

PMS Support to Asset Management: National Perspective

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May, 2007

The Agenda

- Asset Management 101
- Best Practices in Transportation Asset Management: What is going on
 - Lessons learned from International Experiences
 - U.S. Experience
 - Domestic Scan
 - Executive Session
 - Peer Exchanges
 - Other Activities
- Resources

Underlying principles and assumptions

- Pavement management is the foundation for asset management
- There are many different ways to include pavement management principles and data in asset management
- Pavements account for 60% of the assets in a typical agency (NCHRP Synthesis 335)

Asset Management 101

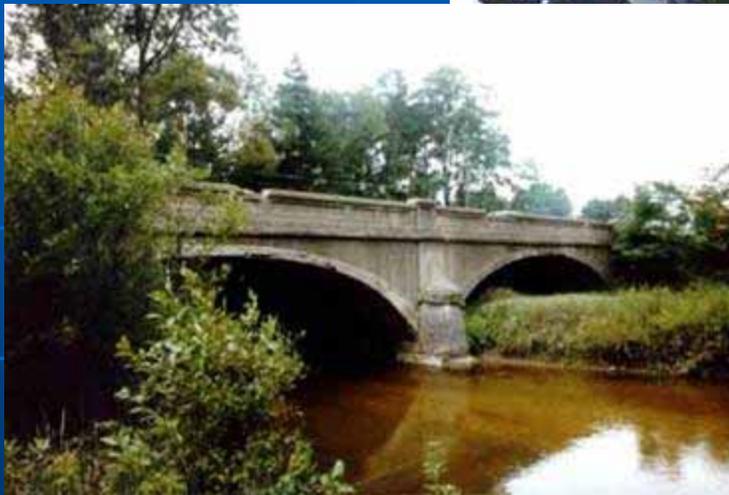
- Asset Management:
 - What is it?
 - Why should you care?

Challenges

Congestion



Preserving Investments



Aging Infrastructure

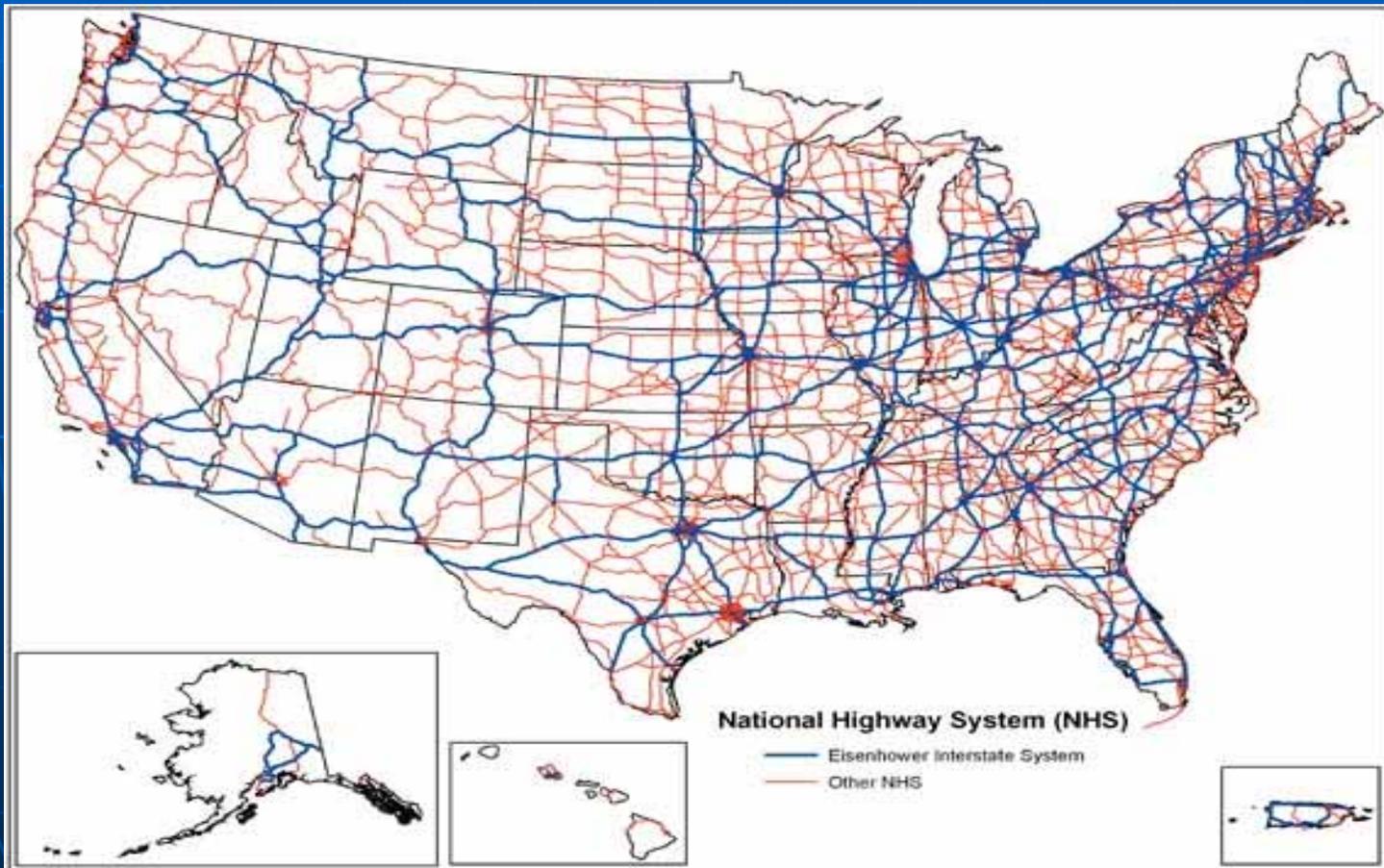


Economic Growth

National Statistics:

3,963,262 miles of Roads

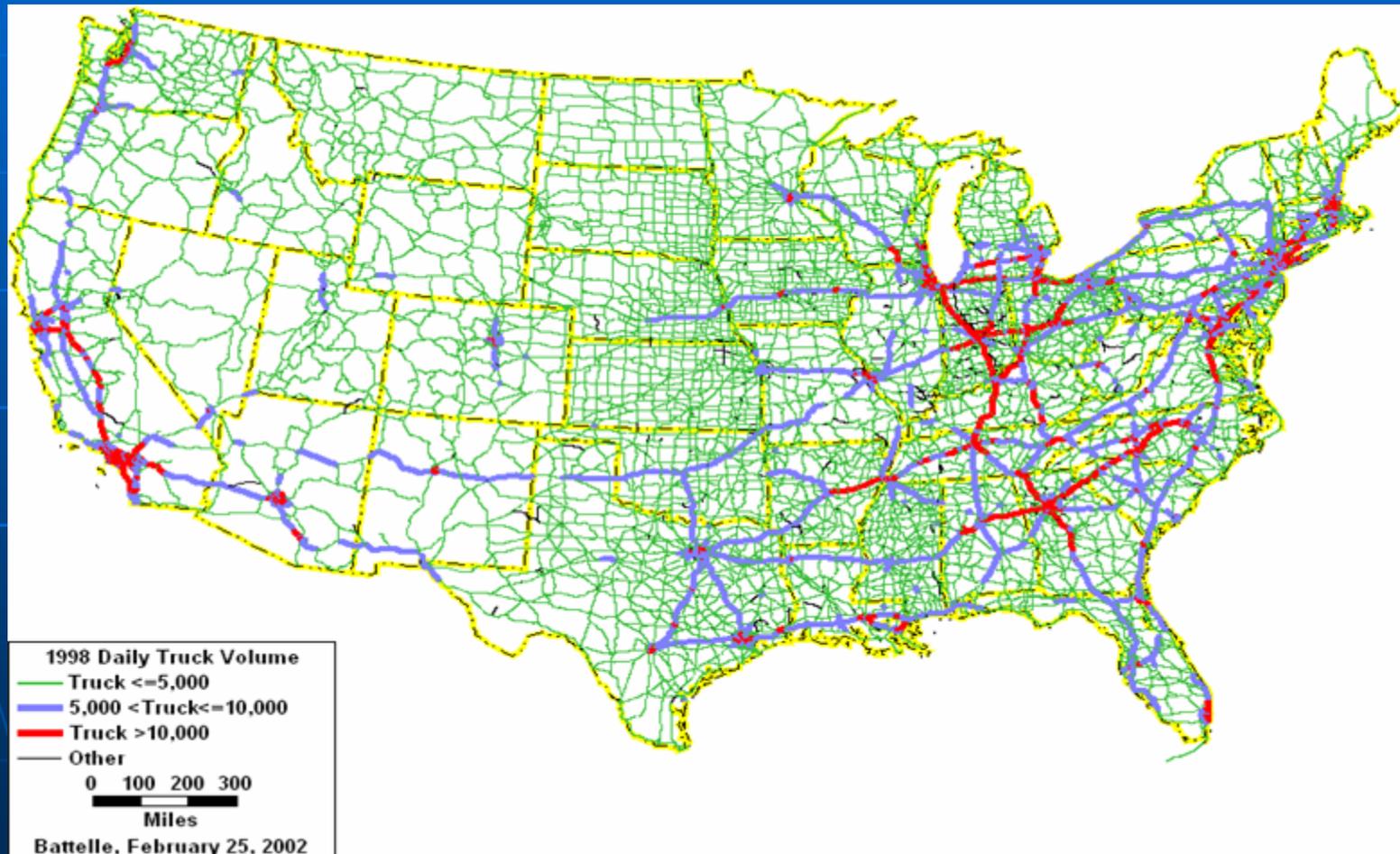
590,685 Bridges



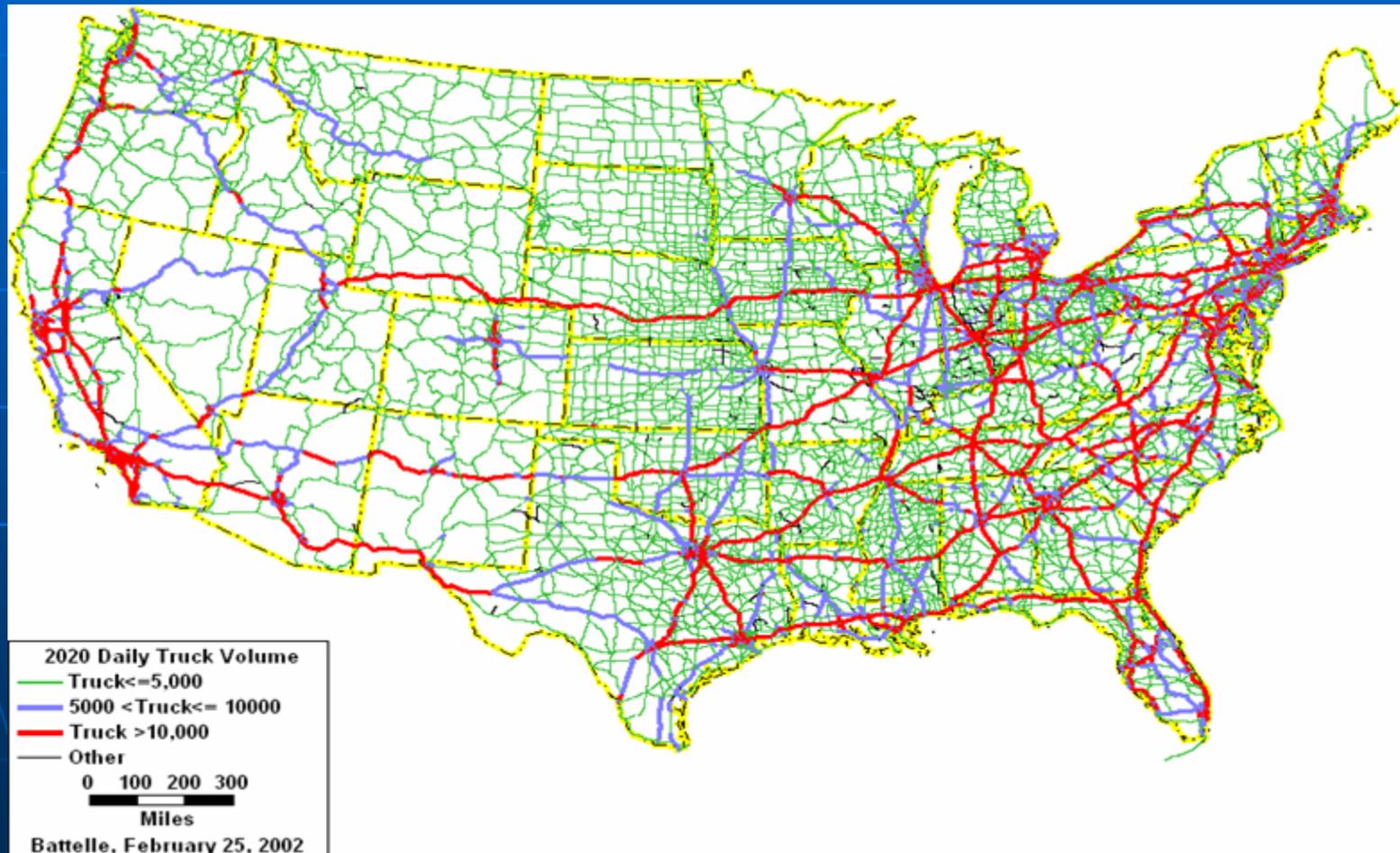
Economic Growth



Truck Volumes - NHS - 2000



Truck Volumes in 20 Years





The Old Approach

- Limited Preservation
- Underestimated Traffic, Loads, Costs
- Use Locally Available Materials
- Repaired Worst First
- Design for Lowest Initial Cost
- Limited Design Life
- Limited Economic Analysis
- Insufficient Funds

Asset Management The New Approach

- Transportation Networks Viewed as Utilities
- Investments in Assets Rather than the Traditional Public Idea of Mere Expenditures of Funds



How Does Transportation Asset Management Work?

- Decisions are based on accurate data, and sound engineering and economic analysis
- Improved decision-making supported by policies, performance-based goals, performance measures, and appropriate service levels
- 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
- 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

Transportation Asset Management

RESOURCES

Preservation

Operations

Capital
Improvement

Safety,
Etc.



Pavement Management impacts all areas

National Activities – Historical Background

- AASHTO established AM Task Force 1997 and full subcommittee in 2004
 - Equal Representation from SCOP and SCOH
- AASHTO Adoption of Strategic Plan 1999/2000 revised in 2004
- FHWA established an Office of Asset Management
- TRB Task Force in 2000 and Committee in 2004

- NCHRP Project to Develop 1st Generation Asset Management Guide
- Joint Website established & 5 National Workshops since
- NCHRP Project to develop a trade off analysis tool currently AASHTOWare starting Phase 1 development

Technical Committees

- AASHTO Subcommittee on Transportation Asset Management
 - Includes representation from highway, planning and finance
 - Strategic plan that provides an agenda for future work.
 - Chair: Kirk Steudle (Michigan), Co-chair: Neil Pedersen (Maryland)
- TRB Committee on Transportation Asset Management
 - Multimodal, includes state and local government
 - Sponsors asset management sessions at the TRB Annual Meeting in January in Washington DC.
 - Chair: Sue McNeil (University of Delaware)

Best Practices in Transportation Asset Management: What is going on

- International Experiences
- U.S. Experience
 - Domestic Scan
 - Executive Session
- Other Activities



**International Scan on
Asset Management:
*Australia, Canada, England, and
New Zealand*
April 8-April 23, 2005**



Purpose

Investigate best case examples of asset management techniques and processes in the world...and identify lessons and applications for the U.S.

Sponsored by AASHTO, FHWA, and NCHRP



London, England

Edmonton, Alberta

Brisbane, Queensland

Wellington, New Zealand

Melbourne, Victoria

Sydney, New South Wales

What were the drivers for adopting asset management approaches?

- Limited resources
- Increasing demands on and use of existing infrastructure
- Desire for credibility with elected officials and the public, that is, linking funding to system performance
- Where private provision of services was used, asset management was a way of providing strategic oversight

- Natural evolution in the development of individual infrastructure management systems
- Desire to evolve to a system that allows trade-offs among different asset categories and between asset strategies
- Legislative or governmental mandate, e.g.,
 - Road Management Act in Victoria
 - Local Transport Plan 2 guidance in England
 - Local Government Act in New Zealand

What we found...

Each site visited has made a long term commitment to, and allocated resources for, developing an asset management program....

and are continuing to “evolve” this program in response to agency decision-making needs.

Lessons for the U.S.

- Used to justify funding needs
- Focus on network performance
- Data driven process
- Linked to strategic goals
- Incorporates risk
- Uses remaining life and asset value as performance indicators
- Recognizes potential and challenges of trade-off analysis
- Articulates the benefits of asset management.

In sum....

It is clear that asset management as an organizational culture, a “business decision-making process” and as a policy direction is a critical foundation for transportation programs that are facing significant capital renewal and preservation needs. The U.S. is clearly facing such a challenge.

Best Practices in Transportation Asset Management: State Perspective

presented at

National Conference on Pavement Management

Norfolk, Virginia

Lacy D. Love

Director of Asset Management

North Carolina Department of Transportation

May, 2007

Executive Briefing: Getting the Word Out

TRB Task Force on Accelerating
Innovation

AASHTO/FHWA/NCHRP International
Technology Scanning Program

TRB Asset Management Committee

Common Themes from the Scans

■ Drivers

- Limited resources
- Increasing demands
- Credibility with elected officials and the public
- Strategic oversight



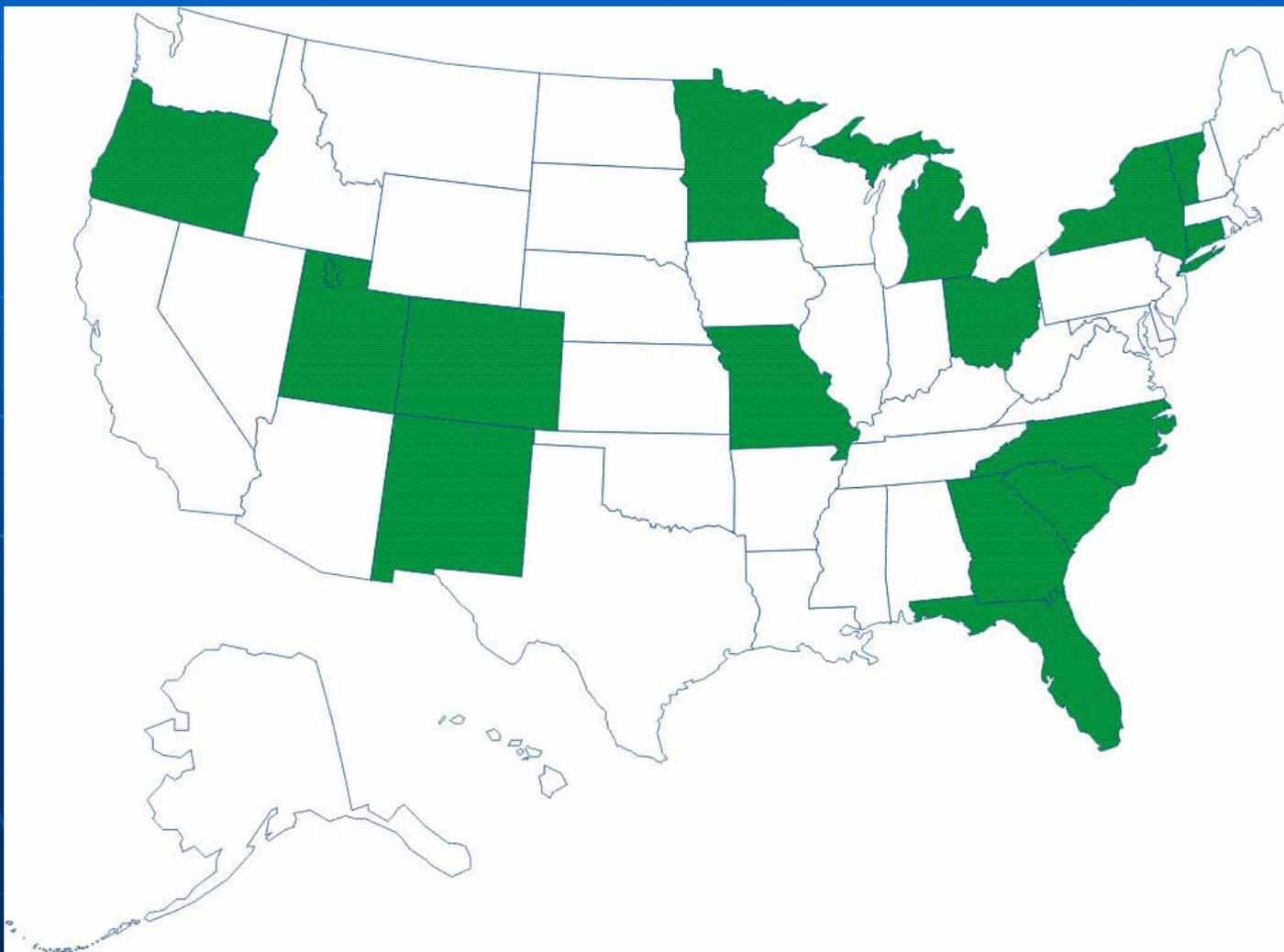
■ Overarching themes

- Move away from “worst first”
- Focus on preservation first
- Recognize data is an asset
- Enhances communication
- Provides strong justification for funding
- Evidence of a variety of organization structures
- Uses performance measures

Workshop Format

- Each participating state prepared a two-page handout
- International roundtable – Australia; Alberta, Canada; United Kingdom
- US roundtable and case studies – Florida, Michigan, Utah, and Ohio Departments of transportation
- Asset Management – Toll Facilities and Public Private Partnerships
- Discussion

Participants



Common Themes

- The diversity of approaches
- Build asset management strategies from work on pavement and bridge management.
- Use of performance measures.
- Objectives:
 - Needs prioritized recognizing resource constraints.
 - Tradeoffs
 - Among asset classes
 - Districts
 - Short and long term.

Successes

- Oregon - Communication with legislature
- Vermont – Moved the discussion away from micro-management
- Missouri – Tradeoff tool illustrates the impacts of decisions

International Experiences

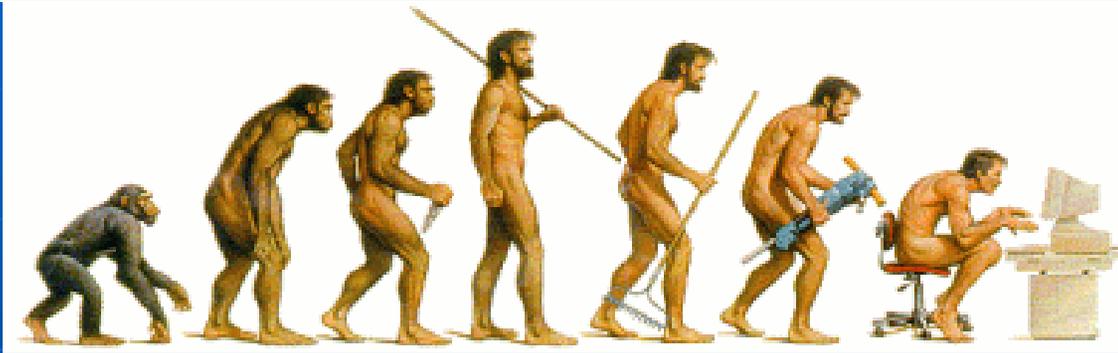
- United Kingdom
- Alberta, Canada
- New Zealand
- CityLink, Melbourne, Victoria, Australia



United Kingdom

- Status
 - **Awareness**
 - All highway authorities are aware of asset management
 - **Understanding**
 - The majority have a basic understanding of how the concept might apply to them
 - **Asset Management Plan Development**
 - Progress with the development of TAMPs is mixed
 - A handful published, numerous in stages of development
 - **Asset Management Practice**
 - A handful of authorities progressing implementation
 - Others practicing elements as they always did
- Is asset management influencing decisions?
 - Nationally: yes**
 - Locally: less so**

Transport Asset Management



Practice is evolving i.e.

- Taking time
- Progressing and
- Still a bit hairy ...
- If we are not careful it may become a purely "intellectual exercise"

UK Local Road Transport Asset Management: School Report 2006

Shows willingness and tries hard,
room for improvement but with more
focused application has impressive
prospects for the future.

General Observations

- Positive outcomes
 - More effective use of existing resources
 - More resources
 - Added rationality to the political process
- Data driven process
- Performance links outcomes to users

Other Activities

- NAMS
- Conferences
- Peer Exchanges
- NCHRP projects
- Other tools

National Asset Management Steering Group - NAMS

■ Background

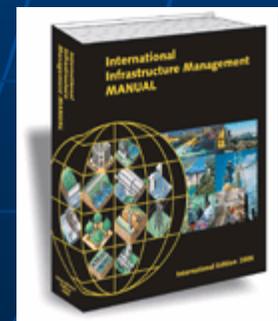
- Initiated in New Zealand
- Includes representation from key professional organizations and liaisons with related professional organizations and government entities
- Signature publication – International Infrastructure Management Manual

■ NAMS.AU

- Committee of Institute of Public Works Engineering Australia (IPWEA)
- Linked to NAMS

■ Pacific Northwest AM Users Group

- Fledgling grassroots effort



Preliminary Meeting Outcomes

- There is a need for a NAMS types organization
- Professional organizations (APWA, ASCE etc) need to go back to their boards and discuss mechanisms for collaborating
- The collaboration must serve the needs of the professionals
- Continue to communicate via TAMT website
- Begin by focusing on best practices
- Reassemble for another meeting this summer.

Conferences

- 1st conference (1996-Washington DC) "Advancing the State of the Art into the 21st Century through Public-Private Dialogue." invitation only included representatives from Chrysler, Walmart, GTE Conrail and public utilities. (PAPER ONLY)
- 2nd national conference (1997) Albany, New York, Theme: "21st Century Asset Management." (PAPER ONLY)
- 3rd national conference, held in 1999 in Scottsdale, Arizona, peer exchange between state departments of transportation. (EXECUTIVE BRIEFING -- PAPER ONLY)
- 4th conference (2001) Madison, Wisconsin. Theme: "Taking the Next Step." (BINDER WITH PRESENTATION)
- 5th conference (2003) Seattle and Atlanta, Theme: "Moving from Theory to Practice."
(<http://www.mrutc.org/outreach/FinalReport5thNTAM.pdf>)
- 6th conference (2005) Kansas City, Theme: "Making Asset Management Work in Your Organization"
(<http://www.trb.org/publications/circulars/ec093.pdf>)

Peer Reviews

- Fall 2004 – Asset Management Peer Exchange
<http://trb.org/publications/circulars/ec076.pdf>
- Fall 2005 - Spatial Asset Management Data Peer Exchange
<http://onlinepubs.trb.org/onlinepubs/circulars/ec108.pdf>
- Summer 2006 – MPO Peer Exchange
<http://www.fhwa.dot.gov/hep10/state/intassetindex.htm>
- Fall 2006 – Safety and Asset Management Peer Exchange
<http://onlinepubs.trb.org/onlinepubs/circulars/ec111.pdf>

Completed NCHRP Projects

- Project 20-24(11), Asset Management Guidance for Transportation Agencies - ([http://www4.trb.org/trb/crp.nsf/All+Projects/NCHRP+20-24\(11\)](http://www4.trb.org/trb/crp.nsf/All+Projects/NCHRP+20-24(11)))
- Project 20-57, Analytic Tools to Support Transportation Asset Management - (<http://www4.trb.org/trb/crp.nsf/All+Projects/NCHRP+20-57>)
- Project 20-60, Performance Measures and Targets for Transportation Asset Management - (<http://www4.trb.org/trb/crp.nsf/All+Projects/NCHRP+20-60>)
- Project 19-04, A Review of DOT Compliance with GASB 34 Requirements - (<http://www4.trb.org/trb/crp.nsf/All+Projects/NCHRP+19-04>)

Ongoing NCHRP Projects

Synthesis of Highway Practice 37-03, Managing Selected Transportation Infrastructure Assets

Project 20-74 – Developing an Asset Management Plan for the Interstate Highway System

Tool Development

- AASHTOWare project to develop asset management tools building on NCHRP Project 20-57
- Asset Management Data Collection Guide, AASHTO-AGC-ARTBA Task Force 45 Report (available from AASHTO)

Resources: Other Important Documents:

Domestic Scan

http://onlinepubs.trb.org/onlinepubs/trbnet/ac1/NCRHP2068_Domestic_Scan_TAM_Final_Report.pdf

International Scan

[http://assetmanagement.transportation.org/tam/aashto.nsf/All+Documents/30F144B18E33667A852570A000468331/\\$FILE/TAM-International_Scan_Final_Report.pdf](http://assetmanagement.transportation.org/tam/aashto.nsf/All+Documents/30F144B18E33667A852570A000468331/$FILE/TAM-International_Scan_Final_Report.pdf)

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Resources: FHWA Activities and Resources

- Resource centers
- Division office training program
- HPMS task force underway
- Supports
 - LCCA
 - HERS-ST
- Workshops and Webinars
- Next generation of the asset management guide
- Upgrade PONTIS
- Pavement preservation courses – NHI
- NHI AM course

Resources: FHWA's Office of Asset Management

Teams:

- Management & Monitoring Systems
- Construction & System Preservation
- Evaluation & Economic Investment

Resources: University Transportation Centers

- Midwest Regional University Transportation Center (MRUTC) at University of Wisconsin Madison focuses on research, outreach, and education in asset optimization and management techniques for transportation facilities.
- Midwest Transportation Consortium's (MTC) at Iowa State University is "Transportation System Management and Operations," specifically, sustainable transportation asset management principles and techniques.

Resources: Websites

- Community of Practice – Transportation Asset Management Today (TAMT) –
- <http://assetmanagement.transportation.org>

- FHWA Office of Asset management
- <http://www.fhwa.dot.gov/infrastructure/asstmgmt/index.htm>

- MRUTC
- <http://www.mrutc.org>

- MTC
- <http://www.ctre.iastate.edu/mtc/index.htm>

AASHTO Transportation Asset Management Today

Search: Go!

From the Webmaster

Welcome to Transportation Asset Management Today.

The Transportation Asset Management Course is now available from the National Highway Institute. See details in Asset Management 101.

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What's New

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Event Calendar

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Resources: Training

- NHI Course - FHWA-NHI-131106 Asset Management
- MRUTC Catalog
<http://www.mrutc.org/research/0602/>
- American Public Works Association (APWA) offers "click-listen and learn" seminars.
- FHWA offers workshops and training
 - HERS-ST
 - Life Cost Cycle Analysis
 - Benefit Cost Analysis
 - Preservation
 - Pavement Management
- EPA Training courses

Resources: Industry Groups

- Transportation
 - AASHTO
 - TRB
 - ACEC
 - AGC
 - APWA
 - NACE
 - Others
- Other types of assets
 - EPA
 - AWWA (research road map)
 - WERF

Where to next?

- Engaging the other 35 states
- Opportunities
 - Conferences – New Orleans, November 2007
 - Committee meetings
 - TRB Committee – Chicago – July 2007
 - AASHTO Subcommittee – Boston – August 2007
 - Website – Transportation Asset Management Today –
<http://assetmanagement.transportation.org>