An Update on National Pavement Preservation Activities

November 18, 2013

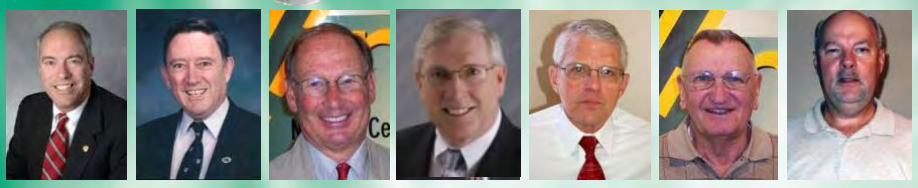
Alaska Asphalt Pavement Summit

Larry Galehouse, P.E., P.S.
Director, National Center for Pavement Preservation

National Center for Pavement Preservation

- Established in 2003
- Affiliated with Michigan State University
- Independent, Quasi-Governmental, Non-Profit Entity
- Focused on Outreach, Education, and Research in System Preservation
- Experienced Staff of Practitioners with extensive agency backgrounds

ncpp Team



Larry Galehouse Director

John O'Doherty Project Specialist Road

Ed Welch Bridge Preservation Specialist

Jon Rice Local Agency Coordinator

John Hooks Bridge Research Specialist

Doyt Bolling Programming Specialist

Dick Baron Equipment Management Specialist

Patte Hahn Administrative Manager

Angela Jernstadt Accountant

Darlene Lane Travel Coordinator

Lisa Farley Research/Training Coordinator

Aaron Algrim Production Specialist

Dennis Tang IT Specialist

Samantha Hahn Student Assistant

AASHTO
THE VOICE OF TRANSPORTATION

TSP·2
Transportation System Preservation
Technical Services Program

- **Approved by the AASHTO Board of Directors on May 8, 2005 (PR-10-05)**
- **Created to support the program needs of the member States in their development of Transportation System Preservation programs**
- **Implemented by the National Center for Pavement Preservation at Michigan State University**

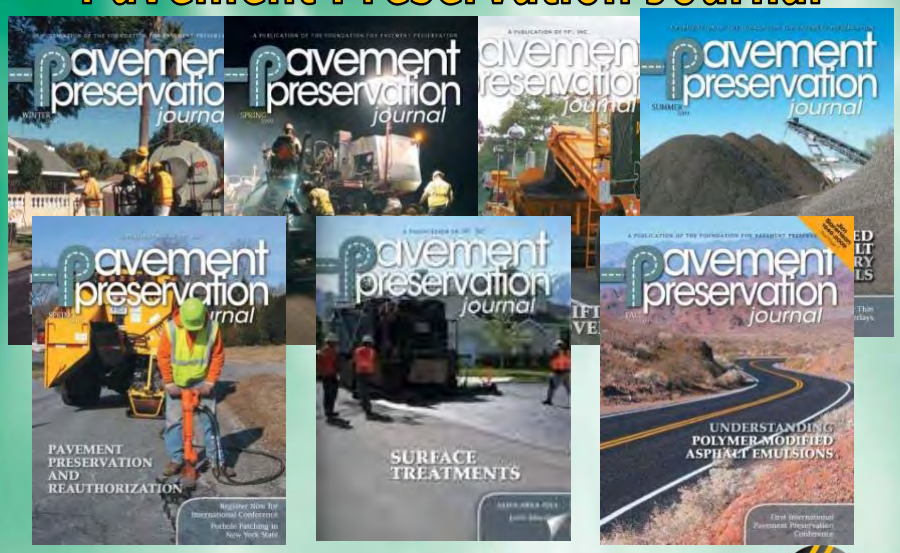
Regional Pavement Preservation Partnerships

Regional Bridge Preservation Partnerships

TSP·2 Involvement

State DOTs, Local Agencies, FHWA
APWA Chapters, ACPA, AEMA, ARRA, ARTBA-BPA, FP^2 Inc., IGGA, ISSA, NACE, NAPA

Pavement Preservation Journal



Construction Magazine Stories

Pavement Preservation Ribbon Cutting

New Hampshire DOT

Video
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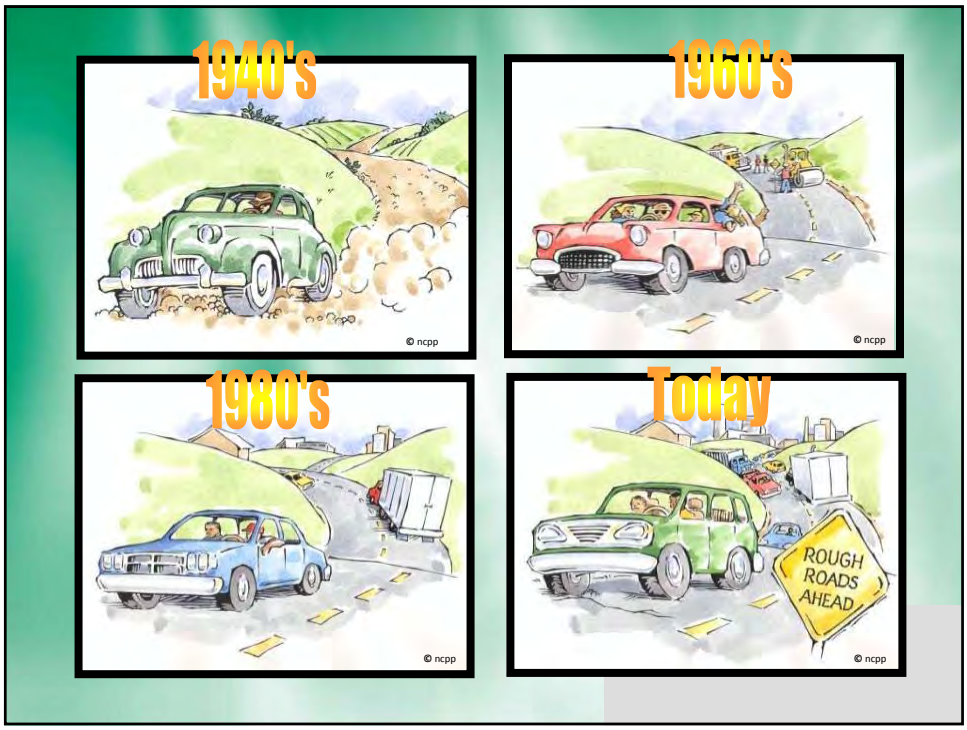
National Center for Pavement Preservation


1940's
© ncpp
1960's
© ncpp
1980's
© ncpp
Today
ROUGH ROADS AHEAD
© ncpp

Roads
2013
GRADE
D
2013
REPORT
CARD
for
america's
INFRASTRUCTURE
March 2013
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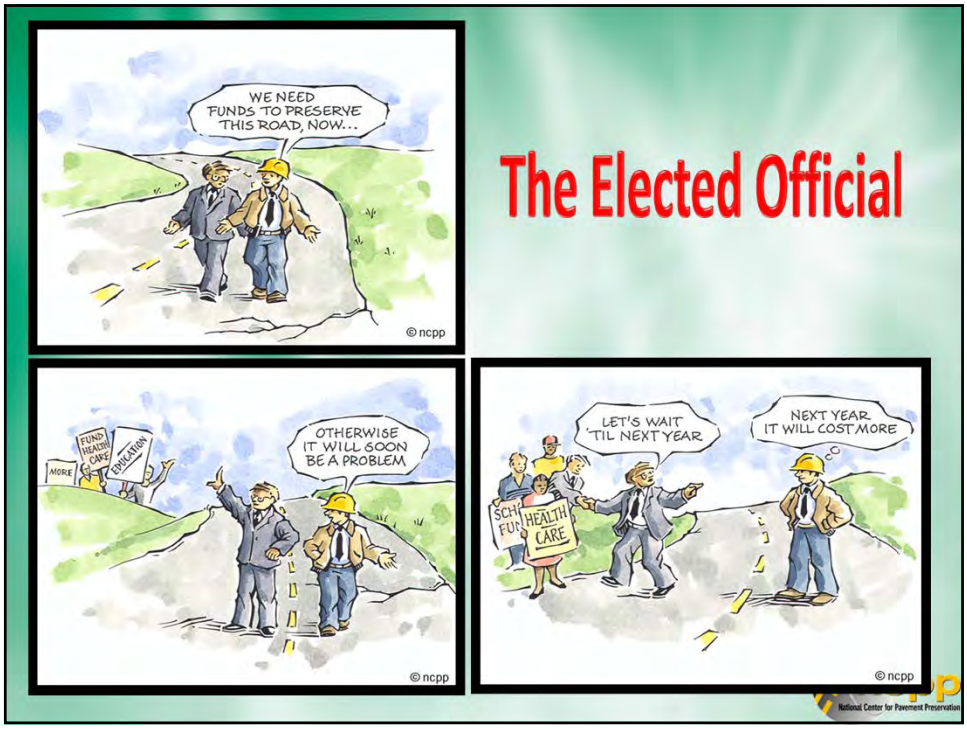
National Center for Pavement Preservation

Highway Capital Improvements
Expenditures
Needed = $186 billion annually
Current = $ 70.3 billion annually
Short Fall = $115.7 billion annually



A BILL

To reauthorize Federal-aid highway and highway safety construction programs, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "Moving Ahead for Progress in the 21st Century Act" or the "MAP–21".

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National Center for Pavement Preservation

MAP-21
Asset Management Definition

SEC. 1103. DEFINITIONS.

(a) Definitions- Section 101(a) of title 23, United States Code, is amended—

"(2) ASSET MANAGEMENT.—The term 'asset management' means a strategic and systematic process of operating, maintaining, and improving physical assets, with a focus on both engineering and economic analysis based upon quality information, to identify a structured sequence of maintenance, preservation, repair, rehabilitation, and replacement actions that will achieve and sustain a desired state of good repair over the lifecycle of the assets at minimum practicable cost.";

MAP-21
Pavement Preservation Definition

SEC. 1507. MAINTENANCE

Section 116 of title 23, United States Code, is amended—

(a) Definitions- In this section, the following definitions apply:

"(2) PAVEMENT PRESERVATION PROGRAMS AND ACTIVITIES.— The term 'pavement preservation programs and activities' means programs and activities employing a network level, long-term strategy that enhances pavement performance by using an integrated, cost-effective set of practices that extend pavement life, improve safety, and meet road user expectations.";

Transportation Performance Management

Pavement Performance Measures

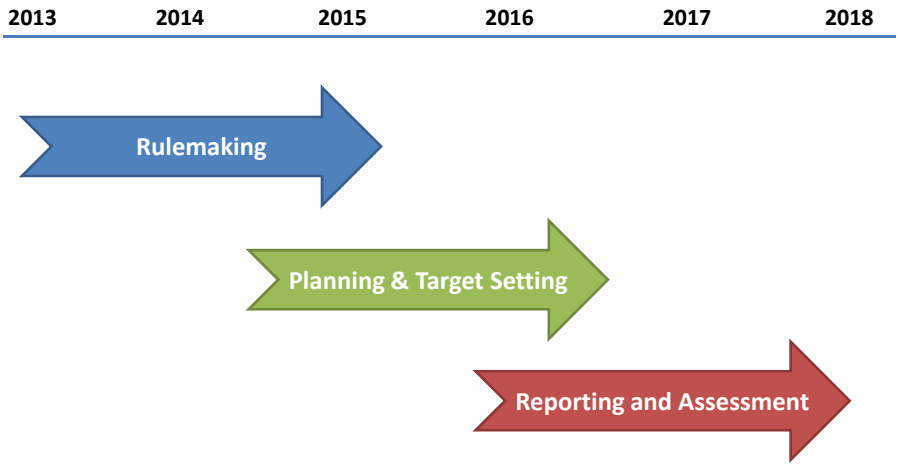
States will be required to:

- Use measures to assess pavement condition for:
  - Interstate System
  - Non-Interstate System NHS
- Utilize and maintain necessary data elements
- Meet minimum condition levels established for Interstate pavements
- Set targets for each pavement measure
- Report biennially and make significant progress towards its targets

U.S. Department of Transportation
Federal Highway Administration

Transportation Performance Management

Implementation Schedule



U.S. Department of Transportation
Federal Highway Administration

Transportation Performance Management

NPRM *(Notice of Proposed Rulemaking)* ***Status***

NPRM	Anticipated Publication Date
Highway Safety Program Grants (interim rule)	Published January 2013
Transit State of Good Repair and Safety Plan (ANPRM)	Published, closes January 2, 2014
Safety Performance Measures	January 2014
Highway Safety Improvement Program	January 2014
Metropolitan and Statewide Planning	February 2014
Asset Management Plan	February 2014
Pavement/Bridge Performance Measures	March 2014
System Performance Measures	May 2014

U.S. Department of Transportation
Federal Highway Administration

Defining Sustainability

Sustainability means meeting present needs without compromising the ability of future generations to meet their needs.

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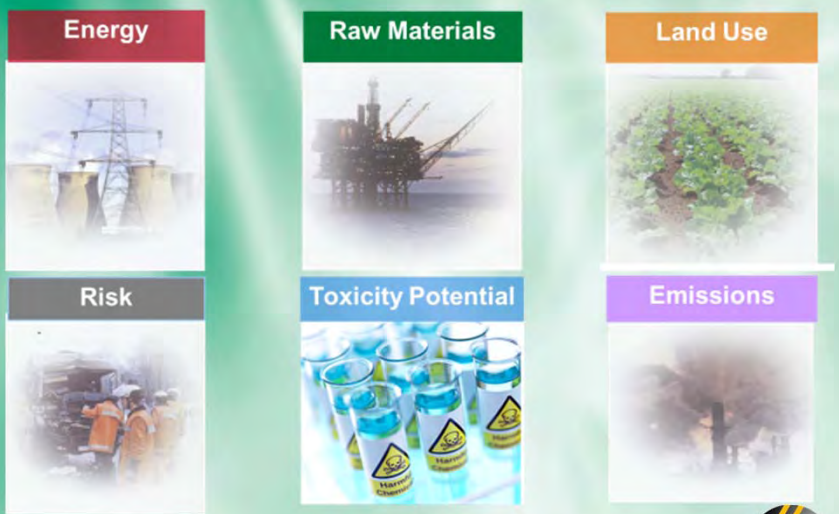
The Eco-efficiency Analysis



Preservation Treatments Applied to HMA Pavements

Treatment	Treatment Life (yr.)	Life Extension (yr.)
Rejuvenator*	NA	3 - 6
Surface Sealer	0 - 1	2 - 4
Crack Sealing	3 - 8	2 - 4
Crack Filling	2 - 4	1 - 3
Slurry Seal	4 - 5	3 - 5
Micro Surfacing - Single	3 – 6	3 - 5
Micro Surfacing - Double	4 - 7	4 - 6
Chip Seal - Single	3 – 7	5 - 6
Chip Seal - Double	5 – 10	8 - 10
Ultra-thin Bonded Wearing	7 – 12	NA
Dense Graded Thin HMA	5 - 12	NA
Open Graded Thin HMA	6 - 12	NA
Hot In-place Recycling	6 - 10	NA
Cold In-place Recycling	6 - 10	NA

* Only certain rejuventors were considered

Preservation Process Designs

Treatment	Quantities	Life Ext.
Hot Mix AC	1½ inch	5-10 yr
HIR	1½ inch	5-10 yr
Chip Seal	.44 gal - 38 lb/ yd^2	3-6 yr
Type II Slurry	16 lb/ yd^2	3-5 yr
Crack Seal	1 lin ft/ yd^2	1-3 yr
Crack Fill	2 lin ft/ yd^2	1-2 yr
Fog Seal	0.10 gal/ yd^2	1 yr

Annualized Energy and GHG

Process	BTU/ yd^2/ yr	lb CO_2/ yd^2/ yr
Hot Mix (1½")	4,660 – 9,320	0.9 - 1.8
HIR (1½")	3,870 – 7,740	0.7 - 1.4
Chip Seal	1,170 – 2,340	.15 - .30
Slurry Seal	968 – 1,935	.10 - .20
Crack Seal	290 - 870	.05 - .14
Crack Fill	930 – 1,860	.13 - .25
Fog Seal	500	.07

Local Pavement Preservation Councils

fppc
Florida Pavement Preservation Council

gcppc
Georgia-Carolina Pavement Preservation Council

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Local Pavement Preservation Councils

Purpose

- **Increase the understanding of pavement preservation as a viable and proactive approach for managing highways, roads and streets.**
- **Encourage and support all aspects of pavement preservation education and training.**

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U.S. Department of Transportation
Federal Highway Administration

Pavement Preservation Emulsion Task Force

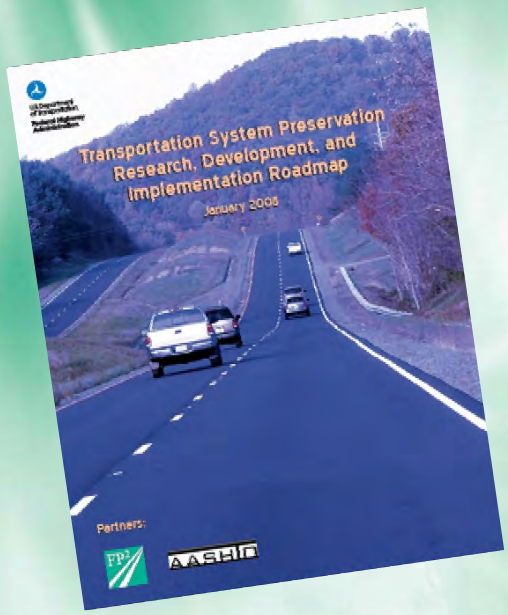
U.S. Department of Transportation
Federal Highway Administration

Pavement Preservation Emulsion Task Force

GOALS

1. Develop improved pavement preservation specifications
2. Create surface graded emulsions
3. Establish new recovery methods
4. Identify better and more representative emulsion-performance test methods

Preservation Research Roadmap Project

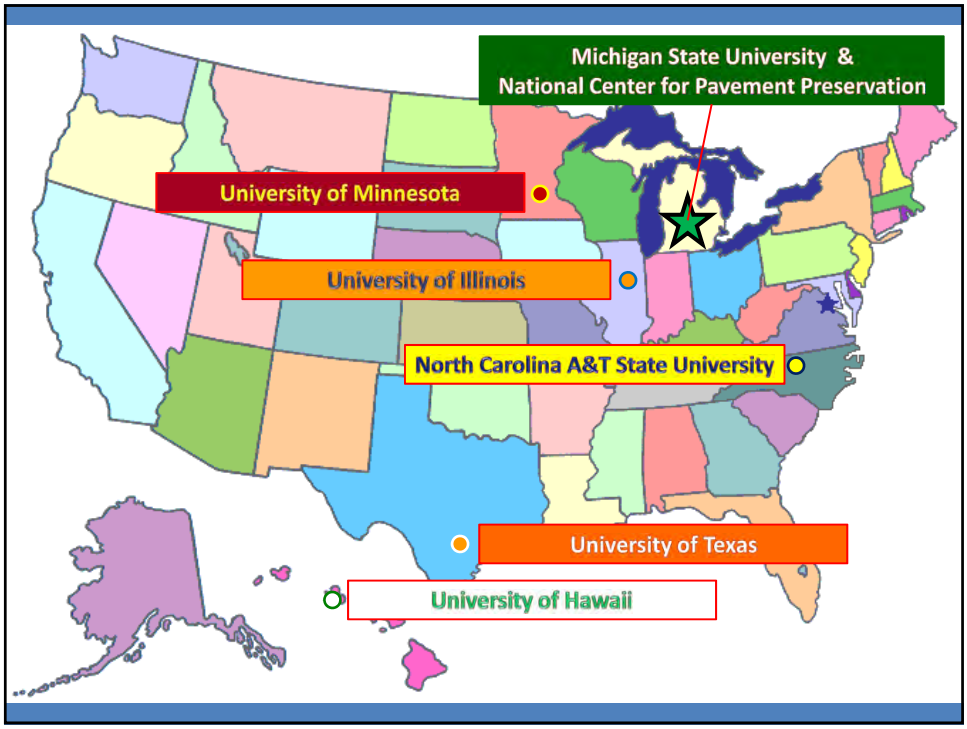


University Transportation Center for Highway Pavement Preservation

Host: Michigan State University

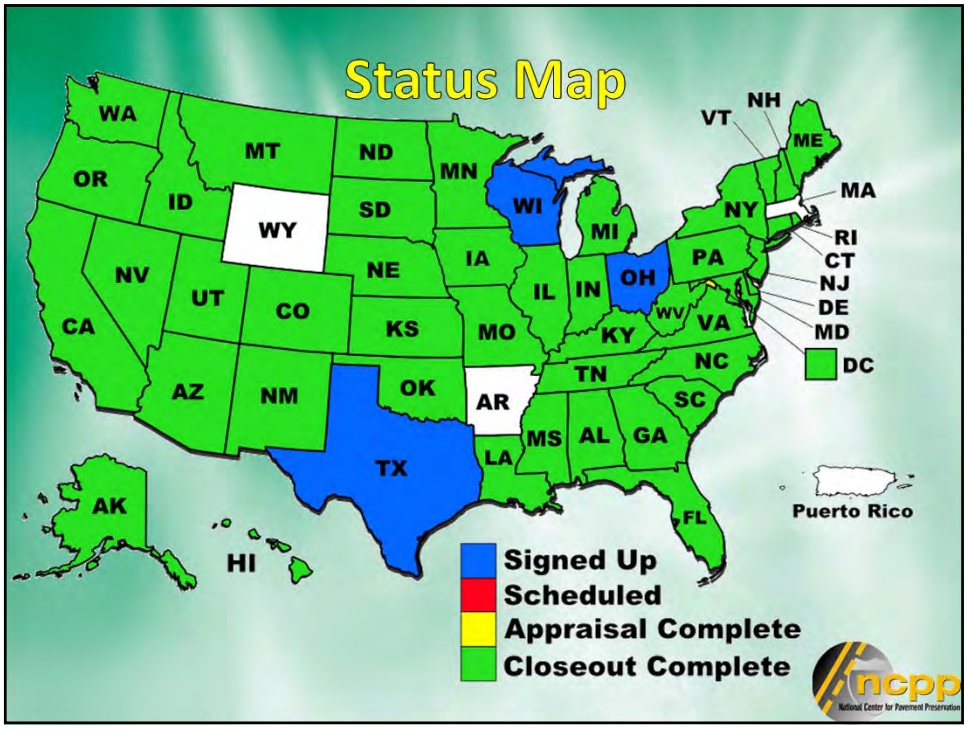
Highway Pavement Preservation Theme Areas

- Materials
- Performance Management
- Monitoring



Pavement Preservation Technical Appraisals

- Completed appraisals in 44 state DOTs
- Completed appraisals of
  - Federal Lands Highway Division
  - National Park Service
  - U.S. Fish & Wildlife
  - Major counties
- Posted database of appraisal findings


Status Map
WA
OR
CA
NV
ID
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
LA
WI
IL
MI
IN
OH
KY
TN
MS
AL
GA
FL
SC
NC
VA
WV
PA
NY
VT
NH
ME
MA
RI
CT
NJ
DE
MD
DC
AK
HI
Puerto Rico
Signed Up
Scheduled
Appraisal Complete
Closeout Complete
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National Center for Pavement Preservation

FHWA Technical Appraisal System
The National Center for Pavement Preservation
Home Contact Help Sign In
Quick Links
About
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Help & Support
Introduction to the Appraisal System
The Technical Appraisal System is administered and hosted by the National Center for Pavement Preservation (NCPP), and is supported by the Federal Highway Administration (FHWA). Surveys of the individual state departments of transportation began in early August 2005 and are ongoing. New survey results are added as they become available, so check back frequently.
To the extent practical, state appraisal responses have been quantified to obtain national, aggregate trends with respect to the implementation and acceptance of pavement preservation practices.
www.pavementpreservation.org/survey
Select a survey section below to view the national average responses for that section.
Section | Part(s) | Title
1 | I | General Information
2 | II | Pre-Conference Self-Assessment (State)
3 | III | Pavement Preservation Assistance (FHWA Division)
4 | IV | Program Implementation
5 | V | Public/Political Relations
6 | VI | Pavement Management System
7 | VII | Project Selection
8 | VIII | Preservation Treatments
9 | IX | Business Process
10 | X & XI | Quality Assurance and Training
11 | XII | Materials
12 | XIII & XIV | Performance Monitoring and Research/Development
May 3, 2010, 9:44 am
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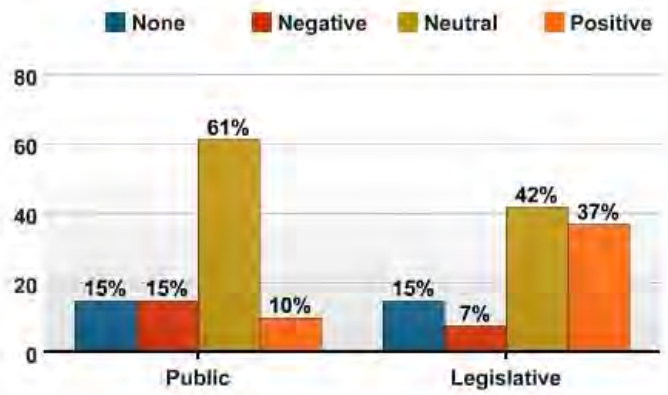
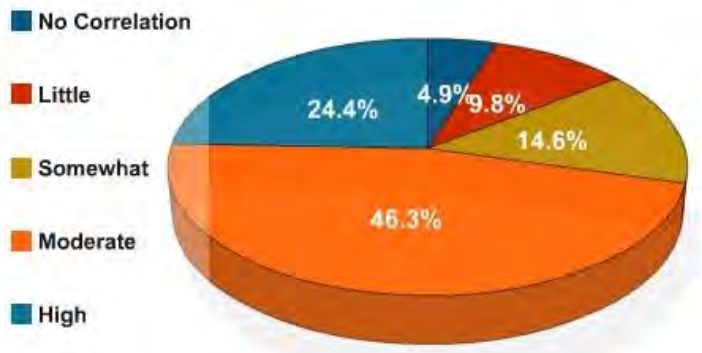
What are the public and legislative perceptions of implementing a pavement preservation program?



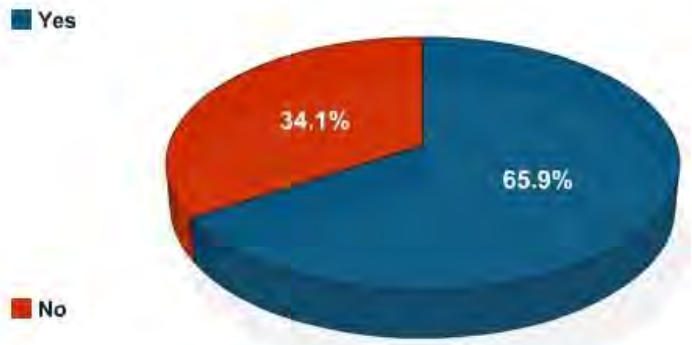
View the long description of this bar chart showing perceptions of Pavement Preservation.

How reliable is the pavement condition rating (PCR)?:



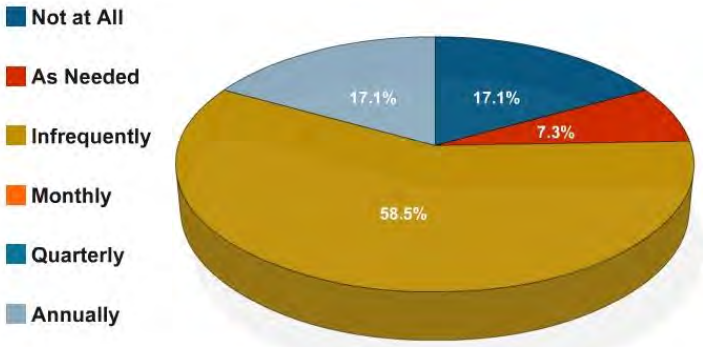
View the long description of this pie chart showing percentages of reported PCR reliability/accuracy.

Has the agency experienced difficulty attracting quality contractors for preservation work?:



View the long description of this pie chart showing percentages saying it is difficult to attract quality pavement preservation contractors.

How Often is Pavement Preservation Training Offered?:



View the long description of this pie chart showing percentages showing pavement preservation training frequency.

MICHIGAN STATE
UNIVERSITY

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