



# FHWA Preservation Strategic Plan September 21, 2023

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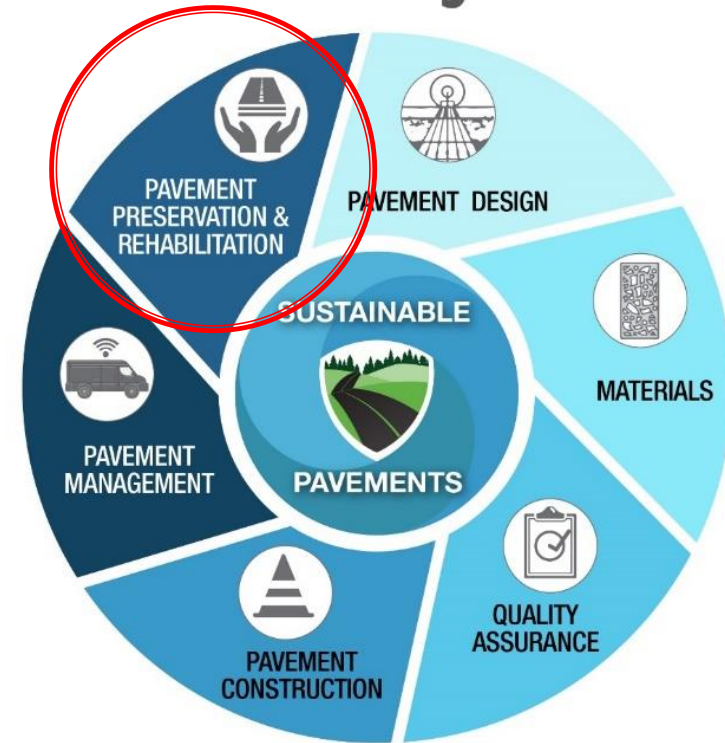




# Preservation

- ▶ FHWA definition\*:  
*Work that is planned and performed to improve or sustain the condition of the transportation facility in a state of good repair.*
- ▶ *Keeping good roads good*

## FHWA P&M Program Areas



\*Guidance on Highway Preservation and Maintenance memo dated February 25, 2016

# Pavement Preservation

- ▶ PACT definition:

*Is a sum of strategic activities performed to preserve the investments in a roadway, enhance safety, extend pavement life, improving functional performance and resilience, and contributing to increased user satisfaction.*



FHWA Q&A On Pavement Preservation (ongoing)

# Program Area Collaboration Team (PACT)

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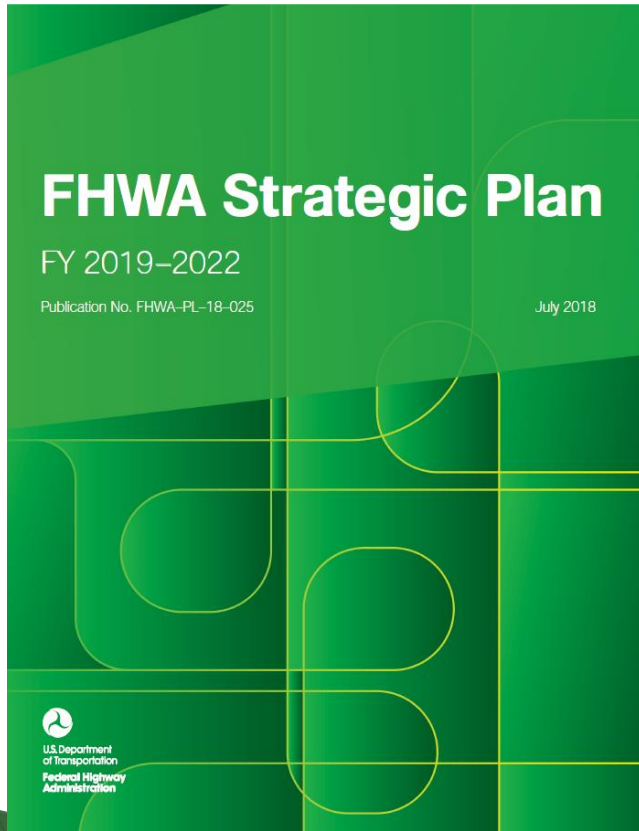
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# FHWA Pavement Preservation Program Linkage of FHWA Strategic Plan



The 2019–2022 FHWA Strategic Plan states:  
*The FHWA will continue to raise the awareness of proven strategies, such as performance-based practical design, and the use of preservation techniques to cost-effectively extend the service life of transportation assets that could further improve investment decision making.*

FHWA Strategic Framework – <https://www.fhwa.dot.gov/policy/fhwaplan.cfm>

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# FHWA Pavement Preservation Program

## Role of FHWA

- ▶ To provide **policy and leadership** (including training and technology transfer) toward effective application of pavement preservation within an overall pavement management process.
- ▶ To **demonstrate** the economic, social and environmental **benefits** derived from proper implementation of preservation programs.
- ▶ To **conduct and sponsor research** to address pertinent pavement preservation questions and needs of national significance



# Pavement Preservation & Rehabilitation

## PACT Proposals

- ▶ Pavement Preservation in Urban Environments: Best Practices in Materials, Technologies, and Applications (**ongoing**)
- ▶ Recycled Asphalt Pavement (RAP) Materials for Pavement Preservation: Material Specification and Storage (**starting**)
- ▶ Develop Web-based Training for Combination Treatments and to Give an Overview of the Different Individual Treatments that Can be Placed Together to Preserve Asphalt Pavements (**starting**)
- ▶ NHI Course 131145 – Pavement Preservation: Design and Inspection (Chip Seal, Slurry Seal, Micro Surfacing, and Thin Asphalt Overlay Treatments) (**starting**)
- ▶ Regional Pavement Preservation Peer Exchanges on Design Policies and Inspection and other obstacles (**completed**)

# Pavement Preservation & Rehabilitation

## PACT Proposals (Cont.)

- ▶ Updating NHI Course 134214 – Leveraging Your Maintenance Management Systems (**starting**)
- ▶ NHI Course 131116 – Pavement Management Fundamentals WBT (**new**)
- ▶ 2023 Slurry Systems Virtual Workshop – Invitation to State and Local Agencies (**ongoing**)
- ▶ Pavement Preservation eCourse for Local & Tribal Technical Assistance Program (LTTAP) (**almost complete**)  
[https://www.fhwa.dot.gov/clas/online\\_training.aspx](https://www.fhwa.dot.gov/clas/online_training.aspx)
- ▶ Cyclic Approaches to Pavement Preservation (**just chosen**)



# Types of Distress

- ▶ Distress is typically described in terms of type, severity, and extent
  - ✓ Type – linked to causes of failure
  - ✓ Severity
    - ❖ High – consider repair or replacement
    - ❖ Medium – may be maintained or repaired
    - ❖ Low – may be maintained or preserved
  - ✓ Extent
    - ❖ Measuring determines if distress is isolated and localized, or widespread
    - ❖ If localized and moderate or high severity, repair and consider preservation
    - ❖ If widespread (depending on distress and severity level), consider preservation, rehabilitation, or reconstruction

[https://shrp2.transportation.org/documents/App\\_D\\_Pavement\\_Distress\\_Survey\\_Forms.pdf](https://shrp2.transportation.org/documents/App_D_Pavement_Distress_Survey_Forms.pdf)

# Common Pavement Surface Distress

Cracking

Surface Deformation

Disintegration

Surface Defects

Pavement Texture

Joint Defects

## KEY

A = asphalt distress

C = concrete distress

A/C = asphalt or concrete distress



# Learning Outcomes

- You should now be able to:
  - Describe the importance of identifying pavement distress
  - Use pavement distress criteria to recommend treatment options
  - Identify common pavement distresses and their underlying causes

Treatment	L&T Cracking			Block Cracking			Fatigue Cracking			Rutting			Potholes			Raveling			Surface Wear		
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Crack Seal	I/O	I/O		O	O		I														
Patch			I/O				O	O	I/O				I/O	I/O	I			I			I
Rut Fill										I/O	I/O										
Fog Seal	O	O	I	O	O	I										E	O		E	O/E	
Chip Seal	O/E	O/E	I	O	O	I										O/E	O		O/E	O	
Slurry Seal	E	O/E	I	E	E	I										O/E	O		E	O	
Microsurface	E	O/E	I	E	E	I										O/E	O		E	O	
Thin Overlay		O/E	I/O		E	O	E	O	I								E	O	E	E	
Mill & Overlay		E	O/E		E	O	E	O	I	E	O	I/O	O	O	I			E			E
Surface Recycle				E	E	E	E	E	O	I	E	E	E			E	E	E	E	E	E

I = Isolated
  O = Occasional
  E = Extensive



# FHWA Pavement Preservation Program

## Key Stakeholders

- ▶ **Government–Sponsored Organizations:** American Association of State Highway and Transportation Officials (AASHTO), AASHTO Emulsion Task Force (ETF) , American Public Works Associations (APWA), Transportation System Preservation Technical Service Program (TSP2)
- ▶ **Industry Organizations:** American Concrete Paving Association (ACPA), Asphalt Institute (AI), Asphalt Emulsion Manufacturers Association (AEMA), Asphalt Recycling & Reclaiming Association (ARRA), Foundation for Pavement Preservation (FP<sup>2</sup>), International Grooving and Grinding Association (IGGA), International Slurry Surfacing Association (ISSA) , Pavement Preservation & Recycling Alliance (PPRA)
- ▶ **Academic Organizations:** National Center for Pavement Preservation (NCPP), California Pavement Preservation Center (CP2), National Concrete Pavement Technology Center (CPTech)

# FHWA Pavement Preservation Technical Feedback Group (PPTFG)

**Focus:** To convey key challenges and observations from the pavement preservation community that will provide valuable technical information to FHWA's strategic program.

Includes 20 members representing state and local DOTs, industry, and academia

Meets at least twice a year. Had DC meeting , last week Sept. 12–13, 2023, and plan on meeting again in February 2024.

# FHWA Pavement Preservation Program Opportunities

- ▶ Expand the knowledge and experience
- ▶ Demonstrate the benefits
- ▶ Encourage agencies to become more pavement preservation oriented
- ▶ Foster collaboration and cooperation amongst stakeholders and partners



# FHWA Pavement Preservation Program

## Strategic Elements

**Mission:** Preserving the nation's valuable highway infrastructure by keeping good roads in good conditions by using cost-effective pavement preservation.

**Objective:** To help agencies strategically consider and implement pavement preservation in a data-driven and systematic manner to optimize pavement performance, maximize the use of available funding, and incorporate effective stakeholder engagement.

# FHWA Pavement Preservation Program

## Strategy 1

### Explore and disseminate pavement preservation fundamentals

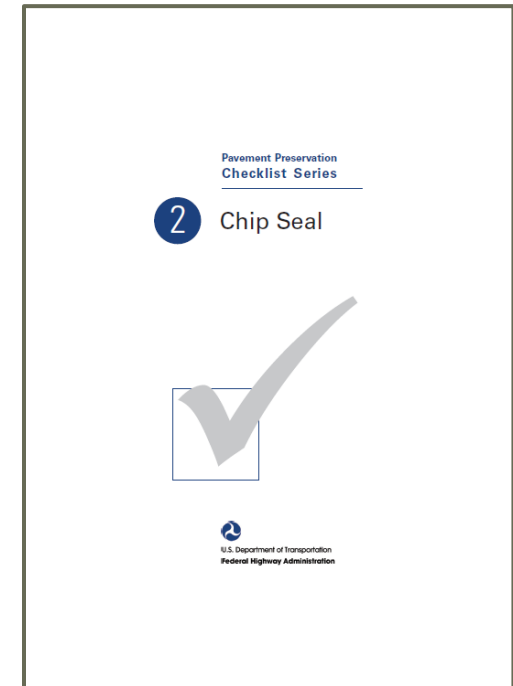
#### Tactics & Activities

##### 1) Conduct Benchmarking Study

- Evaluate impacts of current programs
- Propose standard metrics to quantify PP benefits
- Identify gaps in decision-making practices

##### 2) Increase pavement preservation understanding

- Update website
- Publish educational and reference materials
- Facilitate education and training



# Pavements

<b>Design &amp; Analysis</b>	Materials Quality Assurance	Sustainability	Pavement Management & Performance	Pavement & Materials
Life Cycle Cost Analysis	Mechanistic Empirical Design Guide	Surface Characteristics, Smoothness	<b>Pavement Preservation</b>	Pavement Policy
Policy/Authority/Guides	Technical Documents	Training	Research	States Agreements

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## Pavement Preservation

Federal Highway Administration (FHWA) [guidance](#) describes preservation as work that is planned and performed to improve or sustain the condition of the transportation facility in a state of good repair. A common mantra of pavement preservation is *keeping good roads good*. Constructing quality pavement preservation treatments when the pavement condition is still satisfactory can impede deterioration, extend service life, and improve functionality in a cost-effective manner while also enhancing safety and contributing to customer satisfaction.

Advancing effective application of pavement preservation involves integration of research, implementation, and deployment activities as well as considerations of pavement management and asset management. To that end, FHWA has refocused its Pavement Preservation Program as outlined in the [strategic plan](#) which prioritize these needs and identifies key Agency activities. Additional pavement preservation resources are provided below.

**Policy/Authority/Guides**

**Technical Documents**

**Training**

**Research**

**States Agreements**

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### Email Notifications



# Pavements

<b>Design &amp; Analysis</b>	Materials Quality Assurance	Sustainability	Pavement Management & Performance	Pavement & Materials
Life Cycle Cost Analysis	Mechanistic Empirical Design Guide	Surface Characteristics, Smoothness	<b>Pavement Preservation</b>	Pavement Policy
Policy/Authority/Guides	<b>Technical Documents</b>	Training	Research	States Agreements

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## Pavement Preservation

### Technical Documents

- Every Day Counts (EDC-4) - How
  - [Fact Sheet](#)
  - [Implementation Plan](#)
  - [Summit Workbook](#)
- Every Day Counts (EDC-4) - When & Where
  - [Fact Sheet](#)
  - [EDC-4 Pavement Preservation When/Where Peer Exchange Report](#), FHWA-HIF-20-057 2018

### Techbriefs

- [TechBrief: The Use of Thin Asphalt Overlays for Pavement Preservation](#)
- [Oregon, Washington, Idaho, and Nevada EDC-4 Peer-to-Peer Exchanges](#)
- [New Hampshire, Massachusetts, Maine, and Vermont EDC-4 Peer-to-Peer Exchanges](#)
- [North Dakota, Montana, South Dakota, and Wyoming EDC-4 Peer-to-Peer Exchanges](#)
- [Minnesota, Missouri, Iowa, and Wisconsin EDC-4 Peer-to-Peer Exchanges](#)
- [Louisiana, Mississippi, and Arkansas EDC-4 Peer-to-Peer Exchanges](#)
- [Indiana, Illinois, Michigan, and Ohio EDC-4 Peer-to-Peer Exchanges](#)
- [Georgia, Alabama, and South Carolina EDC-4 Peer-to-Peer Exchanges](#)
- [Delaware, Maryland, New Jersey, and Pennsylvania EDC-4 Peer-to-Peer Exchanges](#)
- [Arizona, Texas, Utah and New Mexico EDC-4 Peer-to-Peer Exchanges](#)
- [Kentucky, Tennessee, and West Virginia EDC-4 Peer-to-Peer Exchanges](#)



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## Tech Brief



U.S. Department of Transportation  
Federal Highway Administration

### PAVEMENT PRESERVATION HOW

The fourth round of Every Day Counts (EDC-4) innovations promoted quality construction and materials practices that apply to both flexible and rigid pavements. For flexible pavements, these include using improved specifications for thin asphalt surfacings such as chip seals, scrub seals, slurry seals, micro surfacing, and ultrathin bonded wearing courses; following improved construction practices; and using the right equipment to place these treatments. Rigid pavement treatments include the rapid retrofitting of dowel bars to reduce future faulting; the use of new, fast-setting partial- and full-depth patching materials to create a long-lasting surface; advanced pavement removal techniques to accelerate patching construction times; and advancements in diamond grinding that contribute to smoother and quieter pavement surfaces with enhanced friction.

### BACKGROUND

Regional peer-to-peer exchanges between states were initiated to exchange knowledge on "How" to effectively implement pavement preservation. Adoption of a comprehensive pavement preservation program will ultimately result in an improved pavement condition and safety rating for the overall network, reduced agency and user delay costs, and decreased environmental impact. In order to achieve these objectives, an understanding of the concepts, capabilities, and applications relevant to constructing pavement preservation treatments with quality materials must be implemented via a technology program aimed at transportation agencies, contractors, consultants, and Federal Highway Administration (FHWA) staff.

## PAVEMENT PRESERVATION HOW: NEW HAMPSHIRE, MASSACHUSETTS, MAINE, AND VERMONT

### EDC-4 PEER-TO-PEER EXCHANGES

#### INTRODUCTION

On October 10th, 2016, an FHWA-sponsored EDC-4 "How" Pavement Preservation State Peer-to-Peer Exchange was conducted in Concord, New Hampshire, with four FHWA representatives; six department of transportation (DOT) representatives from New Hampshire, two from Massachusetts, three from Maine, and two from Vermont; and two local agency representatives. Larry Galehouse with the National Center for Pavement Preservation and Larry Scofield with the International Grooving & Grinding Association and American Concrete Pavement Association facilitated the day-and-a-half-long meeting. New Hampshire was the host state and provided meeting room facilities. Antonio Nieves of the FHWA provided the meeting background and kicked off the meeting.



The meeting format consisted of each of the states and local governments identifying their current procedures, issues, and successes for each of the topics discussed.

Table 1 indicates the discussion topics.

Table 1. List of pavement preservation treatments discussed

Asphalt pavement preservation treatments	Concrete pavement preservation treatments
Asphalt rubber (AR) chip seal	Diamond grinding
Micro surfacing	Partial-depth repair
Hot in-place recycling (HIR)	Joint sealing
Chip seal	—
Cold in-place recycling (CIR)	—
Ultrathin bonded wearing course	—
Surface spray rejuvenators	—
Crack seal	—

#### SUMMARY OF IMPORTANT ISSUES OR SUCCESSES

##### Asphalt Concrete Pavement Preservation

**Asphalt rubber (AR) chip sealing:** Although three of the four states have used this treatment, only two states use it regularly, with one of these states having employed this treatment continuously since 2004 as part of its preservation program. The two states that use AR chip seals consider project selection very important and use the treatment on pavements in good condition. If there are cracks in the road, frost heave and rutting can become a problem.

A major advantage of an AR chip seal is that it can be swept immediately and opened to traffic very quickly. The state specifies at least a minimum of two pneumatic rollers are required, and it was noted that monitoring roller speed is important. One state achieves an 8- to 10-year service life from this treatment, and that is the preservation cycle the state uses for this treatment. The state also precoats its chips, which have a top size of 3/8 in. Additional chip seals or asphalt concrete (AC) overlays can be placed at a later date if needed.

The other state that regularly uses chip seals uses them primarily as a stress absorbing membrane interlayer (SAMI). Both states use the wet application process.

Aggressive snow plowing can be an issue for AR chip seals, and it is important to work with maintenance personnel to minimize winter damage. An additional issue for one of the states is that a bicycle board must approve the use of chip seals. See Table 2.

**Micro surfacing:** Although all four states have used this treatment, only two use it regularly. The two states that do not currently use this treatment instead use ultrathin overlays; politics appears to have played a role in this shift.

One of the states that does use the treatment just developed a new specification and is hoping to use micro surfacing more. It was recognized that surface preparation is critical, and CSS1-H tack coats are used for this purpose. CSS1-H emulsion is also used for the micro surfacing, and certified laboratories need to be used for the mix design. If the mix design is performed by a contractor's

laboratory, third-party verification is required. A two-course micro surface is commonly used, with a total application rate of 30 to 32 lb/yd<sup>2</sup>. The state does not recommend night work due to moisture issues and the potential for delamination. Training has been an issue due to limited experience with the treatment. See Table 3.

**Hot in-place recycling (HIR):** All four states have used this treatment successfully, but its use has been limited. The treatment costs less than a mill and fill option or a conventional overlay. In one state, the reduced cost of HIR compared to a conventional overlay allows the state to place a 1 in. thick overlay over the shoulders as well. It was discussed that it is important to use a good roadway template and reserve the treatment for roadways that do not have an excessive amount of crack sealant in the existing roadway. Previous bad experience with infrared heaters was noted, and their use, by State requirement, is no longer allowed in one state. Typical depths of milling are 1½ in., and projects are typically capped with an AC overlay after a cure period. See Table 4.

Table 2. Asphalt rubber chip sealing

State	Design		Material type				Construction procedures						
	Design procedure	Maximum ADT	Aggregate	Blinder	Top size	P200	Aggregate rate	Blinder rate	Rollers	Sweeping	Fog seal	Workforce	Pilot vehicle
New Hampshire	NA	NA	NA	PG58-28 with 18%–20% rubber	¾ in.	Pre-coat chip	NA	NA	2 pneumatic	Prior to opening to traffic	NA	NA	Yes
Massachusetts	Wet process 30 mesh rubber	Lower volume roads	NA	15%–18% rubber	NA	NA	NA	0.5 gal/yd <sup>2</sup>	NA	NA	NA	NA	NA
Maine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vermont	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Micro surfacing

State	Design method	Material type				Construction procedures						
		Aggregate	Blinder	Type	Cement	Application rate	Crack seal in advance	Tack in advance	Sweeping in advance	Test section	Number of courses	Calibration verification
New Hampshire	Certified lab	NA	CSS-1H	2	NA	30–32 lb	Type 2 overband	Yes	Yes	NA	2	NA
Massachusetts	NA	NA	NA	NA	NA	NA	NA	Yes	NA	NA	NA	NA
Maine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vermont	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 4. Hot in-place recycling

State	HIR type	Construction procedures			
		Plant type		Minimum thickness	Minimum existing AC remaining
		Central	Roadway		
New Hampshire	NA	No	Yes	NA	NA
Massachusetts	NA	No	Yes	NA	NA
Maine	Full depth	No	Yes	1½ in.	NA
Vermont	NA	NA	NA	NA	NA



**Chip sealing:** Only one of the states uses this treatment as part of its preservation toolbox, though another state has used chip seals as a stress absorbing membrane. However, no state agency routinely uses this treatment. It was noted that the percentage of fines passing the number 200 sieve size is important. One state specification, by contract, requires that the percentage be a maximum of 2%, and the state penalizes contractors for exceeding that amount. Local agencies represented at the meeting successfully use chip seals. See Table 5.

**Cold in-place recycling (CIR):** Although all four states have had limited experience with this treatment, three of the four states consider it a good candidate for their preservation toolboxes. The treatment enhances competition with the hot-mix asphalt industry by providing an alternative treatment and thereby reduces preservation costs. A problem with previously placed crack sealants was discussed; these often become "sealant snakes" that can clog the CIR equipment.

**Ultrathin bonded wearing course:** This treatment is one of the more widely used pavement preservation treatments in this region. It is one of the states' workhorses and is used on high-volume roadways.

Some states prefer spray pavers for treatment application, but availability of this equipment in the northeastern US is limited. This scarcity of spray pavers causes some projects to be milled in advance and then left to wait to be overlaid

for far too long. One state has initiated requirements specifying how long the milled surface can be trafficked until overlaid.

One state fills ruts using micro surfacing in advance of the ultrathin bonded wearing course to better control quantities. Two of the states do not require material transfer devices for placement. One state allows crack sealing (without routing) on the same project, but that state found that a harder base sealant is needed to keep the crack sealant from pulling out. This treatment does not lend itself to hand work, making ramps a little more difficult to overlay than other types of pavement. See Table 6.

**Surface spray rejuvenators:** Experience with rejuvenators in this region is limited to test sections or shoulder applications. Very little information exists about the long-term performance of this treatment in the region. It was noted that friction can be an issue and should be managed before the treated pavement is opened to traffic. One solution for overcoming this issue is to use a skid abrader before application of the rejuvenator. It was also noted that application of abrasives may also be necessary for friction management. Another concern raised regarding this treatment was how to determine whether a rejuvenator is effective; if it is found to be effective, how would this be accounted for in a pavement management system (PMS)? See Table 7.

Table 5. Chip sealing

State	Design		Material type				Construction procedures						
	Design procedure	Maximum ADT	Aggregate	Binder	Top size	P200	Aggregate rate	Binder rate	Rollers	Sweeping	Fog seal	Stripe pretreatment	Pilot vehicle
New Hampshire	NA	NA	NA	NA	NA	2%	NA	NA	NA	NA	NA	NA	NA
Massachusetts	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Maine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vermont	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6. Ultrathin bonded wearing course

State	Design method	Material type		Construction procedures					
		Aggregate type	Binder type	Crack seal in advance	Spray paver	Task cost	Thickness	Used as Interlayer	
New Hampshire	NA	Type C	NA	NA	Yes	0.15 gal/yd <sup>2</sup>	NA	NA	
Massachusetts	NA	NA	NA	NA	NA	NA	NA	NA	
Maine	NA	NA	NA	Yes	Yes	0.17-0.22 gal/yd <sup>2</sup>	¾ in.	No	
Vermont	See Table 407.03A	Type 2	Performance-graded asphalt binder shall be PG 70-28	Yes	Yes	Type A: 0.150 ± 0.025 gal/yd <sup>2</sup> ; Type B: 0.190 ± 0.025 gal/yd <sup>2</sup> ; Type C: 0.225 ± 0.025 gal/yd <sup>2</sup>	Per engineer	NA	

Table 7. Surface spray rejuvenators

State	Rejuvenator type	Traction abrasive used	Application rate	Agency or contractor applied
New Hampshire	NA	NA	NA	NA
Massachusetts	Reclamite and ES	NA	NA	NA
Maine	Bioproduct	Yes	NA	Contract
Vermont	NA	NA	NA	NA

Table 8. Crack sealing

State	Sealant type			Crack preparation			Installation procedures				
	Hot pour	Mastic	Other	Route cracks	Air blow cracks	Vacuum cracks	Temperature requirements	Overband	Flush fill	Defoamer	Workforce
New Hampshire	Type 2	Yes	NA	Yes	Yes	NA	Apply when ambient temperature is $\geq 50^{\circ}\text{F}$	Not allowed	Yes	NA	Contact
Massachusetts	ASTM D6690 Type II	NA	NA	NA	NA	NA	NA	NA	NA	NA	In-house
Maine	Yes	Yes	NA	No	NA	NA	NA	NA	NA	NA	Contact
Vermont	Type 4	NA	NA	Yes	Yes	NA	Apply when ambient temperature is at $40^{\circ}\text{F}$ – $104^{\circ}\text{F}$ and when pavement temperature is at $50^{\circ}\text{F}$ – $140^{\circ}\text{F}$	Yes	NA	NA	NA

**Crack sealing:** This treatment is routinely used by all four states and is considered a necessary preservation treatment. Crack sealing is performed before most other preservation projects. The work is performed both by in-house forces and contractors. Typically, cracks 1/4 in. and wider are sealed. Hot-pour sealants installed in the overband configuration are the most common type of sealant used. Cracks are typically not routed, but for cracks as wide as 2 to 3 in. mastic might be used. One state does route cracks and uses a recessed sealant configuration. This state referred to a pooled-fund research project that indicated that routing is the best preparation treatment and that the overband sealant configuration is the best performing installation option. See Table 8.

#### Concrete Pavement Preservation

**Diamond grinding:** This treatment is rarely used in this region because of the very limited number of concrete pavements. Rather, asphalt overlays are the preferred treatment. Diamond grinding is only used as a corrective solution on new construction and bridge decks.

**Partial-depth repair:** This treatment is rarely used in this region because of the very limited number of concrete pavements. When repairs are needed, the states generally prefer to use full-depth repairs.

**Joint sealing:** This treatment is not used in this region because of the very limited number of concrete pavements.

#### KEY OBSERVATIONS

During this peer-to-peer exchange meeting, agency personnel representing four state and two local agencies identified and discussed their pavement preservation successes and challenges.

#### Preservation Successes

- On-call specialty contractors can provide an advantage in responding to preservation needs.

- Establishing preservation projects at the district level reduces administrative burdens for state agencies because such projects are not required to be included in the Statewide Transportation Improvement Plan (STIP). This also allows for the possibility of smaller planning windows.
- A crack sealing research project indicated that routing cracks is the best preparation treatment and that the overband sealant configuration performs the best.
- For AR chip seals, project selection is very important, and the treatment should only be applied to pavements in good condition. Otherwise, cracks in the pavement can result in frost heave and rutting.
- In-place recycling treatments enhance competition with the hot-mix asphalt industry by providing an alternative treatment and thereby reduce preservation costs.

#### Preservation Challenges

- It is difficult to program preservation treatments three to five years in advance.
- Aggressive snowplowing can be an issue for AR chip seals, and it is important to work with maintenance personnel to minimize winter damage.
- For in-place recycling treatments, an excessive amount of crack sealant in the existing pavement can be problematic.
- The availability of spray pavers in the northeastern US is limited. This scarcity of equipment can create issues on mill and fill projects where the milled surface is exposed to traffic for long periods, which generates roadway user complaints.

# FHWA Pavement Preservation Program

## Strategy 2

### Encourage effective pavement preservation programs

#### Tactics & Activities

Develop & deploy pavement tools

- Provide construction and inspector training
- Identify pavement preservation considerations during pavement design activities.

Integrate with performance management and asset management

- Maximize use of pavement management systems
- Provide techniques and tools to identify appropriate preservation, rehabilitation, and reconstruction options

Leverage industry and other stakeholder resources

- Promote construction certification programs
- Partner on project showcases

# Pavement Preservation Keys to Success

- Proactive interaction with the contractor/owner
- Follow standard test methods
- Keeping up with the slurry trucks and tracking the loads of materials
  - Obtaining street measurements
  - Collecting tickets and date slips
  - Photos and videos
- Be prepared and keep testing equipment clean
- Providing the contractor with clear direction in situations where an immediate change is needed
  - A common example is adjusting limits and covering berm areas.
- Remaining in communication with the project engineer, contractor, and the technician



# Production Inspection

- Let's start off by talking about. Is the street preparation acceptable?
- Is someone doing product inspection and taking samples asphalt emulsions or performance grade asphalt?
- Is one verifying the appropriate type / Quantity of on-site materials?
- Is the proper operational equipment on-site?
- Is the aggregate spread rate verified?
- Is set time verified?

# Aggregate Quality Summary

- Durable
- Sound
- Abrasion Resistant
- Polishing (friction)
- Clean
- Angularity
- Consistent
- Segregation



# Field Sampling & Fabrication Preparation

- Parking and fabrication location
- Equipment clean and organized
- Communication with pugmill operator
- Level fabrication work area
- Equipment staged at sample location

# Understanding Typical Pull Patterns and Routes

## Pulling Slurry Field Samples

- Safety first
- Obtain sample directly from mixer discharge
- Typically obtain 2 samples per mixer, from separate loads, per shift



# Understanding Typical Pull Patterns and Routes

## Knowing what types of tests are needed

- Wet Track Abrasion Test
- Aggregate Testing
  - Sieve
  - Sand Equivalent
  - other
- Constancy testing (Flow test, and optimum mix design proportions)
- Residual Asphalt and Water Content Sampling

# FHWA Pavement Preservation Program Strategy 3

## Facilitate strategic pavement preservation research and implementation efforts

### Tactics & Activities

#### Implement Research Roadmap

- Lead or support critical research & development projects
- Develop fact sheets and research reports

#### Implement coordinated preservation pavement program

- Execute communication and marketing plans
- Engage stakeholders through FHWA participation and sponsorship of various activities such as conferences, workshops, peer exchanges and webinars

[https://docs.google.com/spreadsheets/d/1pxGkLgxHY7KI7PevWiZbVH4\\_pnlTRK4h5acgM0Te0i8/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1pxGkLgxHY7KI7PevWiZbVH4_pnlTRK4h5acgM0Te0i8/edit?usp=sharing)



#### Overview

The Federal Highway Administration, in partnership with the Pavement Preservation and Recycling Alliance, presents the Pavement Preservation Webinar Series. This series of webinars is designed to help State Highway and local agencies in preserving their investment in roadways, enhance safety, extend pavement life, improve functional performance, and contribute to increased user satisfaction. A key principle of pavement preservation is keeping good roads good.



#### Recorded Webinars

[Jan. 27: Asphalt Emulsions 102: Beyond the Basics](#)

[Feb. 17: Mississippi DOT Micro Surfacing Project Yields High Return on Investment](#)

[Mar. 17: Scrub Seal Pavement Treatments](#)

[Apr. 21: Agency Experiences with Emulsion Preservation Treatments and Research](#)

[May 19: Project Selection and Design of In-place Recycling](#)

[Sept. 15: Proven Preservation Strategies for Your Network](#)

[Oct. 20: Emulsions - What is it good for?](#)

[Nov. 17: The Use of Cold In-Place Recycling As Innovative Solution for a Sustainable World \(SH-149\)](#)

[Dec. 15: Introductions to The International Slurry Surfacing Association \(ISSA\) Inspectors and Designers Manual](#)

#### Target Audience

Ideal for State Highway and local transportation agencies, industry, suppliers, consultants, and academia. All webinars are tentatively scheduled for the third Thursday of each month at 2 p.m. EST; space is limited so please register today. With all our webinars, we provide our audience with technical and educational programs that provide insights as well as real-world application experience. Professional Development Hours are available upon request.

For more information, please contact Jason Dietz at (720) 910-0874 or [jason.dietz@dot.gov](mailto:jason.dietz@dot.gov).  
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# FHWA Pavement Preservation Program

## Measurable Outcomes

Strategy	Measurable Outcome
1) Explore and disseminate fundamentals of pavement preservation	Conduct benchmarking study.  Develop metrics definition document and outreach program.
2) Encourage effective pavement preservation programs	Lead transportation pooled fund study to demonstrate integrated systems approach to pavement preservation.
3) Facilitate strategic pavement preservation research and implementation efforts	Initiate research projects with States on benefits of pavement preservation.

# FHWA Pavement Preservation Program Strategic Plan Next Steps

- ▶ Share approved strategic plan
- ▶ Assess strategic plan for 2022 updates
- ▶ Continue to carry out activities in implementation plan



# Improving the Quality of Preventive Maintenance Construction and Data Collection Practices – Solicitation #1581

This new pooled-fund study is being established to provide direction and funding that will unify the strategies, address implementation efforts, develop best construction practices for national pavement preservation, and use suggested procedures for long-term monitoring of pavement preventive maintenance treatments. This data would then be available for public distribution through an online system such as the Long-Term Pavement Performance (LTPP) InfoPave web portal. It is expected that this study will be completed within 6 years.

<https://www.pooledfund.org/Details/Solicitation/1581>

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# FHWA Pavement Preservation Program

## Questions?



<https://www.fhwa.dot.gov/preservation/>