LOCAL TECHNICAL ASSISTANCE PROGRAM

DROP-IN

ASPHALT PRESERVATION TOOL – SEAL COAT

JANUARY 15, 2026

Pennsylvania
Department of Transportation

SESSION BEING RECORDED

This session is being recorded.

By participating in this session, you are consenting to the recording, retention, and use of this session.

Additionally, as a reminder by asking a question verbally you are also consenting to the recording, retention, and use of your statements.

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PA LTAP

Pennsylvania **L**ocal **T**echnical **A**ssistance **P**rogram

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- In-Person & Virtual
- Road Shows

Technical Support Services

- Onsite
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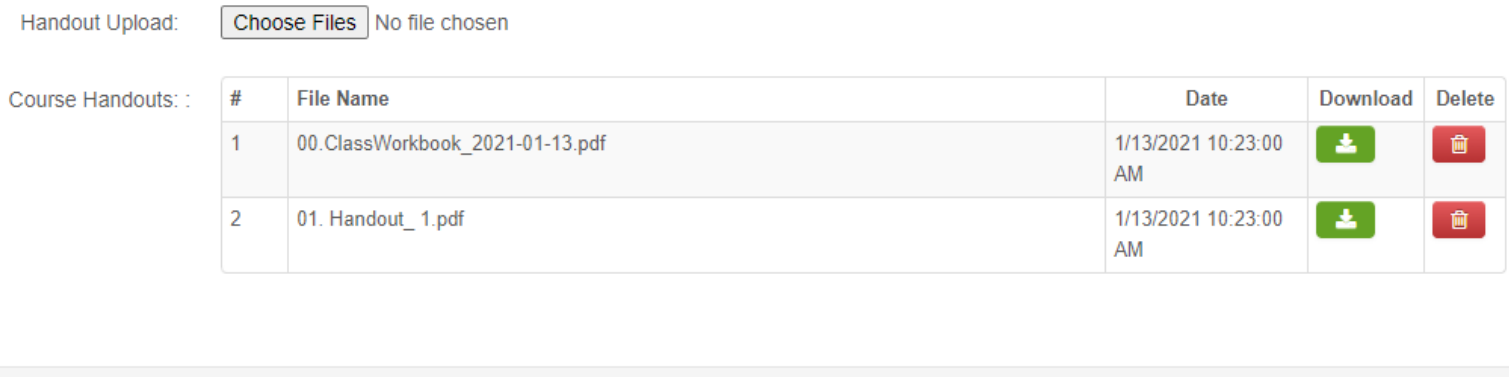
- Website: www.gis.penndot.pa.gov/ltap

All Services are FREE.

HANDOUTS ONLINE

- https://gis.penndot.pa.gov/ltap/ - Training Descriptions
- Click on the course description and scroll to the bottom to download handouts.



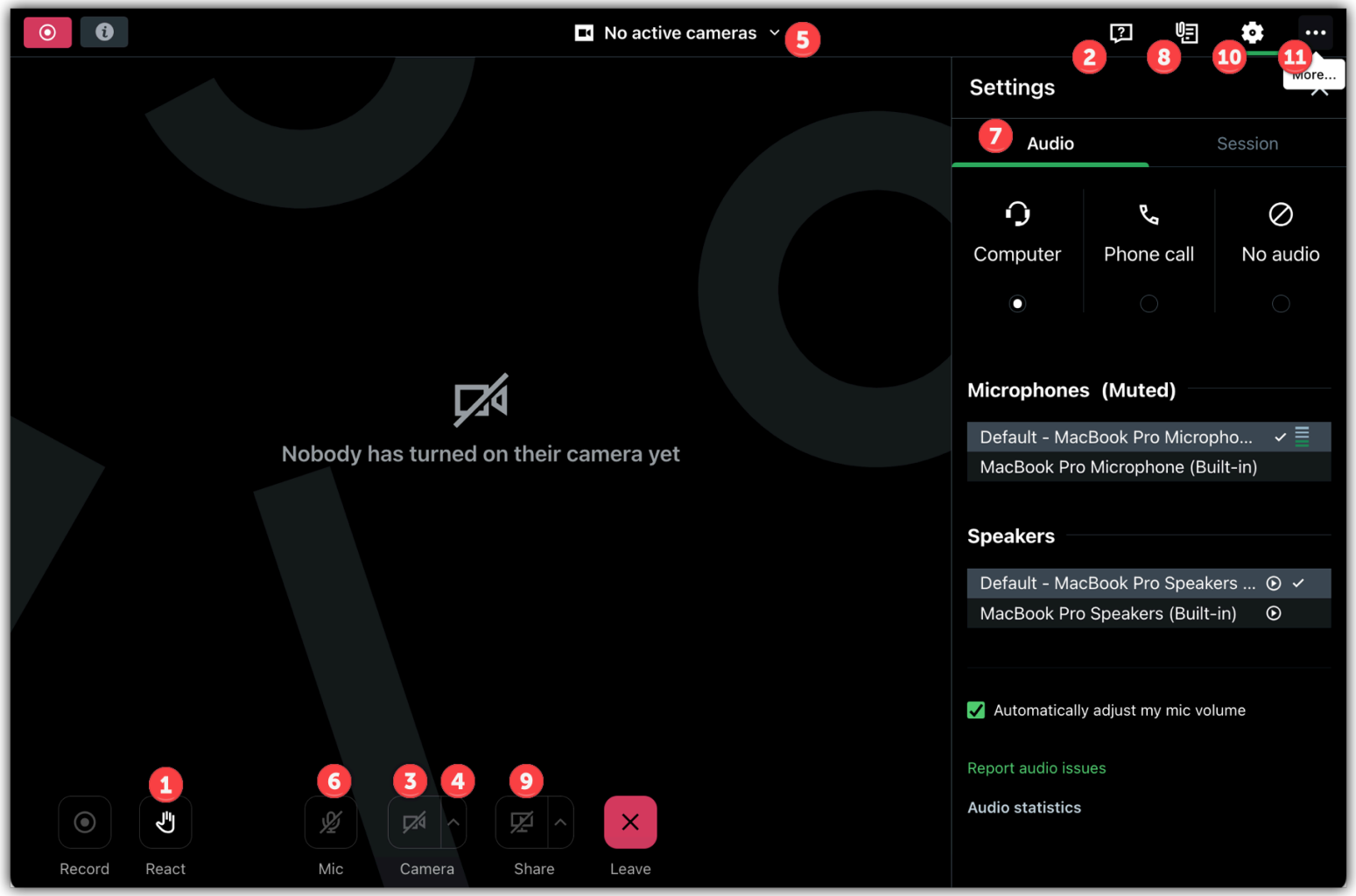
VIRTUAL IN-SESSION ATTENDEE GUIDE

Interact with the presenter/organizer:

(1) Reaction Emojis

(2) Use the Question/Chat icon to type your question/comment and send it to the staff/presenter.

(8) If materials have been shared such as handouts or PDF slides, you can access them through the Materials icon.



POLL QUESTION

Who is attending the drop-in today?

a) Municipal Public Works Leadership
b) Municipal Public Works Work Crew
c) Elected Official
d) PennDOT/County/MPO/RPO
e) Other

POLL QUESTION

For the municipal audience:

Have you used Seal Coat as an asphalt pavement preservation tool?

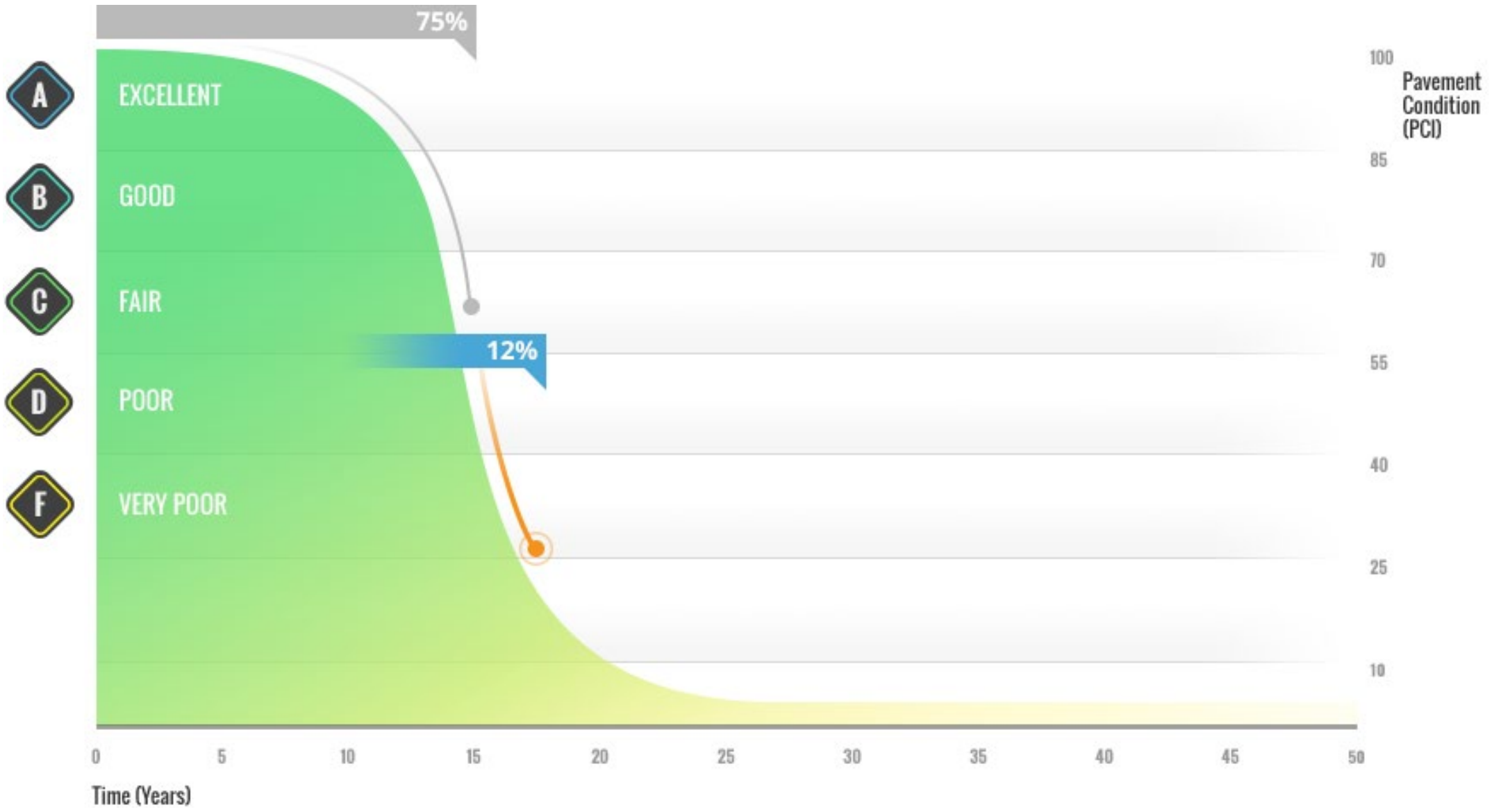
a) Yes, part of the normal maintenance cycle
b) Yes, only once or a couple times
c) No

WHAT IS A SEAL COAT?

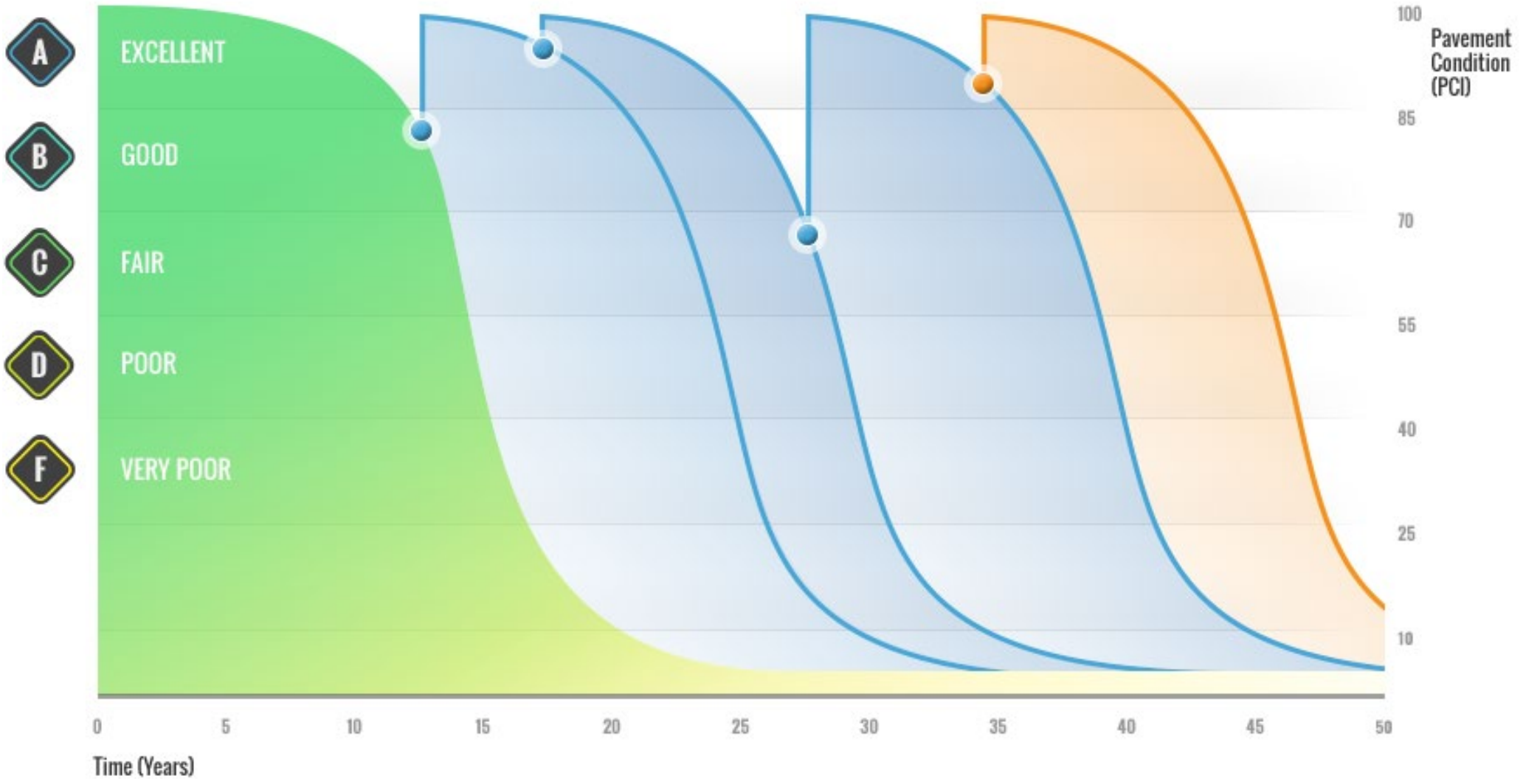
Seal coat definition:

A low cost pavement preservation tool typically used on low volume roadways. Asphalt emulsion is applied to the existing surface followed by an application of clean #8 (3/8") aggregate. The treatment seals the surface extending the life of the pavement.

WHY USE BITUMINOUS SEAL COATS?



WHY USE BITUMINOUS SEAL COATS?



WHICH TREATMENT IS RIGHT FOR MY ROAD?

PennDOT Pub. 242 Pavement Policy Manual

TABLE 5.1
SEAL COAT, SLURRY SEAL
AND SURFACE TREATMENT SELECTION GUIDE

CURRENT ADT	SEAL COAT	SLURRY SEAL	SURFACE TREATMENT
0 - 800	Yes	Yes	Yes
801 - 1,500	Yes	Yes	Yes
1,501 - 3,000	2	Yes	2
3,001 - 5,000	2	Yes	2
5,001 - 12,000	2	1	2
12,001 - 20,000	3	1	2
Over 20,000	No	No	No

The numbers in the Table refer to the following:

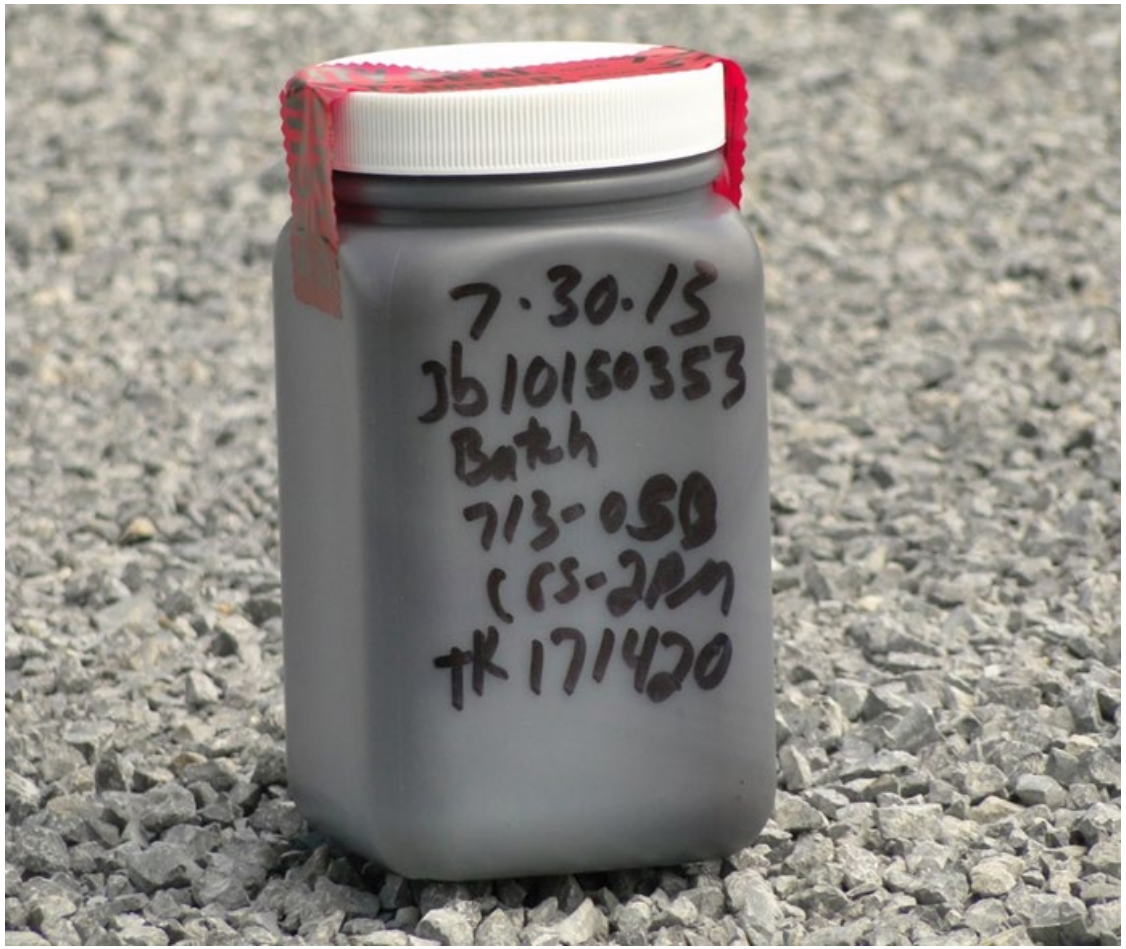
1 - Use only if base is good and existing surface is a HMA surface, WMA surface.

2 - Use only if traffic is controlled during and after construction and aggregate is precoated or held to 1.0% passing #200 sieve.

3 - Use only if traffic is detoured or lane is closed for 24 hours and aggregate is precoated or held to 1.0% passing #200 sieve.

SEAL COAT DESIGN

Aggregate material finer than the #200 sieve shall not exceed 1.0%



SEAL COAT DESIGN

Pennsylvania uses a modified version of a seal coat design developed in 1969. The contractor will take the following information into account when performing your seal coat design.

1. Average Daily Traffic (ADT)
2. Aggregate Gradation – provided by aggregate producer
3. Loose unit weight of Aggregate – provided by aggregate producer
4. **Type of Binder** – Asphalt emulsion or Performance Graded (PG) Asphalt
5. Type of Aggregate – Limestone/Dolomite, Gravel, Slag
6. Residual Asphalt in the emulsified asphalt – 65% to 100%
7. Roadway Surface Condition

SEAL COAT DESIGN

7. Roadway Surface Condition
   a. Black, flushed asphalt – majority of the surface is asphalt covered and smooth with little aggregate visible -0.03.
   b. Smooth, non-porous - surface is uniform, no signs of raveling or oxidation 0.00.
   c. Slightly porous and oxidized – beginning oxidation and some loss of surface aggregate +0.03.
   d. Slightly pocked, porous and oxidized – widespread loss of fine & course aggregate +0.06.
   e. Badly pocked, porous and oxidized – beginning stages of raveling of surface & completely oxidized. Use this category for open graded surfaces such as Cold in Place Recycling, freshly placed 19 mm SUPERPAVE and FB mixes +0.09.

PENNDOT SPECIFICATIONS

PennDOT Pub. 447

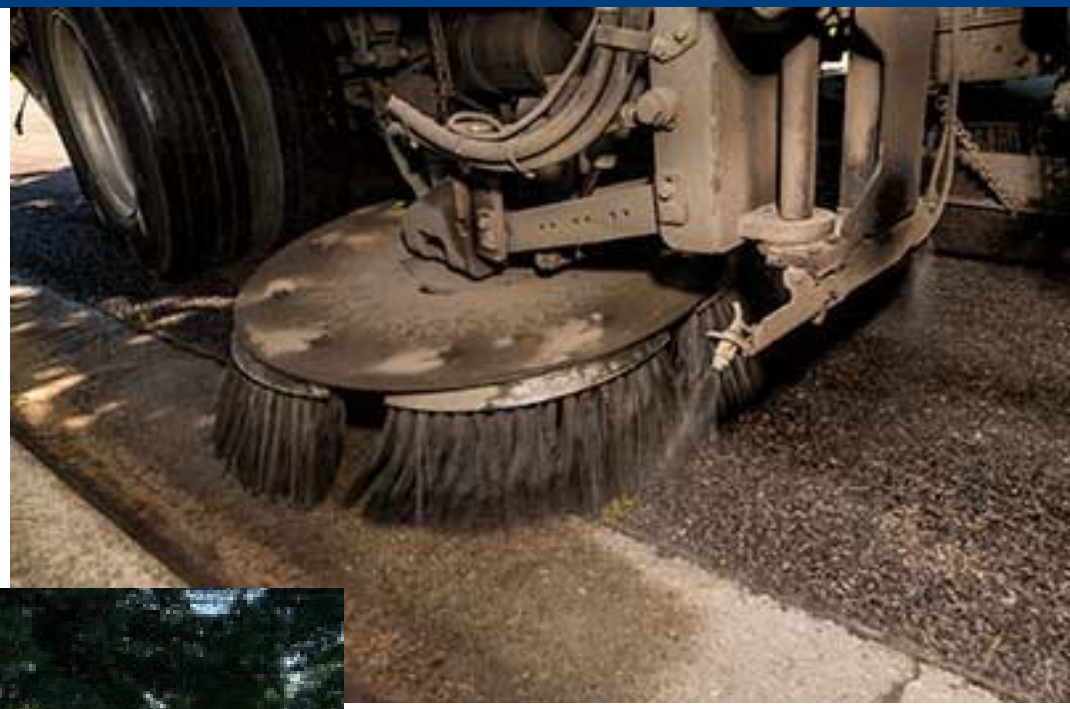
1. Bit. Seal Coat
2. Bit. Fiber Reinforced Seal Coat
3. Bit. Fiber Reinforced SAMI

PennDOT Pub. 408

1. Asphalt Seal Coat
2. Asphalt Seal Coat w/Precoated Aggregate
3. Asphalt Fog Seal
4. Asphalt Seal Coat w/RAP
5. Asphalt Surface Treatment
6. Asphalt Surface Treatment w/Precoated Aggregate

BITUMINOUS SEAL COAT PUB. 447

- Preparing existing surface…
  - Remove & dispose of unsuitable material
    - Cold patch, lawn clippings, leaves
  - Use power broom to clean the surface
    - Dust, dirt, debris
  - Seal cracks
    - ¼″ to 1″



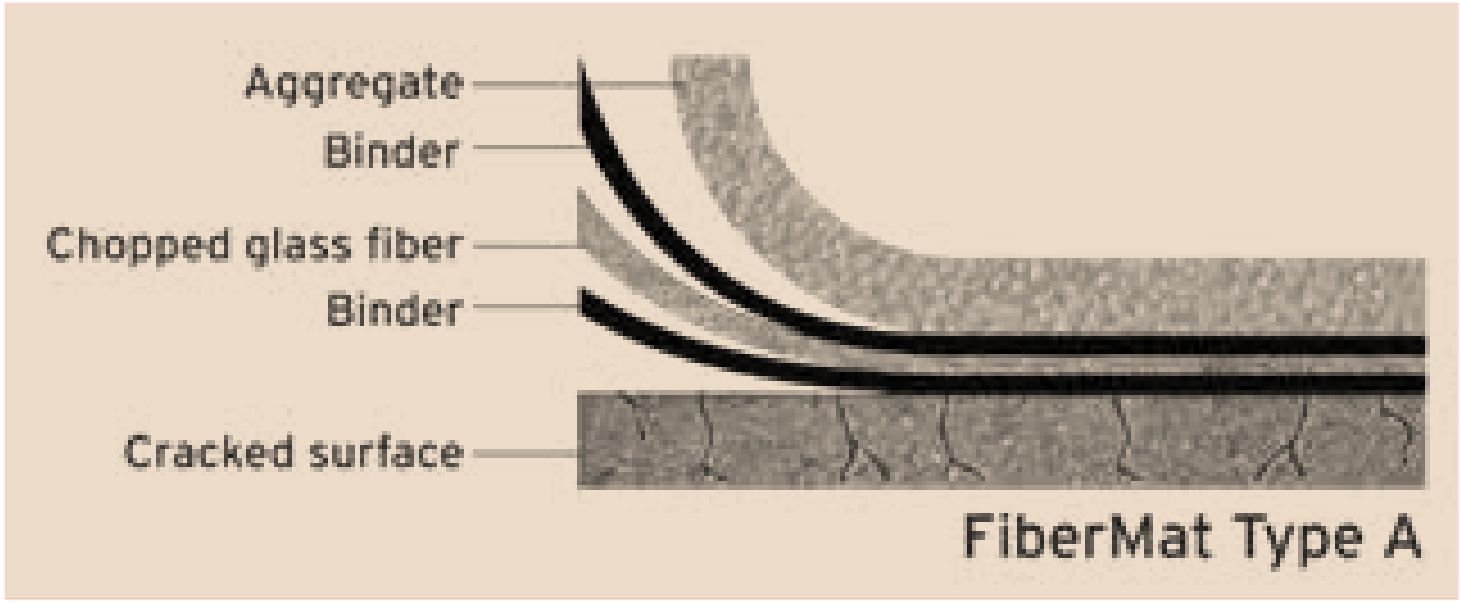
BITUMINOUS FIBER REINFORCED SEAL

Application of bituminous fiber-reinforced material immediately followed by application of coarse aggregate.

- Bituminous material
  - Pub. 37, Bulletin 25
- Coarse Aggregate
  - Pub. 408, Sect. 703.2 AASHTO #8 or #7
- Fiber
  - Type E-Glass Fiber
- Seal Coat Design
  - Appendix E, Bulletin 27

Application Temperature F

Class of Material	Type	Minimum	Maximum
CRS-2p	Polymer-Modified Cationic Emulsified Asphalt	140	175
UTFCEM	Polymer Emulsified Asphalt	120	180



BITUMINOUS FIBER REINFORCED SEAL COAT

- Apply material with specialized trailer
  - 0.2 gal/s.y. to 0.80 gal/s.y. Emulsion
  - 0.055 lbs./s.y. to 0.166 lbs./s.y. Fiber
  - As per design of specific project requirements

ASPHALT SEAL COAT

Pub. 408, Section 470 – ASPHALT SEAL COAT

Similar to Pub. 447, This work is the application of emulsified asphalt, immediately followed by application of coarse aggregate.

Difference

- Aggregate size
- Compaction

Cross-section of a one-size seal coat aggregate

ASPHALT SEAL COAT

- Coarse Aggregate
  - Pub. 408, Section 703.2, Type A, #8, **or** on roadways with less than 1,000 ADT use #89 or a gradation listed below
  - Skid Resistance Level (SRL) based upon ADT (include in contract)
  - Aggregate Supplier must be listed in Bulletin 14

- Seal Coat Design
  - Appendix E, Bulletin 27

Table A
Aggregate Gradations for Seal Coats

Sieve Size	Total Percent Passing Type SC-1(1)
12.5mm (1/2 inch)	100
9.5mm (3/8 inch)	90-100
6.25mm (1/4 inch)	0-70
4.75mm (No. 4)	0-25
2.36mm (No. 8)	0-5
75µm (No. 200)	0-1.0

Note: Material finer than 75µm (No. 200) sieve will be determined according to PTM No. 100.
Aggregate is to meet the requirements of Table B, Type A specified in Section 703.2, except 703.2(c)3 flat and elongated particles must have a ratio of 1:3 (3:1) conforming to ASTM D4791, Method A.

ASPHALT SEAL COAT W/PRECOATED AGGREGATE

Pub. 408, Section 471 – Asphalt Seal Coat Using Precoated Aggregate - Application of asphalt material followed by an application of asphalt precoated aggregate.

(a) Asphalt Precoating Material. One of the following, as specified in Section 702:

Class of Material	Type of Material	Application Temperature °F Minimum	Application Temperature °F Maximum
MC-30	Cut-back Asphalt	70	120
MC-70	Cut-back Asphalt	100	150
SS-1h (E-8A)	Emulsified Asphalt	70	150
CSS-1h (E-8C)	Cationic Emulsified Asphalt	70	150
PG 64S-22	Asphalt Cement	275	350
PG 58S-28	Asphalt Cement	250	325

(b) Asphalt Material. One of the following, as specified in Section 702:

Class of Material	Type of Material	Application Temperature °F Minimum	Application Temperature °F Maximum
RS-2 (E-2)	Emulsified Asphalt	140	175
CRS-2 (E-3)	Cationic Emulsified Asphalt	140	175
PG 46S-40	Asphalt Cement	240	300

Only use PG 46S-40 on shoulders.

ASPHALT FOG SEAL FOR SEAL COATS

Pub 408, Section 472 — Asphalt Fog Seal For Asphalt Seal Coats

ASPHALT FOG SEAL FOR SEAL COATS

Pub. 408

- Construction
  - Allow a new seal coat to cure a minimum of 1 day
  - Place fog seal within 1 to 45 days of seal coat placement
- Weather Limitations
  - Air, surface, and aggregate temperatures are above 60°
- Surface Preparations
  - Surface must be clean & dry
  - If needed, lightly sweep with a motorized broom to remove excess seal coat aggregate. **STOP** if you are damaging the seal coat surface aggregate
  - Cover manholes, valves, sensors etc. to prevent adherence (remove protective coverings prior to opening the road to traffic)

ASPHALT FOG SEAL FOR SEAL COATS PUB. 408

Advantages

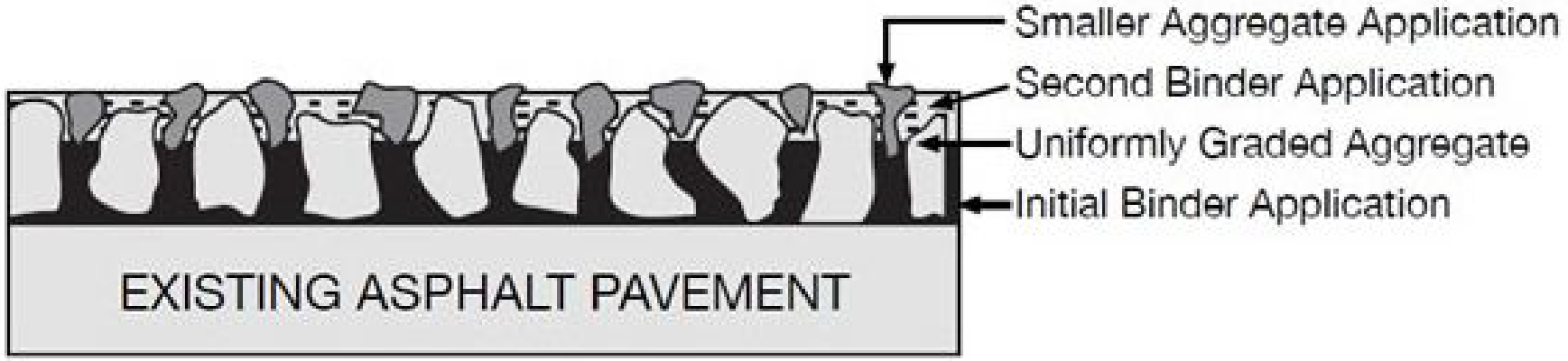
- Successfully used in developments
- Fewer complaints from residents

ASPHALT SEAL COAT W/AGGREGATE FROM RAP

Section 473 — Asphalt Seal Coat Using Aggregate from RAP

ASPHALT SURFACE TREATMENT

Pub. 408, Section 480 – Asphalt Surface Treatment - Two applications of emulsified asphalt, with each application of emulsified asphalt immediately followed by an application of coarse aggregate.



Double Seal (2 layers of binder and aggregate)

CASE STUDY

CASE STUDY

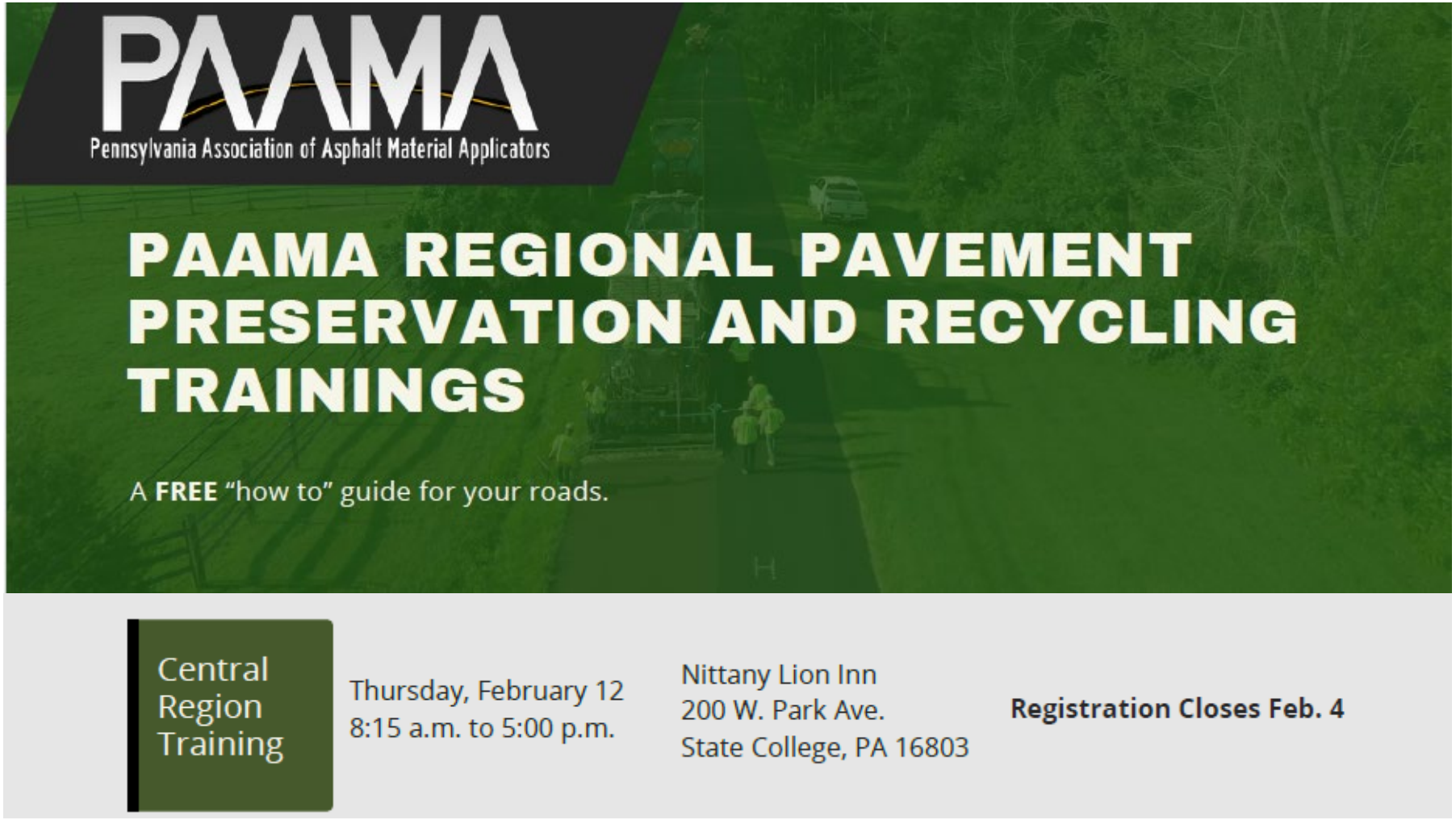
CASE STUDY

STORIES TO SHARE

What Successes/Challenges you have had with Seal Coats?

Put your comments in the “Question Box”.

PAAMA



Register at https://paama.org/trainings/

COURSE OVERVIEW

This training is designed to equip participants with essential skills and knowledge to become more effective pavement managers, regardless of their prior experience. Throughout the session, participants will explore key topics such as:

Network-Level Thinking

Understand how to assess Remaining Service Life and approach pavement management from a broader, network-wide perspective.

Pavement Preservation Strategies

Gain insights into the role of preservation in community success and how to incorporate it effectively.

Treatment Toolbox and Cost Analysis

Explore various treatment options and understand their value through Equivalent Annualized Cost calculations.

Local Case Studies

Validate pavement treatment decisions with Life Cycle Cost Analysis using real-world, data-driven case studies.

Advocating for Funding

Learn strategies for presenting a compelling case to decision-makers for preservation and maintenance funding.

Securing Stakeholder Support

THE DETAILS

Cost

- FREE
- Lunch Provided

Who Should Attend?

- Public Works Directors
- Township Supervisors
- Road Masters
- Maintenance Supervisors
- Consulting Engineers

More Details

- Professional Development Hours (PDH's) are available through the National Center for Pavement Preservation (NCPP)

CONTACT LTAP

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