Asset Management: Federal Perspective on Bridge Maintenance and Preservation

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Presentation Scope

• Asset Management:
  – What is it and Why is it Important?

• Bridge Maintenance and Preservation:
  – What is it and Why is it Important?

• Bridge Maintenance and Preservation Practices

• Why Dedicated Funding for Bridge Maintenance and Preservation?
What is Transportation Asset Management?

“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.”

AASHTO Subcommittee on Asset Management
What is Transportation Asset Management?

• Knowing What You Have
• Knowing What You Need
• Making Money Go Far as Possible
One Dollar?

• "If I have one additional dollar to spend on the transportation system, what is the most effective way to spend it?"

Mary Peters, Former FHWA Administrator
Why Transportation Asset Management?

“As government providers and operators of transportation systems, we face an increasingly complex challenge of improving safety, mobility and the aesthetics of our highway system in an environment of constrained resources. Implementing an asset management approach is essential to ensure that we invest the public funding entrusted to us wisely, and that we minimize long-term costs in achieving our desired service level objectives.”

Neil J. Pedersen, Administrator, Maryland State Highway Administration and Vice-Chair, AASHTO Subcommittee on Asset Management
Why Transportation Asset Management?

Do the Right Thing…

At the Right Time…

In the Right Place…

At the Right Price!!!
What is Maintenance?

“...the preservation of the entire highway, including surface, shoulders, roadsides, structures, and such traffic-control devices as are necessary for safe and efficient utilization of the highway.”

Source: 23 U.S.C. 101 (14)
What is Bridge Preservation?

...activities performed on bridge elements or components that aim to prevent, delay, or reduce deterioration.

Bridge preservation activities do not entail structural or operational improvements of an existing bridge asset beyond its originally designed strength or capacity.

Source: AASHTO Subcommittee on Maintenance Bridge Task Force draft definition
Freight Tonnage moved by Truck

Rapidly Increasing

Tonnage

Year


Tons (millions)
Increasing Congestion 1993-2002

24% Increase in passenger car VMT
33% Increase in single-unit trucks VMT
34% Increase in combination trucks VMT
2% Increase in Lane Miles
Number and Status of Bridges in a Sample State

2,700 NBI Bridges
18.4% Structurally Deficient
17.3% Functionally Obsolete

Source: 2007 NBI
National Perspective, Factors

Concern regarding a number of factors:

- Rising traffic demand, heavier loads
- Continued bridge aging and deterioration
- Limited funds for rehabilitation and replacement
- Inadequately funded maintenance and preservation programs
What is the Goal of Bridge Preservation?

...increase the service life of bridge(s) using cost-effective, timely strategies, forestall major reconstruction.
What is Transportation Asset Management?

- Asset Management is more than a pavement management system, bridge management system, maintenance management system, etc.
- Asset management is about managing your network over the whole life-cycle; includes, managing your pavements, bridges, congestion, safety, and other assets.
- System preservation is important.
Management Systems and Preservation

- Bridge (Pontis)
- Pavement
- Maintenance
- Safety Hardware
- Etc.
Effective Uses of Management Systems

- To know what you have and track condition/performance
- To support preservation programs
- To establish investment levels
- To establish agency goals
- To establish links to maintenance
- To support engineering and economic analysis
- To determine remaining service life
- To support other uses
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?
Consequences of Deferring Maintenance

- Approach settlement may be a symptom of a more serious problem.
Consequences of Deferring Maintenance

- Without relief joints, concrete pavements can damage the bridge.
Consequences of Deferring Maintenance

- The deck drainage system should be unobstructed and function properly.
Consequences of Deferring Maintenance

- Leaking deck joints contribute to bearing problems.
Consequences of Deferring Maintenance

- Leaking deck joints cause damage to superstructure
Consequences of Deferring Maintenance

- Leaking deck joints cause damage to substructure
Consequences of Deferring Maintenance

- Debris accumulation may cause lateral pressure and scour
Consequences of Deferring Maintenance

- Damage accelerates from salt on unprotected deck with band-aid repair.
Consequences of Deferring Maintenance

- Corrosion on steel embedded in concrete.
Typical Maintenance Tasks

• Clean Routinely
• Maintain Approaches
• Seal Deck Joints
• Facilitate Drainage
• Seal Concrete
• Paint Steel
• Remove Channel Debris
• Protect Against Scour
• Lubricate Bearings
Typical Maintenance Tasks

- Clean Routinely
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- **Maintain Approaches**
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Why Funding for Maintenance?

• Cost Effective
• Minimum Traffic Disruption
• Lower User Costs
• Public Safety
• Reduce Need to Rehab and Replace
Why Funding for Maintenance?

“Investment in maintenance pays dividends for years to come; a dollar we spend today on (maintaining) a bridge or culvert can save as much as ten dollars for a full replacement. It is an approach that just makes sense.”

Vermont Governor Jim Douglas
Quoted in AGC/VT Build Board, January 2008
"We have made it no secret here at the agency about the need to focus on existing infrastructure, including our bridges… We've recognized this problem for some time, and that's why we've made this focus on maintenance and preservation the priority at the agency."

Vermont Transportation Secretary Neale Lunderville
Quoted in the Rutland Herald, June 9, 2008
Vision: Timely bridge preservation performed today...for a better transportation infrastructure tomorrow

Source: AASHTO SCOM Bridge Preservation Strategic Plan
Presentation Summary

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• Why Dedicated Funding for Bridge Maintenance and Preservation?
THANK YOU!

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