The Role of Pavement Preservation in Asset Management

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PRESENTATION TOPICS

♦ FHWA Resource Center
♦ Pavement preservation
♦ Relationship to Asset Management
♦ FHWA efforts in pavement preservation
♦ Concluding remarks
Serving customers nationwide --

One Resource Center - Four Locations
Resource Center

Provides:
- Technical assistance
- Training
- Technology deployment

No Program Authority
No Project Approval
Technical Service Teams

- Air Quality
- Civil Rights
- Construction & Project Management
- Environment
- Finance
- Geotech & Hydraulics
- Operations
- Pavements & Materials
- Planning
- Safety & Highway Design
- Structures
Pavements & Materials Team - Atlanta

Primary Customers:
Division Offices
Headquarters

Team Leader
Monte Symons
Pavement & Materials TST
Long Term Objectives

♦ Optimize pavement performance
♦ Optimize pavement resource allocation
♦ Improve quality assurance systems
♦ Improve pavement surface characteristics
♦ Improve environmental stewardship
♦ Technical capacity building
Pavement and Materials On-Going Activities

- Materials and QC/QA
- Technical training and certification for technicians
- Superpave
- LTPP
- Knowledge building
Pavement and Materials
On-Going Activities cont.

- Pavement smoothness
- HIPERPAV software for PCCP analysis
- Pavement management systems
- Life Cycle Cost Analysis
- Pavement preservation
Pavements & Materials Team - Available Training

- Highway materials engineering
- Hot-mix asphalt materials, characteristics and control
- Portland cement concrete materials
- Pavement subsurface drainage design
- AASHTO pavement overlay design
- Introduction to mechanistic design - new & rehabilitated pavements
Pavement smoothness - use of inertial profiler measurements for construction quality control

Hot-mix asphalt pavement evaluation and rehabilitation

Asphalt pavement recycling technologies

Concrete pavement design details and construction practices
Available Training cont.

- Construction of portland cement concrete pavements
- Portland cement concrete pavement evaluation and rehabilitation
- Pavement preservation - the preventive maintenance concept
- Pavement preservation - selecting pavements for preservation
- Life-cycle cost analysis
For further information -

www.fhwa.dot.gov/resourcedecenter
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3,963,262 miles of Roads
590,000 Bridges
2.7 trillion vehicle-miles / year
3,963,262 miles of Roads

U.S. Public Road Ownership (Centerline Miles)
Urban (Solid) vs. Rural (crosshatched)
2.5 Million Miles Paved Roads

Paved vs. Unpaved Roadways-U.S. Total
2,523,468 miles vs. 1,438,727 miles
Roads are an investment

- Public invested more than $130 billion to construct the Interstate
- Think of the total investment in our transportation system. . . (over $1.75 trillion)
What is Pavement Preservation?

_Pavement Preservation_ is the sum of all activities undertaken to provide and maintain serviceable roadways that

- Preserves the investment
- Enhances pavement performance
- Ensures cost-effectiveness
- Extends pavement life
- Reduces user delays
- Improves safety and mobility
What is Pavement Preservation?

**Includes:**
- Preventive maintenance
- Minor rehabilitation (non-structural)
- *Some routine maintenance*

**Does Not Include:**
- New pavement construction
- Reconstruction
- Major rehabilitation (increase in structural capacity)
- Corrective maintenance
What is Pavement Preservation?

Doing the *right* thing...

...at the *right* time...

...to the *right* pavement.
Concept of Pavement Preservation

- Original Pavement
- Preventive Trigger
- Rehabilitation Trigger

Pavement Condition vs. Time / Traffic
Alligator Cracking
Rutting
Components of Pavement Preservation Program

- Preventive Maintenance
- Minor Rehabilitation
- Routine Maintenance
# Preservation Activities

## Asphalt:
- Chip Seals
- Fog Seals
- Slurry Seals
- Surface Seals
- Micro-Surfacing
- Thin Overlays
- Profile Milling
- Crack Sealing

## PCC:
- Joint Resealing
- Crack Sealing
- Spall Repair
- Dowel Bar Retrofit
- Full and Partial Depth Repair
- Diamond Grinding
Does Preservation Make Sense?
Benefits

♦ Improved Customer Satisfaction
  – Keeps them (and you) happy.

♦ Lowers User and Agency Costs in the Long-Term
  – Saves them (and you) money.

♦ Improved Safety
  – Keeps them (and you) safer.
For more information...

Foundation for Pavement Preservation
www.fp2.org

National Center for Pavement Preservation
www.pavementpreservation.org
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Pavement Preservation and Asset Management

- More Federal emphasis on maintaining the facilities we have constructed
- $1.75 trillion dollar investment in transportation systems
- Part of the Federal-Aid program
Pavement Preservation and Asset Management

- Asset Management Definition:

“A strategic approach to maximize the benefits from resources used to operate, expand, and preserve the transportation infrastructure.”
Motivation for Asset Management

- Funding constraints
- Aging system
- Increasing user demands
- Loss of senior experienced staff
- Public demands on government
  - Accountability
  - Return-on-investment
The Federal Role

♦ Promote uniformity, quality and safety of highway construction and maintenance
♦ Develop, promote and provide new technologies and training
♦ Stewardship of the Federal-aid program and its investments
Current Federal Efforts
Uniformity

National specification website

www.specs.fhwa.dot.gov
Pavement Preservation and Asset Management

Three FHWA Asset Management Teams

Management Systems
Construction and System Preservation
Economic Analysis
For more information...

Management systems
www.fhwa.dot.gov/infrastructure/asstmgmt/manage.htm

Economic analysis
www.fhwa.dot.gov/infrastructure/asstmgmt/invest.htm

System preservation
www.fhwa.dot.gov/preservation
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Working with the States

♦ AASHTO Committee on Highways
  – Subcommittee on Maintenance
  – Subcommittee on Construction
♦ Individual State Assistance
  – Provision of consultation services
  – Federal-aid through FHWA Division Offices
♦ TRB
Working with the States cont.

- Midwest Pavement Preservation Partnership
- Southeast Pavement Preservation Partnership
Working with Industry

♦ Foundation for Pavement Preservation

♦ Industry Associations
  - AEMA
  - ISSA
  - ARRA
  - ACPA
  - IGGA
  - others
Outreach Activities

♦ Current Publications
  - Magazine articles
    • TRNews – Sept/October Issue
    • Asphalt Magazine
    • Public Roads Magazine
  - Checklists on Pavement Preservation
  - State of the Practice CD-2
  - Forum II CD
  - Pavement Preservation Compendium
  - Other material coming out soon

♦ Meetings/Presentations
Technology Advancement

- National Center for Pavement Preservation
- Pavement Preservation ETG
- Research Efforts:
  - Chip Seal Best Practices – NCHRP synthesis study
  - Hot Pour Crack Sealant – pooled fund study
  - Slurry Seal/Microsurfacing – pooled fund study
- International Scan on Pavement Preservation
Training

♦ The Preventive Maintenance (PM) Concept
  – NHI Course #131054 - available
♦ Selecting Pavements for PM
  – NHI Course #131058 - available
♦ Design and Construction of Quality PM Treatments
  – NHI Course #131103 – available
♦ Integrating PM into Pavement Management Systems
  – NHI #131104 – Mid 2004
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Final Thoughts

♦ The National Center is in place!
♦ Necessary research is underway!
♦ Dedicated funding is critical for success!
♦ Educate yourself and others!
♦ Think both “Engineering” and “Economics”
Pavement Preservation is not new...

... it's just doing the “RIGHT” thing
... to the “RIGHT” pavement
... at the “RIGHT” time
Preservation and Asset Management won’t bring short-term glory, but they will bring long-term satisfaction!

Performance Level

- Interstate PL1 (Good)
- Interstate PL2 (Poor)
- Non-interstate PL1 (Good)
- Non-interstate PL2 (Poor)

PL-1 are pavements in "good" condition
PL-2 are pavements in "poor" condition
Data Labels are for the non-interstate system

% of Highway System in Level:
- Interstate PL1: 60.3%, 68.6%
- Interstate PL2: 49.4%, 23.4%
- Non-interstate PL1: 64.5%, 70.8%
- Non-interstate PL2: 21.6%, 6.7%

Years: 1983 - 2003
The End

Questions?
THANK YOU

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