

Best Practices in Transportation Asset Management

presented to
Client Name

presented by
Name
Company

Date

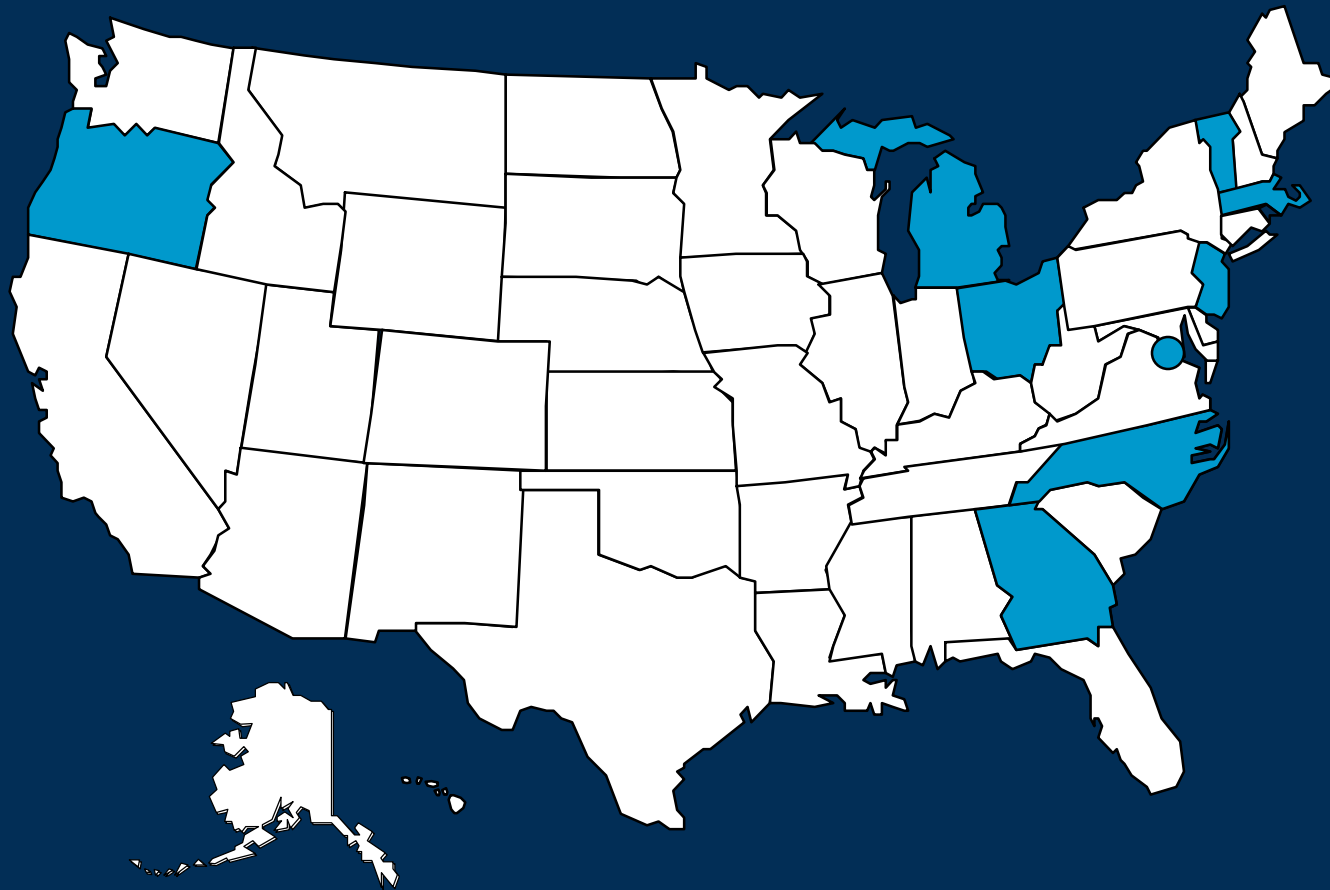
NCHRP 20-68, U.S. Domestic Scan Program

- **Modeled after successful International Technology Scanning Program sponsored by AASHTO and FHWA**
- **Purpose is to identify, review, document, and disseminate innovative practices by transportation agencies in the U.S.**
- **Business plan created in 2005**
- **Pilot conducted in 2006, with scans on two topics: (1) Transportation Asset Management and (2) Right-of-Way Acquisition and Utility Relocation**
- **Evaluation of pilots will serve as basis for recommendation on continuing the Domestic Scan Program**

Scan Format and Concept

- **Select agencies with advanced practices**
- **Select 11 champions for a peer-to-peer exchange of knowledge**
- **Review techniques, processes and tools**
- **Identify lessons learned and areas for improvement**
- **Document innovations and distribute to a wide audience**
- **Follow-up on implementation**

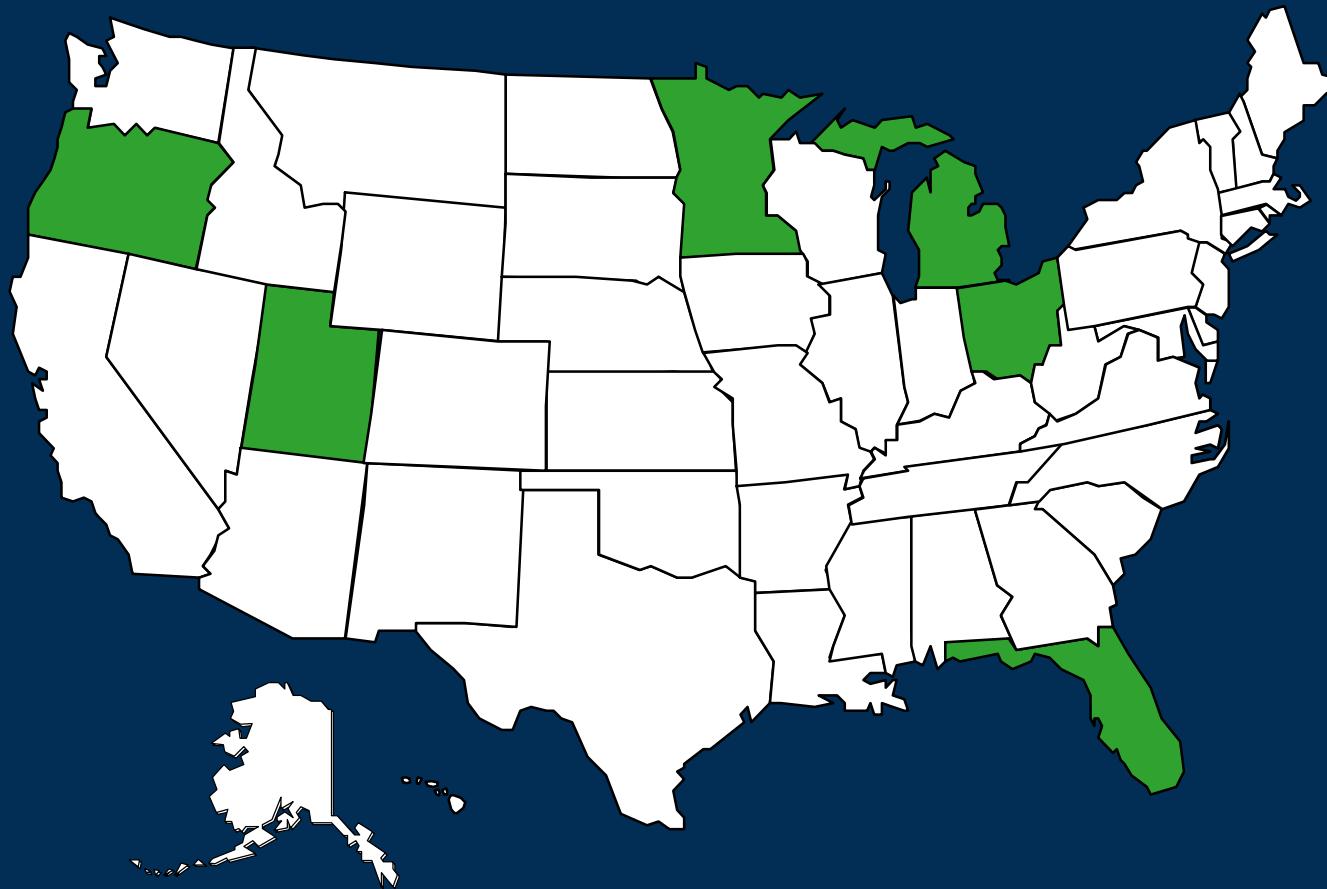
Scan Team



Scan Team

- **Dave Geiger (Co-Chair), FHWA Office of Asset Management**
- **Kirk Steudle (Co-Chair), Michigan DOT**
- **Thay Bishop, FHWA Georgia Office**
- **Leonard Evans, Ohio DOT**
- **Lacy Love, North Carolina DOT**
- **Dennis Merida, FHWA New Jersey Office**
- **Robert Ritter, FHWA Office of Planning**
- **Hobart Selle, Vermont Agency of Transportation**
- **Paul Wirfs, Oregon DOT**
- **Michael Meyer (Subject Matter Expert), Georgia Tech**
- **Joe Guerre (Tour Manager), 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**

Scan Findings

- All agencies had adopted a ‘preservation first’ strategy of their investment priorities
- Success linked to actions of asset management champion(s)
- Existence of an asset management process can be instrumental in securing additional funds from the legislature
- Movement from “worst first” to life cycle costing
- Use of performance measures to guide investment decisions throughout organization

Scan Findings, cont.

- **Scenario analysis is one of the most effective methods of convincing decision makers of the need for transportation investments**
- **There was no one organizational model for asset management**
- **“Growing pains” of asset management can enhance communication within an agency**
- **An important starting point of implementation is an organizational self assessment**

Scan Findings, cont.

- Little evidence of the application of risk analysis in the asset management processes
- Data seen as an asset and data collection process seen as an important decision support function
- In several cases, a customer orientation has been adopted
- New technologies have the potential to make data collection more cost-effective and efficient
- The use of in-house or contract forces does not change importance of performance measures

Recommendations for Further Action

- Update *AASHTO Transportation Asset Management Guide*
- Develop an asset management “ambassador” program
- Establish process for States to exchange information on asset management during AASHTO Regional meetings or other venues
- Establish webinar series on “Talking Asset Management”

Recommendations for Further Action, cont.

- **Potential research statements**

- How should desired performance levels be set?
- How can we quantify that asset management results in the same road condition for less cost?
- How can we establish a benchmarking system that demonstrates asset management practice?
- What are the conditions of success for long term maintenance contracts?
- What is the standard methodology for developing deterioration curves for assets other than pavements and bridges?

Implementing the Scan's Findings

- Scan is considered a success, but final verdict will depend on implementation
- Implementation plan is based on the recommendations listed above
- Follow-up evaluation of implementation activities will be conducted in 2007
- In addition, lessons learned on conducting the scan will be incorporated into future scans
- Final report expected early 2007

Examples

Preservation First Strategies

Florida DOT

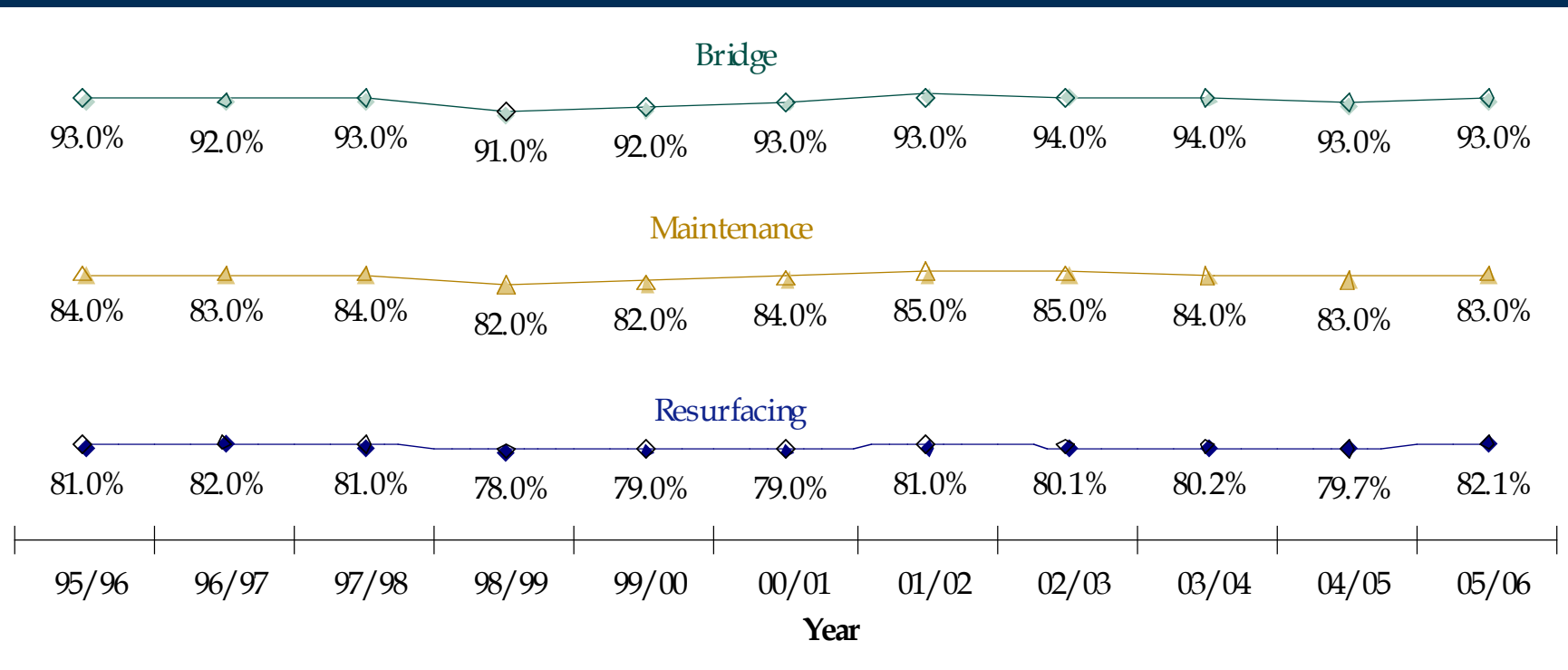
- **Florida DOT management has made a strong commitment to system preservation and maintenance**
- **They have been actively involved in establishing policies that target these types of investments**
 - **5.6 percent of the state highway system will be resurfaced each year**
 - **When a bridge is declared 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



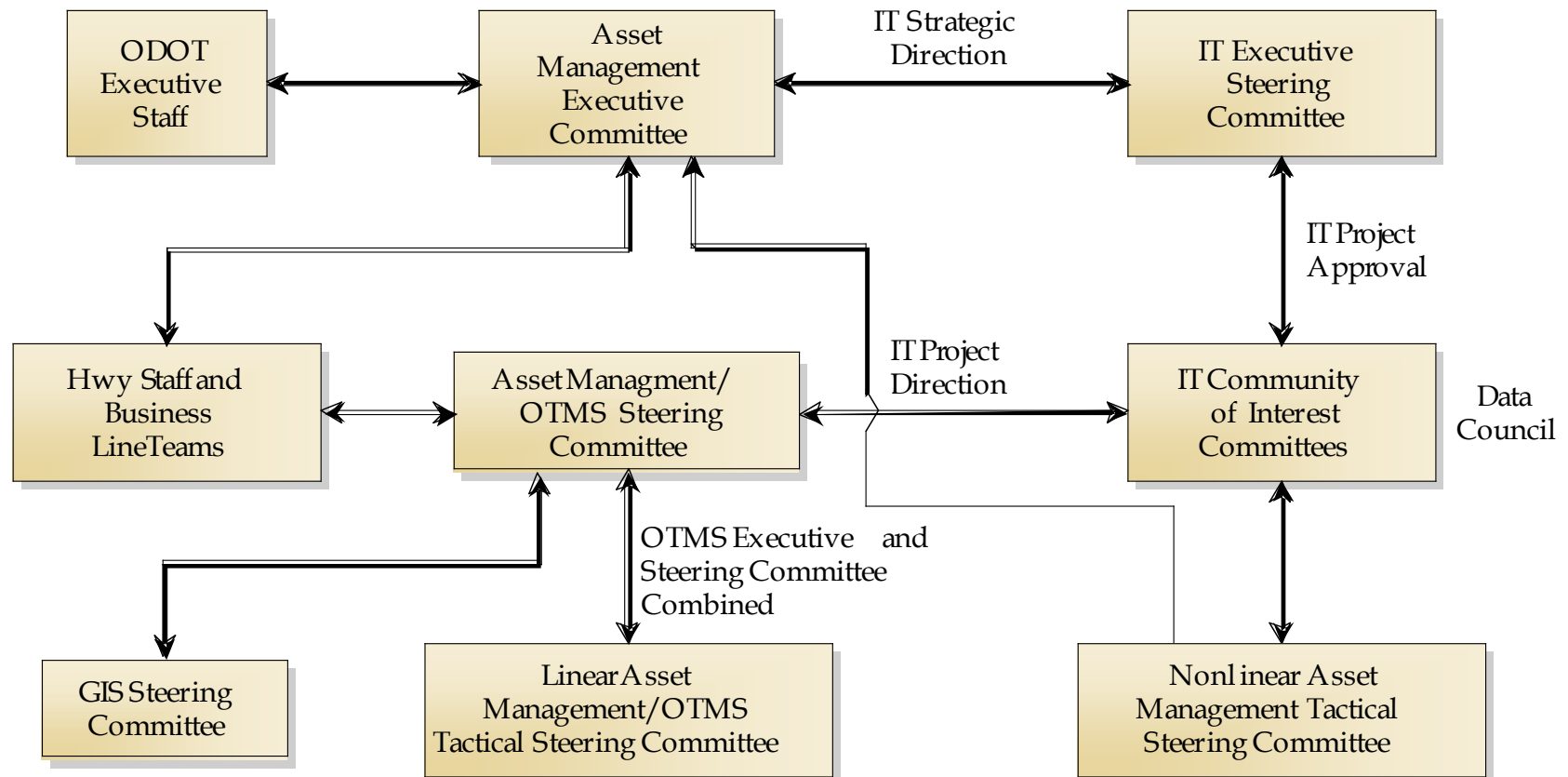
Standards: Minimum 80% of network meeting resurfacing standard
Minimum 90% of network meeting bridge standard
100% of network meeting maintenance standard

Characteristics of a TAM Champion

Utah DOT

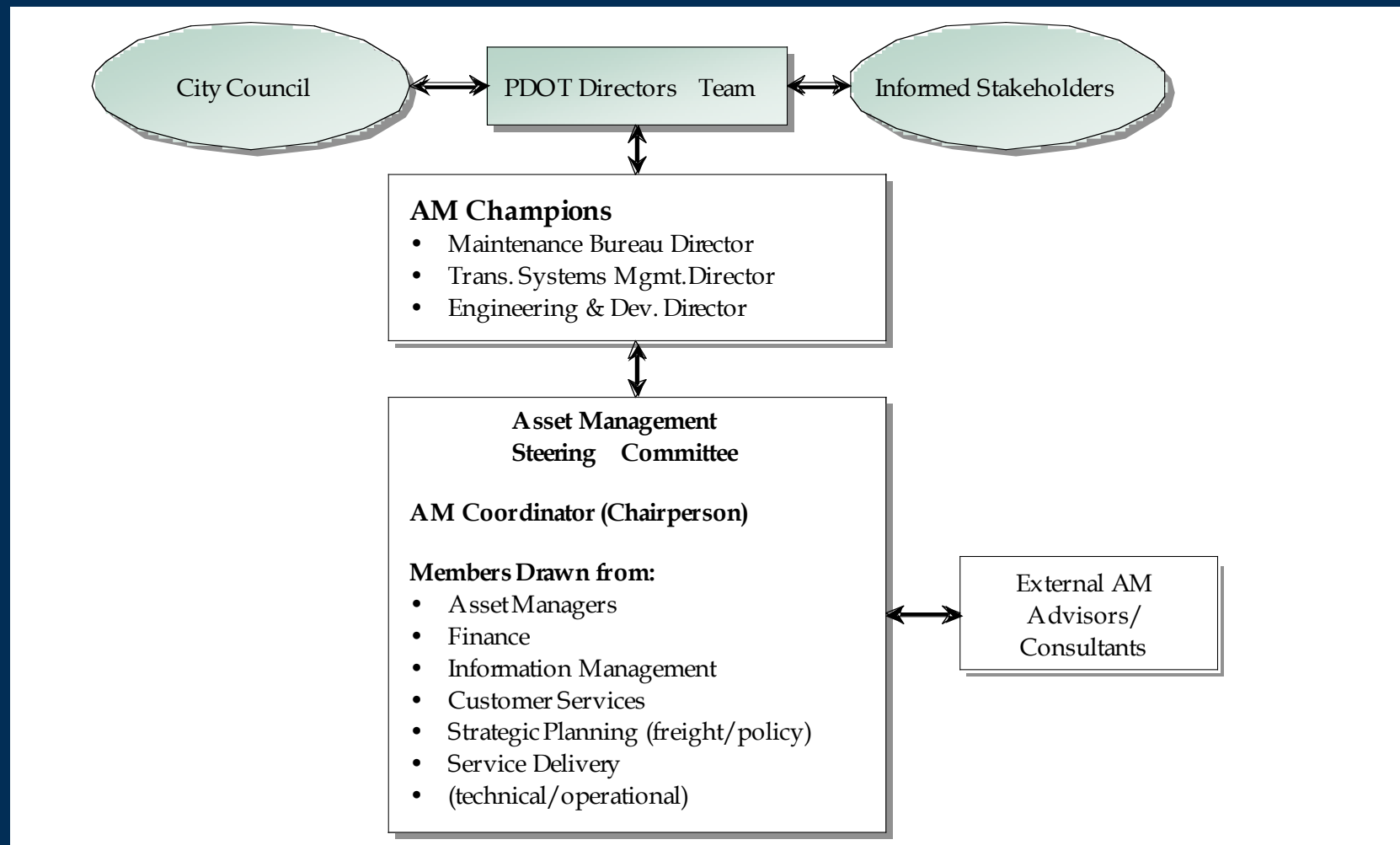
- **A communicator**
- **Respected**
- **A believer in process**
- **Willing to take chances**
- **Able to give credit to others**
- **Continually teaching others**

Organizational Models for TAM Oregon DOT



Organizational Models for TAM

City of Portland, OR



Making the Case for Additional Funds

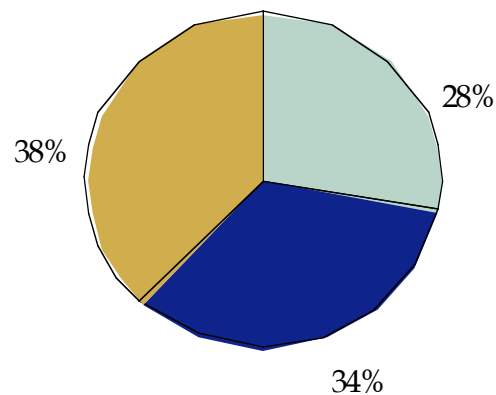
City of Portland, OR

Financial Forecast Information

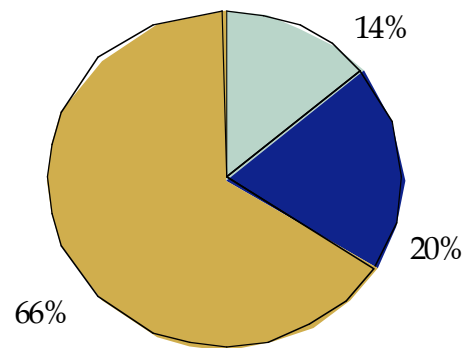
Condition in 2016 if..

Good Fair Poor

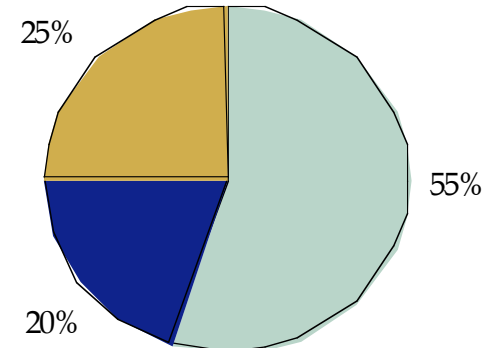
Today 's Condition



Condition in 2016 if
No Additional Money



Additional
\$4.9 Million/Year

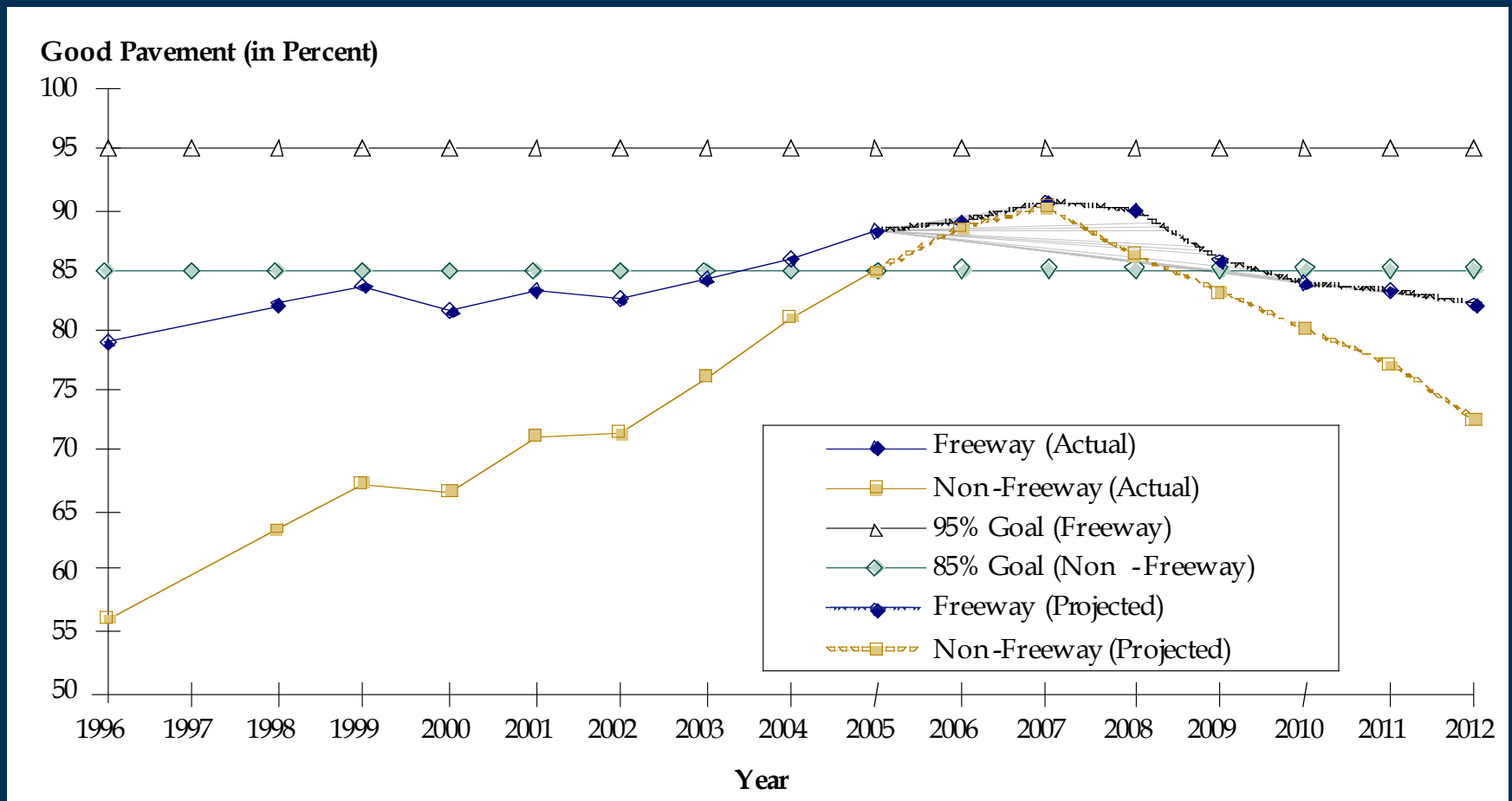


Source: City of Portland, Oregon, September 12, 2006.

Making the Case for Additional Funds

Michigan DOT

Michigan Pavement Condition



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”

From “Worst First” to Life Cycle Costs

Hillsborough County, FL

- Despite significant population growth, the County has adopted a preservation-first strategy
- This 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.”

Using Performance Measures

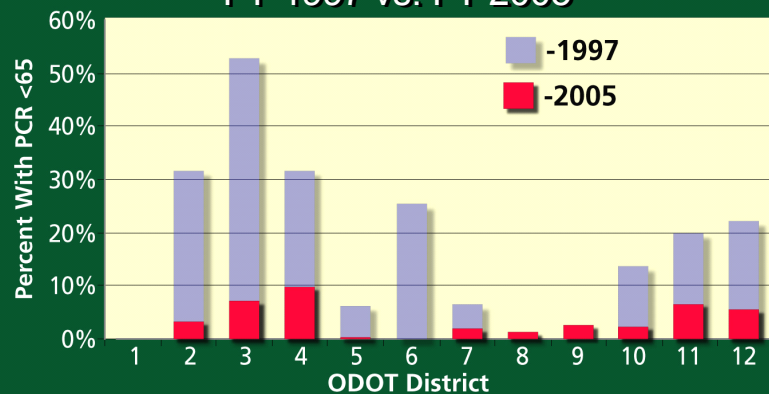
Ohio DOT

- **Ohio DOT implemented asset management principles in order to improve the condition of the highway network**
- **Collected pavement and bridge data by district**
 - Existing condition
 - Current expenditures
- **Reallocated funds based on existing conditions**
 - Between districts
 - Between pavement and bridge programs
- **Set targets, tracked progress quarterly, and made adjustments as needed**

Using Performance Measures, continued

Ohio DOT

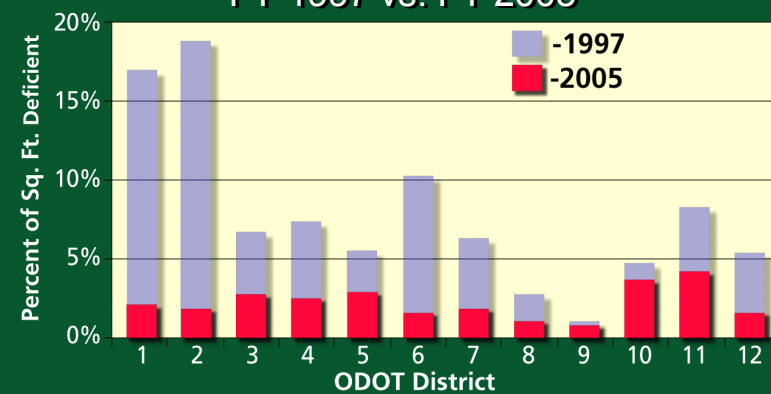
Pavement Conditions
Priority System Deficiencies
FY 1997 vs. FY 2005



Ohio Department of Transportation



Bridge Conditions
General Appraisal Deficiencies
FY 1997 vs. FY 2005



Ohio Department of Transportation



“Asset management tied to performance measures catalyzes action, helps define goals, prioritizes action, and aligns efforts.”

“Growing Pains” can Enhance Communication Michigan Transportation Asset Management Council

- **The TAMC’s goal is to “expand the practice of asset management statewide... through coordination and collaboration among state and local transportation agencies”**
- **The council developed standard data collection protocols and compiles data for statewide reporting**
- **It has also developed a guide and a training course showing local agencies in Michigan how they can apply asset management techniques and tools**

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

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**

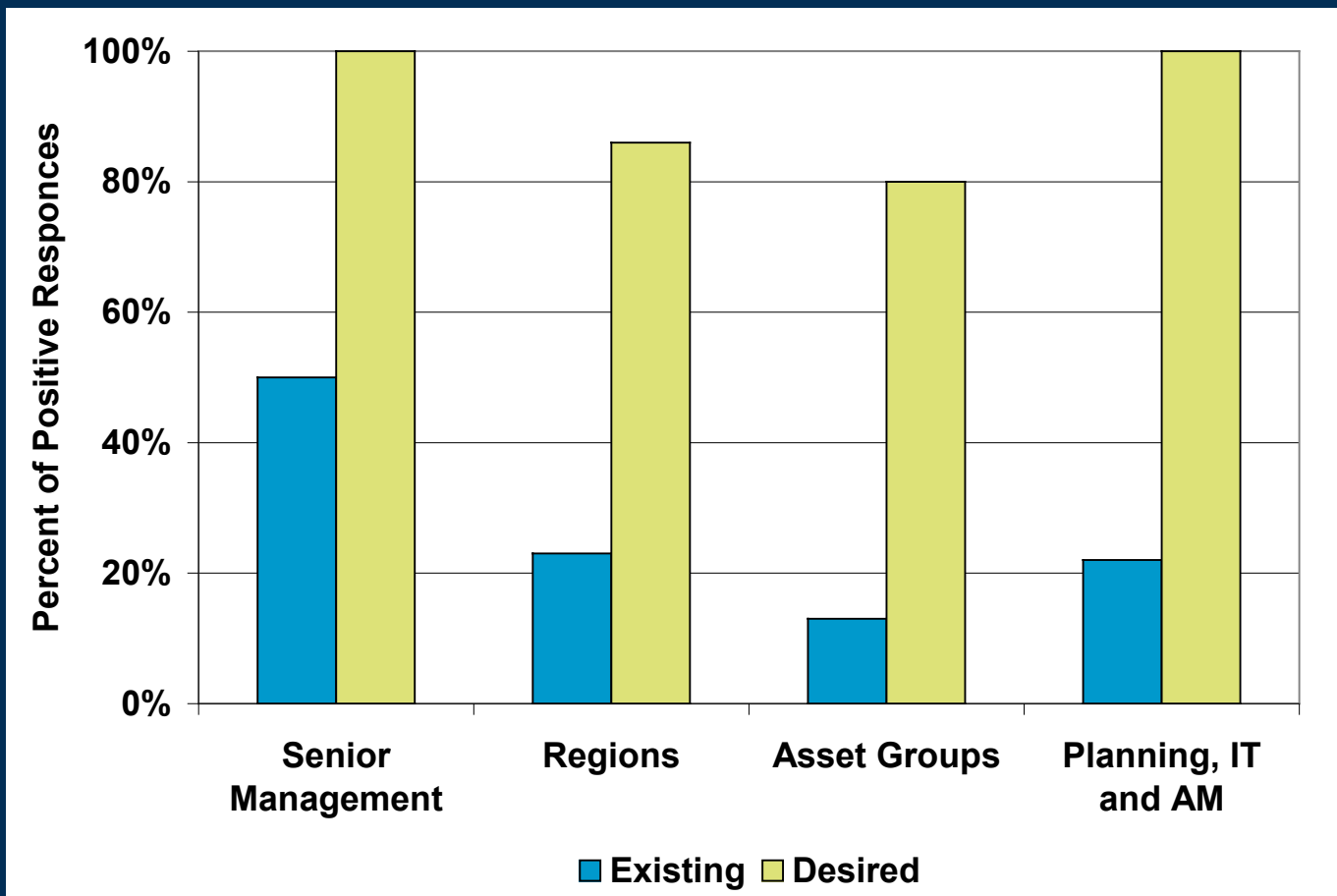
Use of a Self Assessment to Get Started

Utah DOT

- **Utah DOT began its asset management efforts with the Self Assessment exercise in the AASHTO Asset Management Guide**
- **48 employees reviewed a series of statements representing best practice and rated:**
 - **The degree to which they were consistent with current DOT practices**
 - **The degree to which improvement in that area was desired**
- **After a detailed analysis of the results, the DOT developed a comprehensive asset management implementation plan**

Use of a Self Assessment to Get Started Utah DOT

Responses to Question A6 – Policy guidance on resource allocation allows our agency sufficient flexibility to pursue a performance-base approach.



The Importance of Data

“Asset management needs to be data-driven, but not data dependent.” - Minnesota DOT

“Collect it once; store it once; use it over and over.” - Michigan DOT

“We want the owner of the task to own the data.” - Ohio DOT

“You need quality data to support decision-making, and if you need this data, you have to invest in it.” - Minnesota DOT

New Technologies for Data Collection Grand Valley Metropolitan Council

GVMC's data collection van



New Technologies for Data Collection

Michigan DOT

- **Michigan DOT is investigating the use of satellite imagery to collect data**
 - **Characterization of roadways and transportation corridors**
 - **Assessment of environmental issues in transportation corridors and sensitive watersheds**
 - **Analysis of traffic queues and delays**
 - **Estimation of AADT**
- **The agency is also looking closely at Vehicle Infrastructure Initiative (VII) strategies**
 - **Equipment installed in vehicles**
 - **Equipment installed along the roadside**
 - **Network subsystems that connect devices**