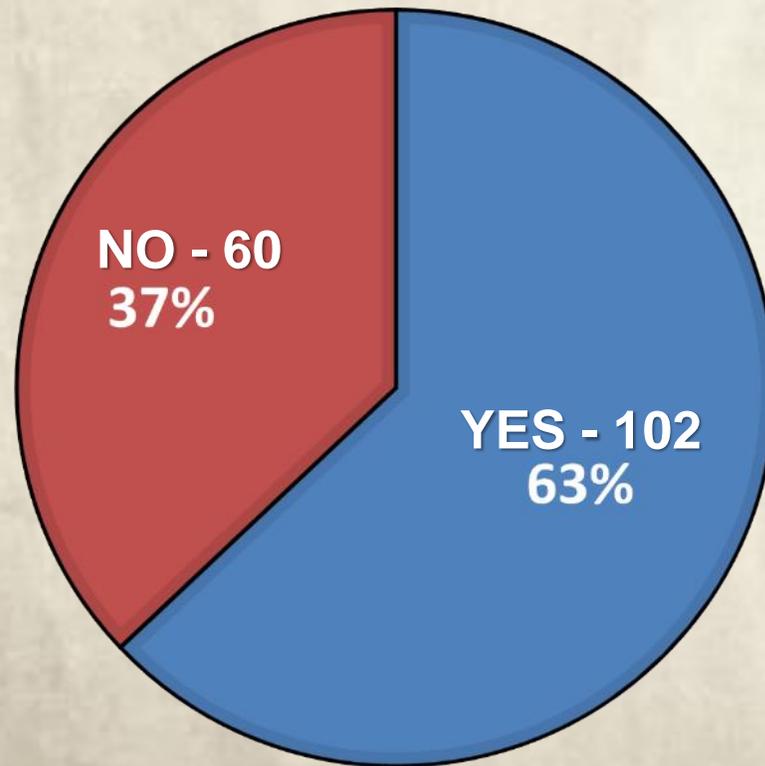
What is your most reliable source for obtaining a pavement preservation specification for an emulsion-based treatment?  
(Select one)

# Current Specification Source Used by Agency

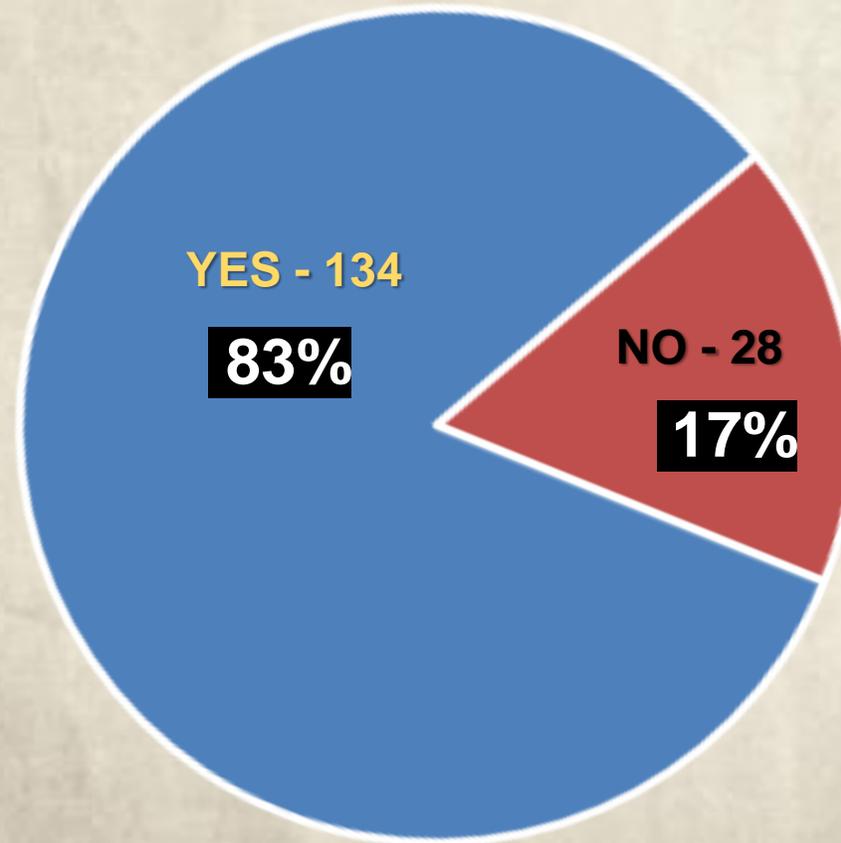
| Source                | All Agencies |
|-----------------------|--------------|
| AASHTO                | 19           |
| State DOT             | 84           |
| Local Agency          | 9            |
| Contractor / Supplier | 14           |
| Consultants           | 2            |
| County Engineers      | 2            |
| ISSA                  | 1            |
| NEPPP                 | 1            |
| TRB                   | 1            |
| University            | 1            |
| Total =               | 124          |

# Awareness of New AASHTO Specifications

Queried State DOTs and Selected Local Agencies

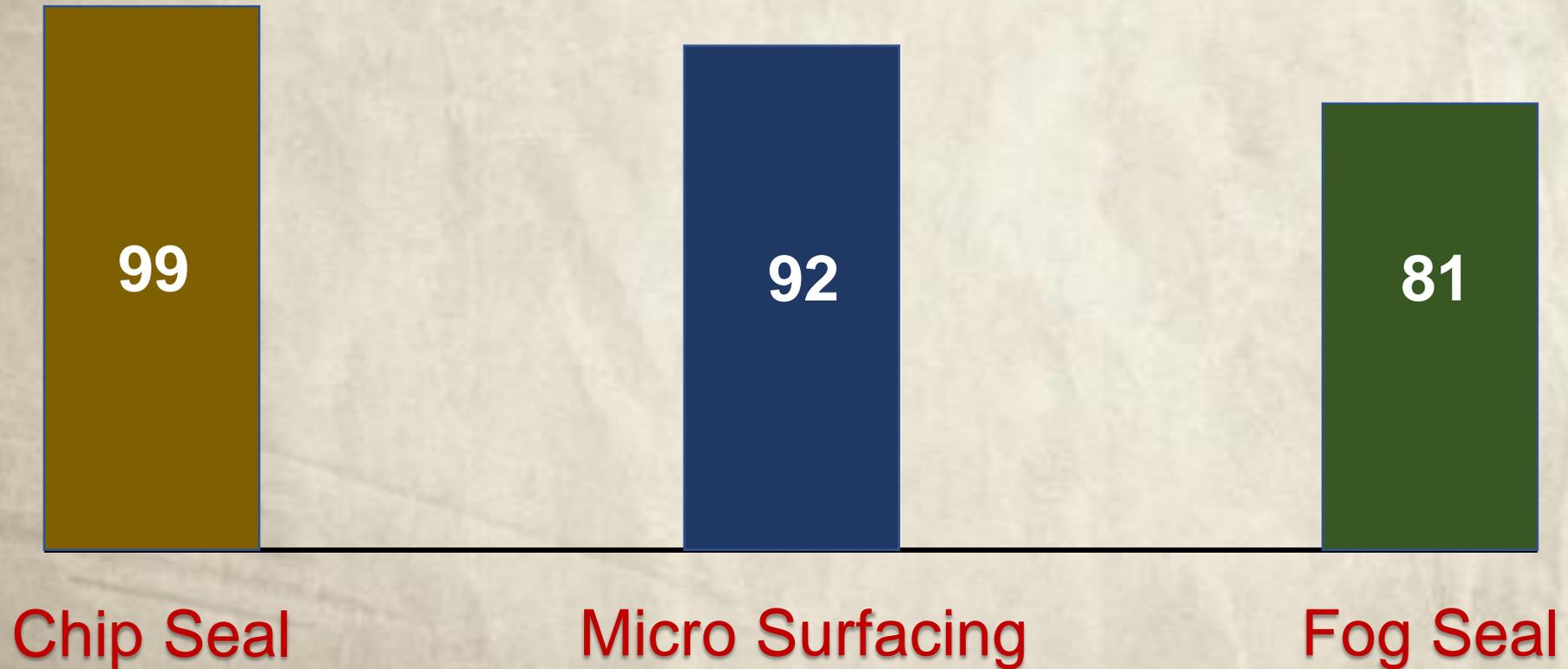


# Interest in Adopting all or part of New Standards

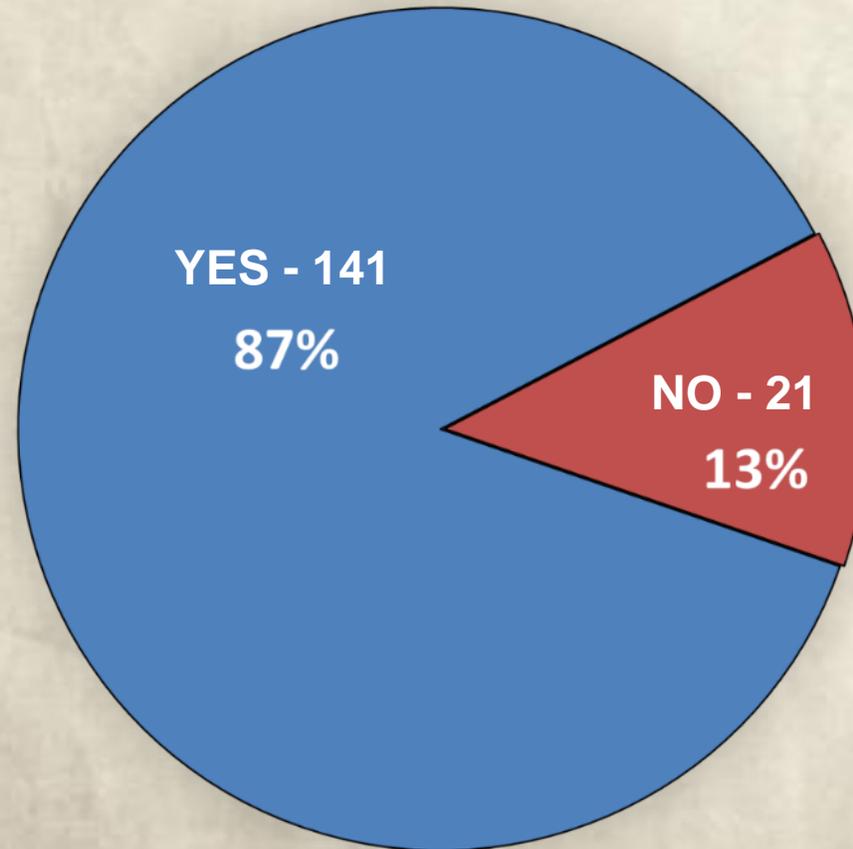


# Name Standards of Interest to Adopt

Multiple Answers Received

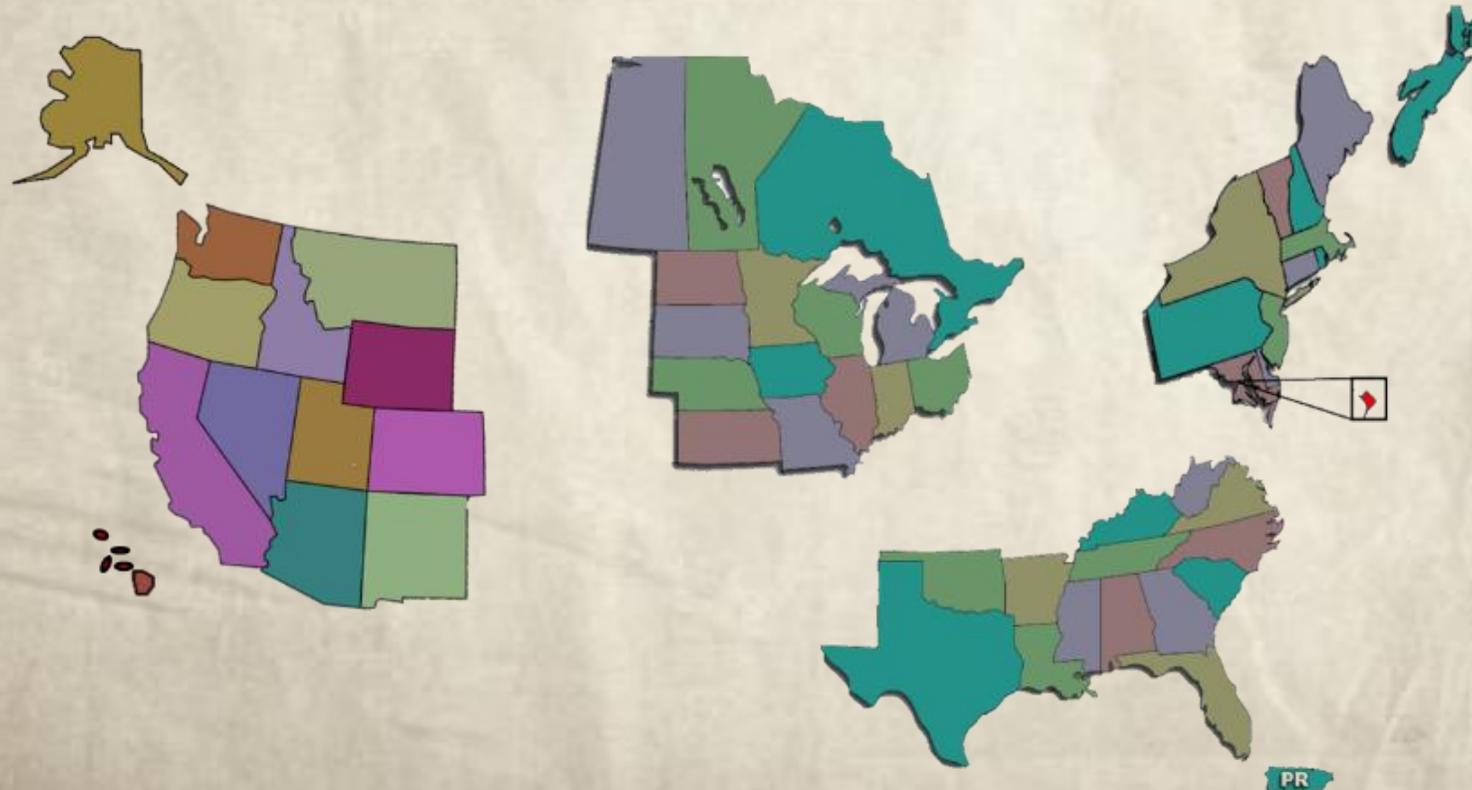


# Interest in Training on New Construction Guides



# Demonstration Goal

Construct a chip seal, micro surfacing, and fog seal project in each of the four regions.



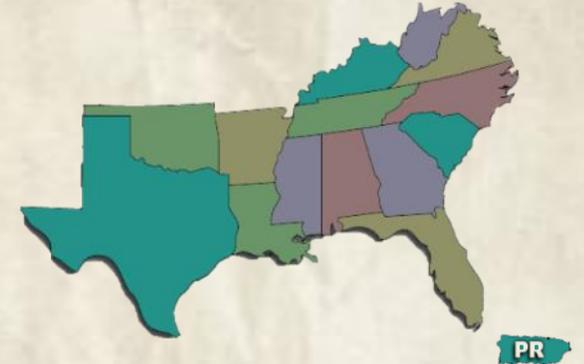
# Interest in Constructing a Demonstration Project

## Northeast Pavement Preservation Partnership

| Chip Seal      | Fog Seal       | Micro Surfacing | Agency                    |
|----------------|----------------|-----------------|---------------------------|
|                | 1              |                 | Connecticut DOT           |
| 1              |                |                 | Delaware DOT * Completed  |
| <del>1</del>   | <del>1</del>   | 1               | Maryland SHA              |
| 1              |                |                 | New Hampshire DOT         |
|                |                | 1               | Nova Scotia Transport     |
| 1              |                |                 | Vermont AOT               |
|                |                |                 | (6 Agencies)              |
| <del>4</del> 3 | <del>2</del> 1 | 2               | <del>(8 Projects)</del> 6 |



# Interest in Constructing a Demonstration Project



## Southeast Pavement Preservation Partnership

| Chip Seal | Fog Seal | Micro Surfacing | Agency                      |
|-----------|----------|-----------------|-----------------------------|
|           |          | 1               | Alabama DOT                 |
| 1         |          | 1 ?             | Arkansas DOT                |
|           |          | <del>1</del>    | <del>Georgia DOT</del>      |
| 1         |          | 2               | Mississippi DOT             |
| 1         |          | 1               | Virginia DOT                |
| 1         |          | 1               | West Virginia DOH           |
|           |          |                 | <del>(6 Agencies)</del> 5   |
| 4         | 0        | <del>7</del> 6  | <del>(11 Projects)</del> 10 |

# Interest in Constructing a Demonstration Project



| Rocky Mountain West Pavement Preservation Partnership |                |                 |                                  |
|---|----------------|-----------------|----------------------------------|
| Chip Seal   | Fog Seal       | Micro Surfacing | Agency                           |
|   | 1              |                 | Alaska DOT&PF                    |
|   | 1              |                 | California DOT                   |
| 1   |                |                 | Glenn County, CA                 |
| 1   | 1              |                 | Montana DT                       |
|   |                | <del>1</del>    | <del>Nevada DOT</del>            |
| <del>1</del> ?  |                | <del>1</del> ?  | <del>Trinity County, CA</del> ?  |
| 1   |                |                 | Utah DOT                         |
| <del>1</del>  | <del>1</del>   |                 | <del>Washington County, OR</del> |
|   |                | <del>1</del> ?  | <del>Yuba County, CA</del> ?     |
|   |                |                 | <del>(9 Agencies)</del> 5        |
| <del>5</del> 3  | <del>4</del> 3 | <del>3</del> 0  | <del>(12 Projects)</del> 6       |

# Interest in Constructing a Demonstration Project

## Midwest Pavement Preservation Partnership



| Chip Seal      | Fog Seal       | Micro Surfacing | Agency                                      |
|----------------|----------------|-----------------|---|
|                | <del>1</del> ? | <del>1</del> ?  | <del>Boone County, IL</del> ?               |
| 1              |                | 1               | Clinton County, IA                          |
| 1              |                |                 | Illinois DOT                                |
|                |                | 1               | Iowa DOT                                    |
| <del>1</del> ? | <del>1</del>   | <del>1</del> ?  | <del>Manitoba Infrastructure Dept</del> ?   |
| 1              |                |                 | Marathon County, WI                         |
| 1              |                | 1               | Minnesota DOT                               |
| 1              |                | 1               | Missouri DOT                                |
| 1              | <del>1</del>   | 1               | North Dakota DOT                            |
|                |                | <del>1</del>    | <del>Ohio DOT</del>                         |
| 1              | 1              | 1               | Ottawa County, MI <small>*Completed</small> |
|                |                |                 | <del>(11 Agencies)</del> 8                  |
| <del>8</del> 7 | <del>4</del> 1 | <del>9</del> 6  | <del>(21 Projects)</del> 14                 |

# Demonstrations

**Agency Responses Received = ~~32~~ 24**

**State DOT = ~~22~~ 19**

**County Road Commission = ~~8~~ 4**

**Canadian Province = ~~2~~ 1**

# Task 1: Information Dissemination

## ETF Magazine Article



### ASPHALT EMULSIONS PLAY PIVOTAL ROLE IN SHIELDING \$2.4T US ROADS

By Paul Brumbar

**A** little less than a century ago, asphalt emulsion was a relatively new technology. But today, it is a critical component of the \$2.4 trillion U.S. road network. The technology has evolved from a simple mixture of asphalt and water to a sophisticated, multi-component system that can be applied in a variety of ways. Today, asphalt emulsion is used for everything from surface treatments to full-depth repairs. Its versatility and cost-effectiveness have made it a mainstay of the road building industry.

The evolution of asphalt emulsion technology has been driven by the need for more durable and longer-lasting road surfaces. In the early 1900s, road builders began to experiment with different emulsion formulations. Over time, these formulations improved, leading to the development of modern asphalt emulsions. Today, these emulsions are used in a wide range of applications, from preventive maintenance to full-depth repairs. The use of asphalt emulsion has become a standard practice in the road building industry, and its importance is only growing.

**Production Origin**  
Asphalt emulsion is produced by combining asphalt and water. The process involves the use of emulsifiers, which help to create a stable mixture. The resulting emulsion is then used in a variety of applications. The production of asphalt emulsion is a complex process that requires precise control of the ingredients and the mixing process. The resulting emulsion is a key component of the road building industry.

**The Emulsion Advantage**  
Asphalt emulsion offers several advantages over other road building materials. It is easy to apply, dries quickly, and provides a durable surface. Additionally, it is a cost-effective solution for road building. The use of asphalt emulsion has become a standard practice in the road building industry, and its importance is only growing.

**Looking Strong But Not Content**  
Despite its long history and widespread use, the asphalt emulsion industry is still facing challenges. One of the main challenges is the need for more standardized testing and quality control. The industry is working to address these challenges and ensure that the highest quality emulsions are being produced.

**Lack of Standardized Testing**  
One of the main challenges facing the asphalt emulsion industry is the lack of standardized testing procedures. This makes it difficult to compare different emulsion products and ensures that the highest quality materials are being used.

**Deliverables Program Not Named**  
The industry is working to develop a deliverables program that will provide a clear set of standards for asphalt emulsion products. This program will help to ensure that all products meet the same high standards of quality and performance.

**Getting Out the Word**  
The industry is also working to get the word out about the benefits of asphalt emulsion. This includes participating in trade shows, conferences, and other industry events. The goal is to educate road builders and other industry professionals about the many advantages of using asphalt emulsion.

**ETF Leaders Bring Vision**  
The ETF (Asphalt Emulsion Task Force) is a group of industry leaders who are working to address the challenges facing the asphalt emulsion industry. They are focused on developing standardized testing procedures and promoting the use of high-quality emulsion products.

**Participation**  
The ETF is open to all industry professionals who are interested in improving the quality and performance of asphalt emulsion products. Participation in the ETF is a great way to stay up-to-date on the latest industry news and to share your own experiences and insights.

**ETF Migration to NCFP**  
The ETF is migrating to the NCFP (National Construction Foundation for Professional) platform. This will allow for easier access to the ETF's resources and information. The migration is a key step in the ETF's ongoing efforts to improve the industry.



# Information Dissemination

## ETF Magazine Article Distributed Through:

- **California Builder & Engineer**
- **Construction**
- **Construction Digest**
- **Construction News**
- **Constructioneer**
- **Dixie Contractor**
- **Michigan Contractor & Builder**
- **Midwest Contractor**
- **New England Construction**
- **Pacific Builder & Engineer**
- **Rocky Mountain Construction**
- **Texas Contractor**
- **Western Builder**

# Information Dissemination



<https://youtu.be/R-LINi-hGSo>

# Task 2: Outreach

## Presentations

### 2020

- Rocky Mountain West Pavement Preservation Partnership, September 29<sup>th</sup>- 269 attendees
- Midwestern Pavement Preservation Partnership, October 21<sup>st</sup>- 277 attendees
- Southeast Pavement Preservation Partnership, November 9<sup>th</sup>- 216 attendees
- Northeast Pavement Preservation Partnership, December 1<sup>st</sup>- 253 attendees

### 2021

- AASHTO COMP Technical Subcommittee 2a Virtual Meeting, January 22<sup>nd</sup> - ??
- Florida LTAP Webinar, February 24<sup>th</sup> – 176 attendees
- Northeast Pavement Preservation Partnership Virtual Meeting, May 26<sup>th</sup> – 96 attendees
- Midwestern Pavement Preservation Partnership Virtual Meeting, May 26<sup>th</sup> – 70 attendees
- Southeast Pavement Preservation Partnership Virtual Meeting, May 27<sup>th</sup> – 79 attendees
- AASHTO MaC Pavement TWG Virtual Meeting, July 19<sup>th</sup> - ??

# Task 3: Training

There are two training methods utilized:

- Instructor-led classroom training
- Webinars

The targeted audiences include:

- Personnel responsible for spec implementation
- Pavement management personnel, project development staff, construction engineers, field technicians, QA engineers, material engineers, inspectors, maintenance administrators.

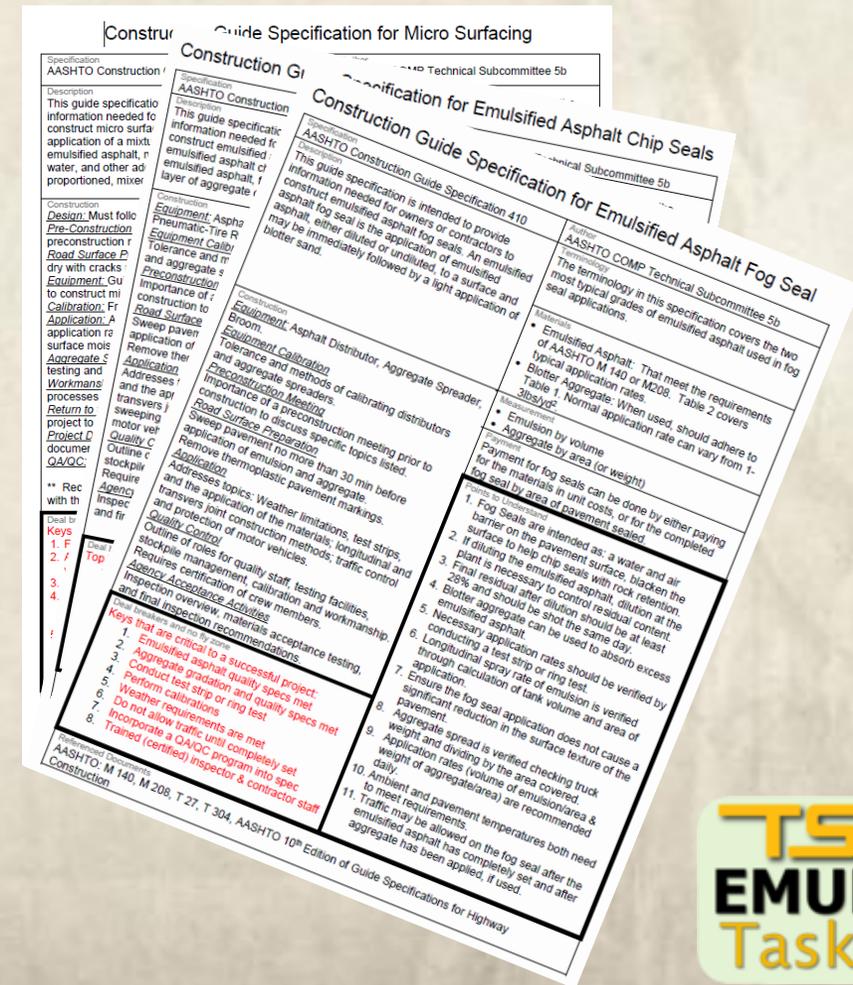
# Training on New Construction Guides

- The training is to help assist agencies to better understand the benefits in using the new AASHTO Standards for materials, design, construction, and quality assurance.
- The training is an on-going effort.

# Construction Guide Highlights

The ETF Training Group developed single page documents to cover the highlights of the full document.

- Sections match the guide specification
- Important Points to Understand
- Deal Breakers and No Fly Zone



# Task 4: Demonstrations

## Completed Demo Projects

Ottawa County, Michigan - Chip Seal & Fog Seal

Length – 1 mile

Contractor – Strawser Construction Inc.

ETF Oversight – Russ Milan

Delaware DOT – Chip Seal

Length - ??

Contractor – DeIDOT Maintenance Forces

ETF Oversight – Greg Harder

# Demo Volunteers

Nathan Awwad

Bobby Betsold

Rod Birdsall

Stormy Brewster

Tonya Burritt

Kevin Carlson

Andy Cascione

Allen Cheng

Andy Clayton

Brian Cox

Scott Dmytrow

Bill Evans

Jerry Geib

Chad Hanson

Greg Harder

Evan Henninger

Chuck Ingram

Pierre Peltier

Eric Reimschiessel

Steve Rooney

John Senger

Matt Teto

Larry Tomkins

Todd Vargason

Mike Voth

Travis Walbeck

Stan Williams

Thank You!

