Best Practices in Transportation Asset Management: State Perspective

presented at

National Conference on Pavement Management
Norfolk, Virginia

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May, 2007

Best Practices from Domestic Scan

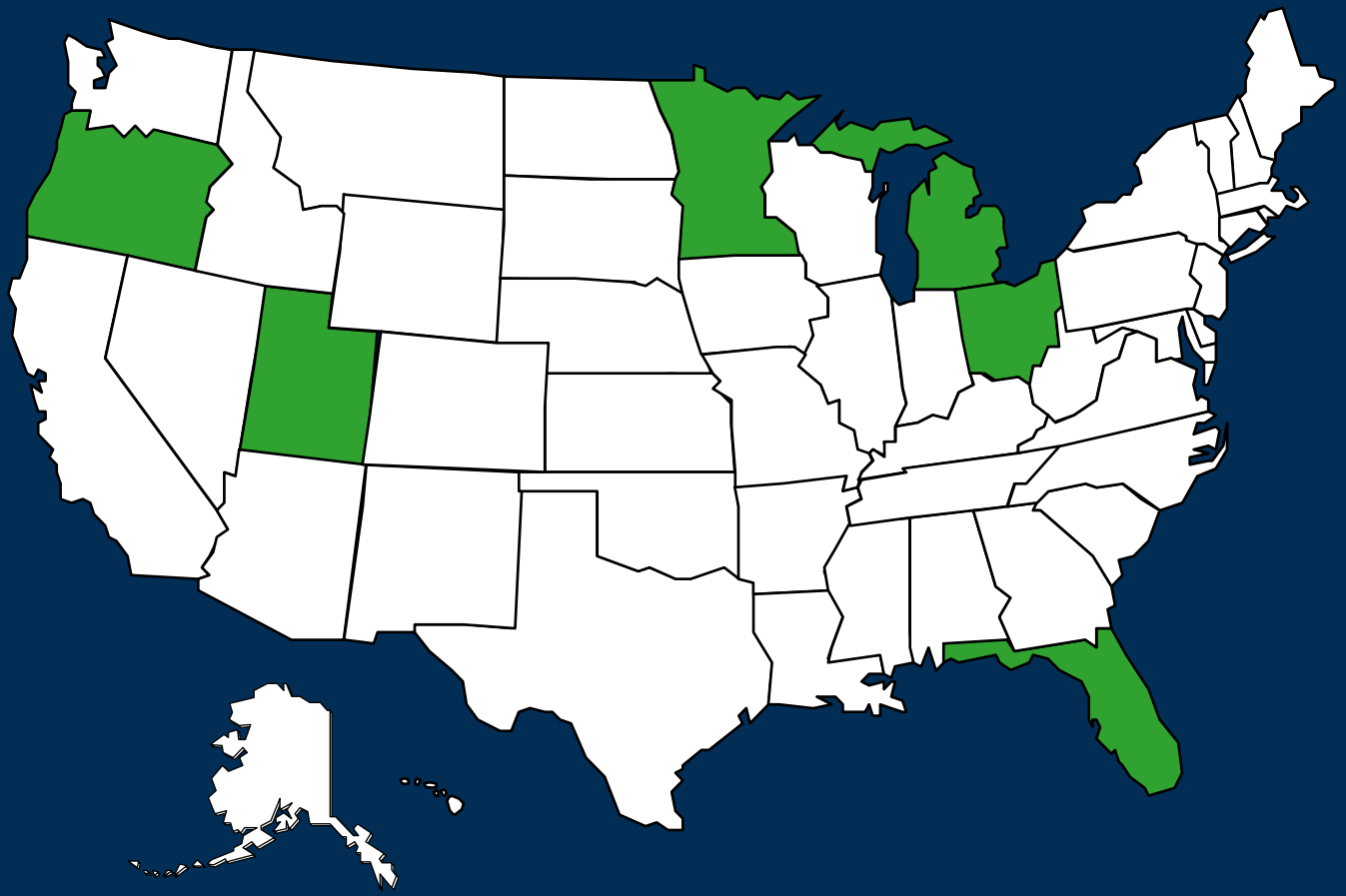
Purpose of Scan

- Visit selected National Governmental Transportation Agencies that have implemented Asset Management Principals in their agencies.
- Learn from National leaders on how they implemented Asset Management.
- Share with other States and local road agencies the teams findings.
- Complete a written report on Scan's findings.

Scan Team

- Four Representatives from FHWA
- Five State DOT Representatives from Michigan, North Carolina, Ohio, Vermont & Oregon
- Subject Matter Expert & Report Writer from Georgia Tech
- Tour Manager from Cambridge Systematics, Inc.

Agencies Interviewed



Agencies Interviewed

- 6 State transportation agencies – Florida, Michigan, Minnesota, Ohio, Oregon and Utah
- 1 city – Portland, OR
- 2 MPOs – SEMCOG in Detroit and Grand Valley Metropolitan Council in Grand Rapids, MI
- 2 counties – Hillsborough County, FL and Kent County, MI
- 1 tollway authority – Florida's Turnpike Enterprise
- 2 statewide asset management associations – Michigan Transportation Asset Management Council and Pacific Northeast Asset Management User Group, OR

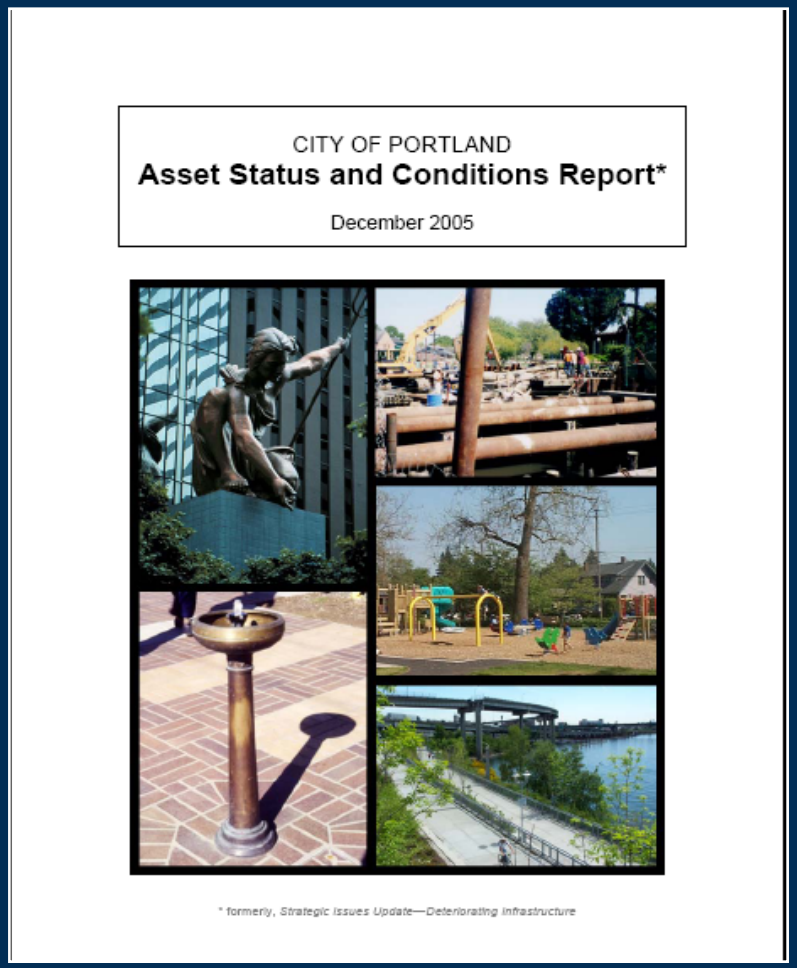
Why Asset Management?

Reasons to Implement TAM

ASSET MANAGEMENT

- **Right thing to do & were ready**
- **Credibility w/ elected officials & stakeholders**
- **Already believed in "preservation first"**
  - **Needed tools to manage Preservation program**
  - **Needed a way to prioritize projects**
- **Decision Support System for Commission**
  - **Needed better way to allocate transportation resources both optimally and equitably.**
  - **Optimize Funding based on engineering & economics**
- **Align Funding with Strategic Goals & Strategic Goals w/ Performance Plans**

Portland Whole of Government Approach



- Whole of government approach
  - bureaus working together, consistent data
  - impact on public and tax base
- Continue City annual asset report
- Share asset information with Community Visioning
- Review service levels & costs
- Prepare strategies to match revenues with planned service levels

Vision

State DOT's Long Range Vision

Oregon DOT's Vision

- **Managed strategically by**
  - **Utilizing integrated and systematic data collection, storage, analysis and reporting standards**
  - **Optimize funding and life cycle decisions for operations, maintenance and construction business functions.**

UDOT TAM VISION

In three to five year's time UDOT's Asset Management System will be:

- **Integrated:** where funding allocation decisions are broad based across various asset categories;
- **Automated:** so that funding allocation decisions are generated in a more systematic, repeatable and objective manner;
- **Expanded:** to include other network assets other than just pavements and bridges;
- **Accessible:** to all UDOT stakeholders through the internet or other communication media

Ohio DOT: Linkage

ODOT asset management tied to:

- Budgets
- Executive evaluations
- Division goals
- Institutional goals
- Civil service documentation

Scan Findings

All agencies had adopted a ‘preservation first’ strategy for their investment priorities

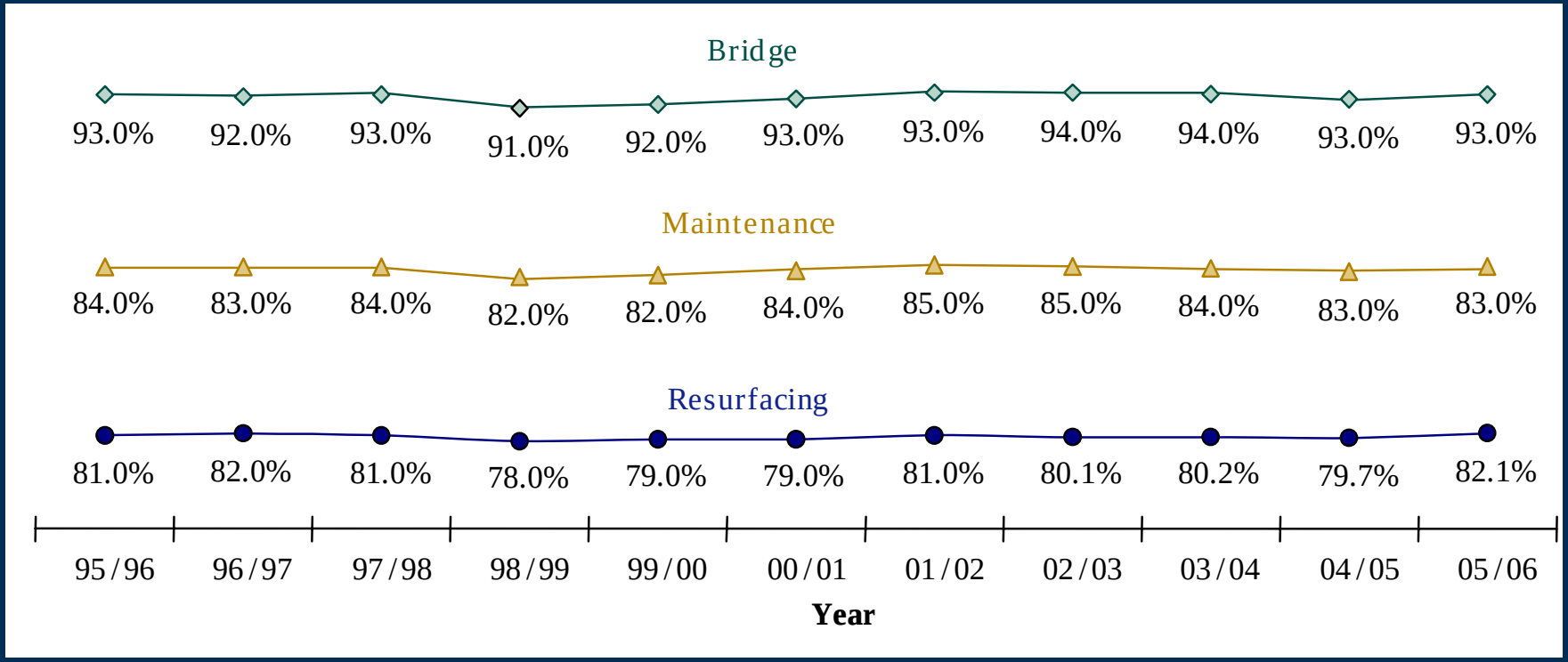
Preservation First Strategies
Florida DOT

- **Policies established that target these types of investments**
  - **5.6 percent of the state highway system will be resurfaced each year**
  - **When a bridge is declared deficient, it will be replaced within 9 years**
  - **Maintenance is funded "off the top" at a level required to achieve a maintenance rating of 80 or above**

"Asset management has resulted in the legislature approving our preservation and maintenance budgets without change because we were able to justify the State's needs."

Preservation First Strategies
Florida DOT

Percent of network meeting Florida DOT Standards



Standards: **Minimum 90% of network meeting bridge standard**
100% of network meeting maintenance standard
Minimum 80% of network meeting resurfacing standard

Scan Findings

There was no one organizational model for asset management

Scan Findings

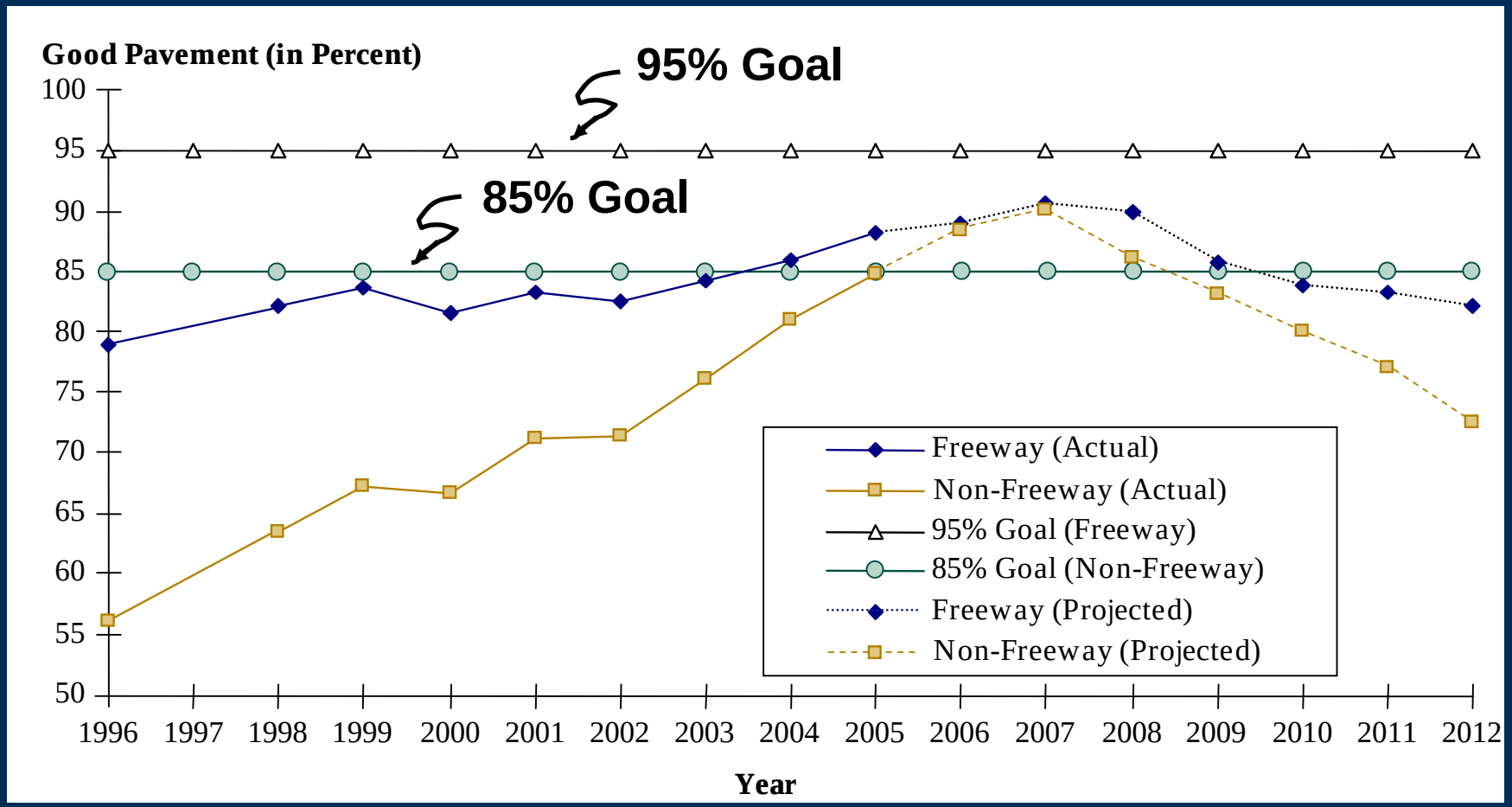
Success linked to actions of asset management champion(s)

Scan Findings

Existence of an asset management process can be instrumental in securing additional funds from the legislature

Making the Case for Additional Funds Michigan DOT

Michigan Pavement Condition



Scan Findings

Movement from “worst first” to life cycle costing

From "Worst First" to Life Cycle Costs
Hillsborough County, FL

- **Strategy is supported by an analysis of life cycle costs for pavements, bridges, and drainage assets**
- **One of the challenges of this approach is explaining to public officials and local residents why work is being done on "good" roads**

"Divorcing yourself from the 'worst first' investment strategy is hard for local officials to understand, but in the long run is the most cost-effective use of the public's dollars."

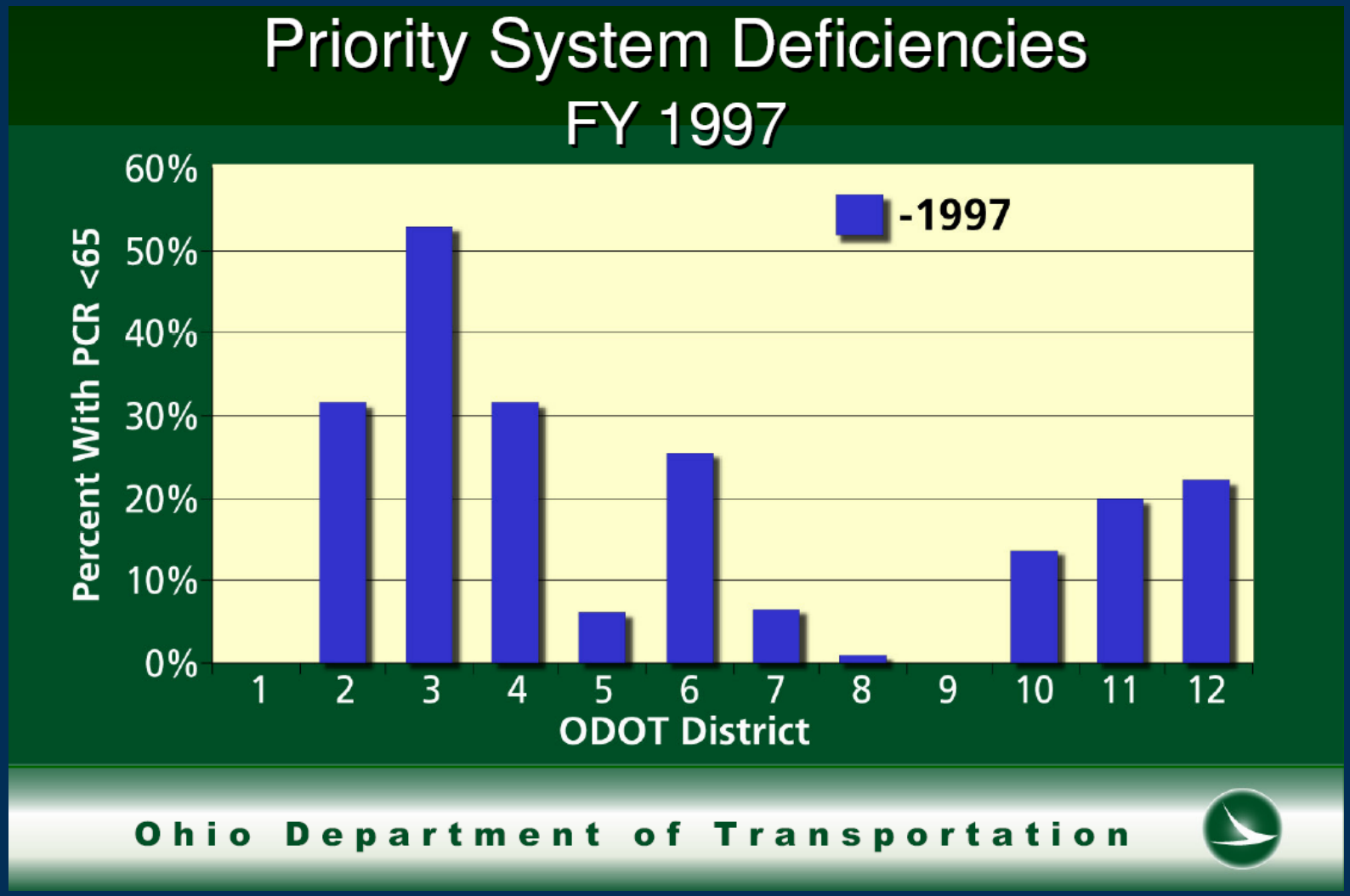
Scan Findings

Use of performance measures to guide investment decisions throughout organization

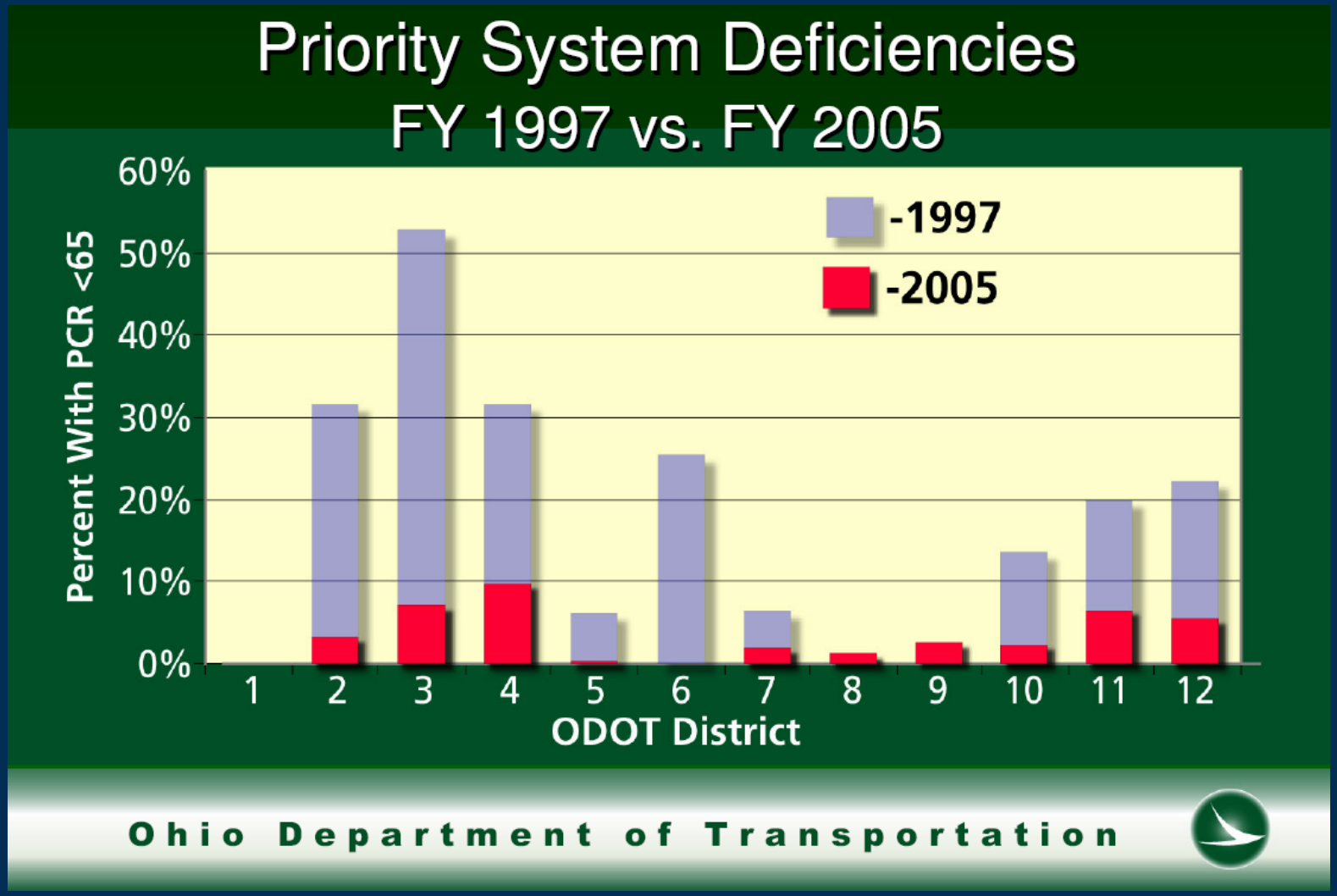
Ohio DOT: Using Asset Management Performance Measures Will:

- Catalyze action
- Define goals
- Prioritize actions
- Align efforts

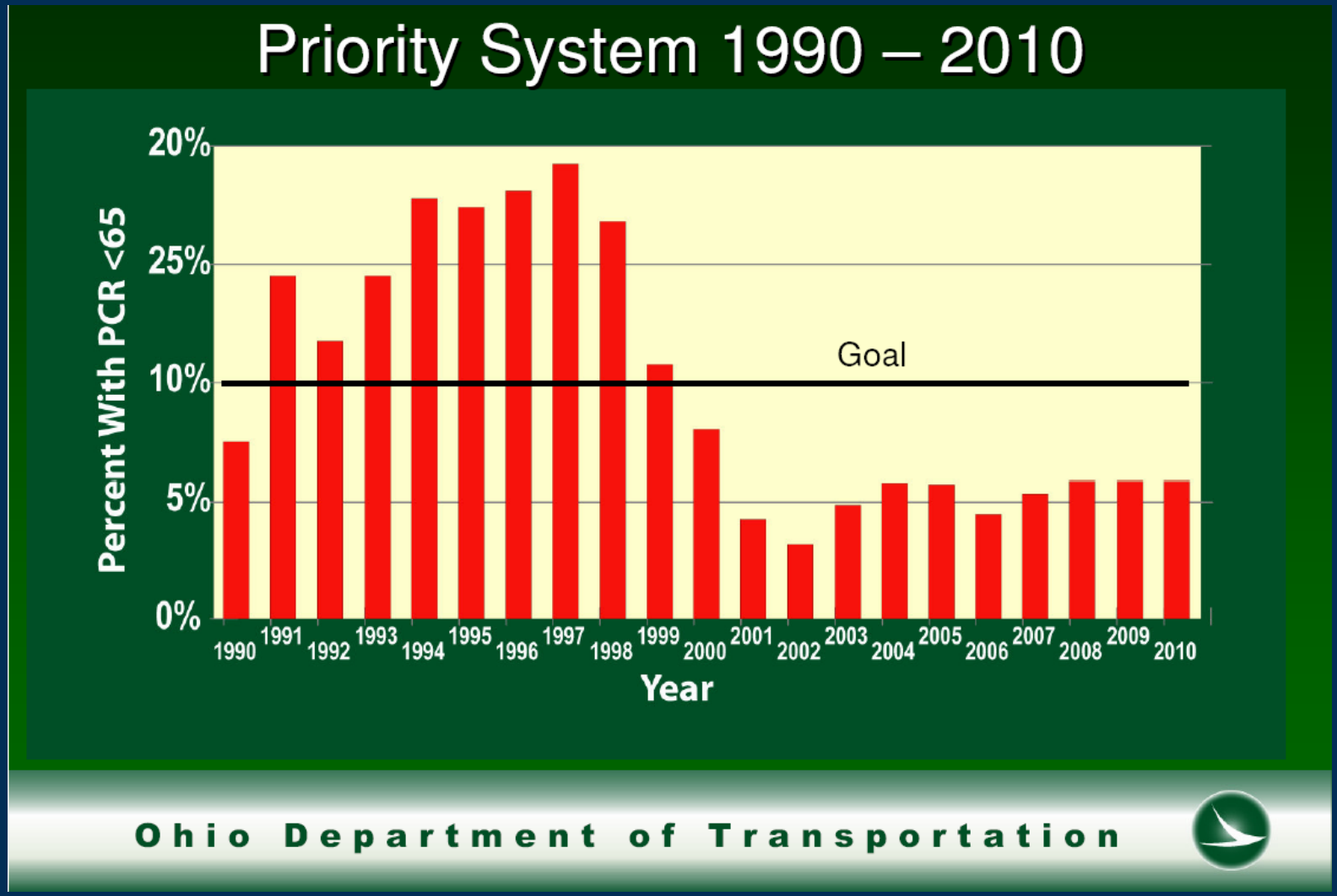
Ohio Pavement Conditions - 1997



Ohio Pavement Conditions - 1997



Ohio Pavement Conditions - 1997



Scan Findings

Scenario analysis is one of the most effective methods of convincing decision makers of the need for transportation investments

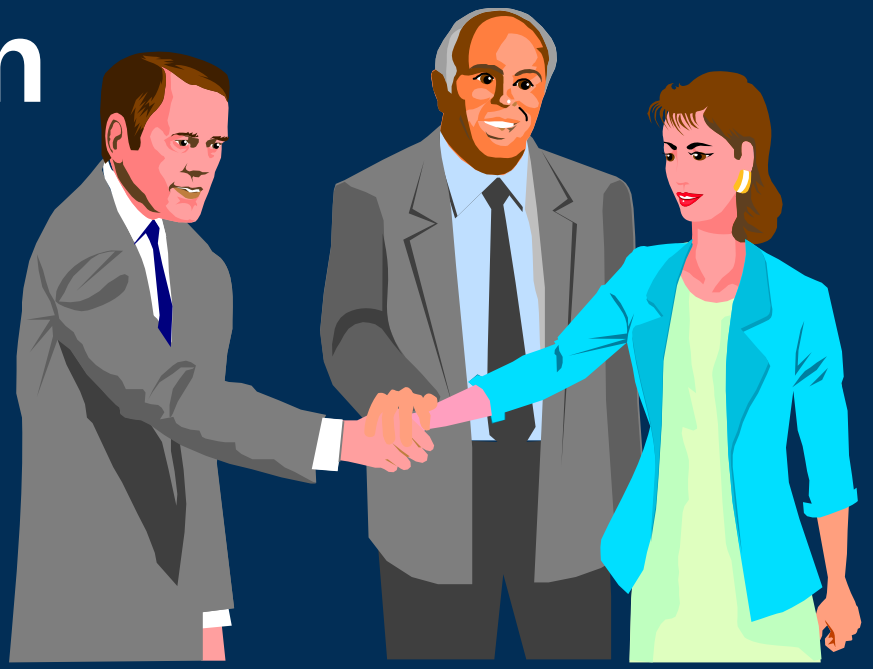
Scenario Analysis
Kent County Road Commission, MI

Investment Strategies Percent of System Condition PCI > 70					
	Surface Treatments		Overlays		Total
	Miles	Dollars	Miles	Dollars	Dollars
70%	475	$42.0	183	$26.2	$68.2
80%	565	$50.5	215	$30.7	$81.2
90%	650	$58.0	245	$35.1	$93.1
100%	735	$65.4	275	$39.4	$104.8

"With good tools comes good decision making"

Scan Findings

"Growing pains" of asset management can enhance communication within an agency



"Asset management is as much about pulling all the players together for a common purpose as it is about technical aspects."

Scan Findings

Data seen as an asset and data collection process seen as an important decision support function

Quality Information & Data: Michigan

- **Maintain high-quality information that supports asset management and business process**
- **Collect and update data cost-effectively**
- **Data viewed as “corporate asset”**
- **Collect it once; store it once; use it over and over**
- **Information automated and accessible to all parties**
  - **GIS Framework Project**
  - **Global Positioning System (GPS)**

Scan Findings

New technologies have the potential to make data collection more cost-effective and efficient

Pavement Data Collection-Michigan

Surface Data Collection & Processing

- 12,500 roadbed miles
- Revolving two-year collection cycle
- Forward & downview imaging

  (Distress recognition)
- Laser sensor data

  (Long./transverse profile measurement)

Scan Findings

In several cases, a customer orientation has been adopted

Customer Orientation
Minnesota DOT

- Mn/DOT's investment decision-making process is driven by performance-based plans and programs
- Each of the agency's policies has a set of measures and targets that allow Mn/DOT to monitor progress over time
- Public involvement played a role in establishing appropriate targets
- For example, Mn/DOT has conducted studies to determine what roadway conditions its customers find most desirable

FINALLY

1. FDOT
    1. Mission driven and adopted an asset management philosophy
    2. Strong commitment to system preservation and maintenance
    3. Customer focused
    4. Strong linkage between Planning, Programming, Budgeting and Scheduling
    5. Investment in Management Systems
    6. Detailed Inventory and Condition Data

Asset Management
Critical Success Factors: Michigan

Long term commitment:

- Process focus, beginning with strategic planning/goal setting
- Start simple – make a commitment to continuous improvement
- Quality data – “collect it once, use it many times”

Asset Management
Critical Success Factors: Michigan

Long term commitment to:

- IT support
- Build linkages between organization units internally
- Build partnerships/buy-in

Lessons from Ohio DOT

- Asset management should just be considered basic management
- Conditions should drive budgeting
- Evaluations should be tied to system condition achievements
- A complementary strategy is to enable savings and redirection

Lessons, cont'd

- Data systems will need help
- Gathering data may require its own major initiative
- Find customer requirement surrogates
- Use to set public agenda

Full Scan Report

U.S. Domestic Scan Program: Best Practices in Transportation Asset Management

- **http://pubsindex.trb.org/document/view/default.asp?lbid=805731**

Future Activities

Would you like to learn more about Asset Management?

New Directions in Asset Management and Economic Analysis

Conference Announcement

7th National Conference on Asset Management

November 6-8, 2007

Royal Sonesta Hotel, New Orleans, LA

http://trb.org/conferences/2007/Asset/Announcement.pdf

Who Should Attend?

- **Anyone interested in…..**
  - **Performance Measures**
  - **Lowest Life Cycle Cost**
  - **Preservation and Operations**
  - **Economic Analysis and Trade offs**
  - **Port and Harbor Infrastructure Management**
  - **Quantifying their Transportation Needs**

http://trb.org/conferences/2007/Asset/Announcement.pdf



Three Main Tracks

- **Integration of Maintenance & Operations into Transportation Asset Management**
- **Putting Economics into Practice**
- **Transportation Asset Management in the Ports and Harbors Community**

http://trb.org/conferences/2007/Asset/Announcement.pdf



Four Special Topic Areas

- **Asset Management to support Public-Private Partnerships**
- **Valuation of Assets**
- **Asset Management Partnerships Among Multiple Agencies and Owners, and**
- **Risk Assessment and Analysis in Decision Making**

http://trb.org/conferences/2007/Asset/Announcement.pdf



Co-Sponsors

- American Association of State Highway and Transportation Officials (AASHTO)
- American Public Works Association
- Midwest Regional UniversityTransportation Center at the University of Wisconsin
- National Association of County Engineers; and
- National LTAP Association
- Louisiana Department of Transportation and Development

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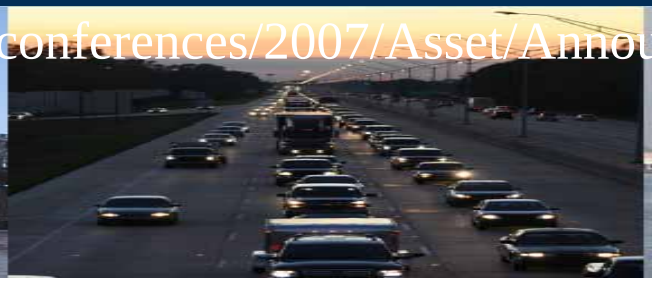


Pre-Conference
FHWA WORKSHOPS

- **Data Integration**
- **Economic Analysis**
- **Life Cycle Analysis**
- **HERS-ST**

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Want More Info?

- Tom Palmerlee or David Floyd, TRB, 202-334-2966 or dfloyd@nas.edu with questions related to the conference.
- Jason Bittner, program chair, at 608-262-7246 or bittner@engr.wisc.edu with any questions on the technical program.

http://trb.org/conferences/2007/Asset/Announcement.pdf



QUESTIONS