

# **FHWA: Pavement Management Future Priorities**

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# What is Transportation Asset Management?

*“Transportation Asset Management is a strategic and systematic process of operating, maintaining, upgrading and expanding physical assets effectively throughout their lifecycle. It focuses on business and engineering practices for resource allocation and utilization, with the objective of better decision making based upon quality information and well defined objectives.”*

# National Context

- **Aging Infrastructure**
- **Growing Population**
- **Growing Congestion**
- **Funding Shortfall**
- **Focus on System Performance**
- **Asset Management is Imperative**

# **Report on the National Surface Transportation Policy and Revenue Study Commission:**

**Rebuilding America: A National Asset Management Program. The first of the 10 programs proposed by the Commission would put and keep the Nation's infrastructure in a state of good repair in the most efficient and cost-effective manner possible.**

# How Does Transportation Asset Management Work ... Pavement Management?

- **Improved decision-making supported by policies, performance-based goals, performance measures, and appropriate service levels**
- **Decisions are based on accurate data, and sound engineering and economic analysis**
- **Long-term view of assets**
- **More robust management and monitoring systems**

# What Makes TAM Strategic?

- **Focus on the strategic goals of the agency, performance measures, and system performance**
- **All assets considered comprehensively**
- **Compare performance with desired performance measures**
- **Tradeoff analysis and life cycle performance used to support decision making**
- **Apply economics, business and engineering principles, needs assessment/public involvement, and risk assessment to manage assets and evaluate tradeoffs**

# Focus of Asset Management ... Pavement Management

**At its core, Asset Management focuses on resource allocation and utilization**

(Asset Management - Need to tie together management and monitoring systems, engineering and economic analysis, traffic, construction, construction quality, infrastructure preservation, and highway planning)

# Applications of Asset Management...

## Pavement Management Future Priorities

- Need to increase the use of management system information to measure system performance and support integrated decisions in programming projects
- Need to advance the utilization of engineering, economic and investment analysis as a basis in the decision making process
- Need to look at preservation as a key component of a Pavement/Asset Management Program



# Asset Management: Five Core Questions

- 1. What is the current state of my assets?**
- 2. What is my required level of service/ performance?**
- 3. Which assets are critical to sustained performance?**
- 4. What are my best “Operations and Maintenance” and “Capital Improvement” investment strategies?**
- 5. What is my best long-term funding strategy?**

# **Pavement Management: Five Core Questions**

- 1. What is the current state of my pavements?**
- 2. What is my required level of service/ performance?**
- 3. Which pavements are critical to sustained performance?**
- 4. What are my best “Operations and Maintenance” and “Capital Improvement” investment strategies?**
- 5. What is my best long-term funding strategy?**

# Pavement Management Future

## Priorities ...Tying it all together

Design, construct, rehabilitate, preserve, and inspect highway pavements with standards, materials, and practices that provide longer and more reliable performance, reduced congestion, and improved safety.

- Pavement design (asphalt, concrete, or composite)
- Pavement construction
- Pavement preservation
- Pavement maintenance
- Traffic
- Pavement management system
- Engineering & economic analysis

# Pavement Preservation Future Priorities ...Tying it all together

- Work with States, private sector, and FHWA offices to identify and implement tools for improved preservation technology and to develop comprehensive preservation programs.
- Clearly address and account for pavement preservation in pavement management and pavement management systems
- Work with States, private sector, and FHWA offices to develop improved construction workforce training and qualifications.

# Pavement Management Future Priorities - Focus States:

- Which States?
- How they were/are selected.
- Do we need greater coordination?  
(Focus is AM or Pavements or both?)

# Pavement Management Future Priorities – FALCON:

- Identify gaps tied to specific strategies to develop a program of projects to be undertaken
  - Design
  - Materials
  - **Pavement management and preservation**
  - Surface Characteristics
  - Construction & Maintenance Quality Assurance
  - Environment

# Pavement Management Activities

- National Conference on Managing Pavements, May 2007...2011?
- International Conference on Pavement Management, Calgary 2008
- Case study: Kansas, Minnesota, and Oklahoma
- Case Study: Washington State
- PMS Questionnaire 2006, late 2008
- Remaining Service Life Pilot

# Pavement Management Activities

- Peer Exchange Program
- Study: Comprehensive Asset Management Program For Pavements
- Pavement Management System Pamphlets
- State DOT 3R Best Practice Showcase
- Regional Pavement Management Conferences



# Pavement Management Activities

- Update of the Pavement Management Catalog: Pavement Management Software and Data Collection Equipment
- Cooperation with AASHTO for the organization of an ETG to revise proposed standards for pavement rutting and cracking
- Cooperating with Office of Operations on study of effects of Heavy Trucks on Highway Pavements
- Encouraging application of PMS as part of the decision making process including engineering and economic analysis
- Develop high speed joint load transfer measuring device

# High-Speed Rolling Wheel Deflectometer (RWD)

- Network-level PMS applications.
- 2007: Testing undertaken in Connecticut, New Hampshire, Texas, *Indiana, Minnesota, Ohio, Kentucky, West Virginia, New Jersey, Virginia, California, Oregon, Iowa, and Kansas and other locations.*
- Upgrades have been made.

**Future Priority:** Focus on RWD being an integral part of a pavement management program



## Proposed efforts to be initiated/undertaken

- Develop a Roadmap for Pavement Management U.S.
- Undertake regional PMS workshops for agencies, with the first focusing on rural and local roadways.
- Undertake Peer Workshop on Pavement Management.
- Asset Management webinars

## Proposed efforts to be initiated/undertaken

- Present NHI training on Pavement Management
- Develop a training course in Pavement Management for Local Governments.
- Develop web-based course on advanced Pavement Management.
- Support update of the 2001 Pavement Management Guide.

## Possible efforts to be initiated in 2009

- Extend the PMS ETG focusing on testing
- Continue pooled fund Concrete Pavement Analyzer Feasibility Study (Iowa State) if development appropriate
- Support Pavement Management track at the next National Asset Management Conference
- Support PMS participation in the TSP Groups held during 2009.

# Pavement Management Priorities

- Seeking input...
  - What are we missing?

## **The most successful asset/ pavement management programs:**

- **Have performance measures that guide investment decisions**
- **Adopt a ‘preservation first’ strategy for their investment priorities**
- **Moved away from a “worst first” investment strategy, and instead have adopted investment principles that are based on life cycle costing**

## **The most successful asset/ pavement management programs:**

- **Undertake scenario analysis showing the consequences on performance measures of various investment decisions**
- **Conduct an organizational self assessment as one of the most important starting points for implementing an asset management process**
- **Have an Asset Management champion**