Setting Appropriate Goals and Measures

To Encourage Sound Infrastructure Preservation

Gordon Proctor
An Age of Performance Measurement

- We are entering an age of performance management for transportation programs
- AASHTO, the GAO, the U.S. Congress all have declared their support for performance-based transportation programs
- MAP-21 mentions ‘performance’ more than 150 times
- It creates a requirement for federal, state MPO performance measures and targets
DECLARATION OF POLICY—Performance management will transform the Federal-aid highway program and provide a means to the most efficient investment of Federal transportation funds by refocusing on national transportation goals, increasing the accountability and transparency of the Federal-aid highway program, and improving project decision making through performance based planning and programming.
The Need to Measure Carefully

• The old say is, ‘what gets measured, gets managed’
• My new saying, ‘Performance measures are like prescription drugs. They can cure or kill you.’
• It all depends on how you chose and use
Potential Problems with Measures

• A focus only on meeting short-term condition targets can encourage a ‘worst first’ approach
• Does not predict future trends
• We won’t know where we’re heading
Current Shortage of Measures

• Because performance management is new, we don’t have many good measures
• Presently we have national IRI, or International Roughness Index and Bridge Structural Deficiency data nationally
• These are important but incomplete
  – They only look backward and don’t tell us about future trends
  – They also don’t encourage sound asset management principals
What are better measures

• Measures that encourage a long-term, lowest lifecycle approach
• Leading indicators of where the system is going
• They can encourage sound preservation, preventive maintenance and asset management principles
• Here are some examples
Utah DOT Investment Backlog

![Graph showing Utah DOT Investment Backlog from 2010 to 2030 for Interstate, NHS, and Non-NHS types.](image)
Utah Pavement Forecast
Declining Value of Pavements

Minnesota Statewide Pavement Average Remaining Service Life

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MnDOT’s Pavement Forecast

### Statewide "Poor" Ride Quality Index

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Projected Condition Based on 2011-2014 STIP Projects
Ohio Preservation Measures

• Overall rate of network average pavement section decline
• Reducing miles experiencing above-average condition decline
• Percentage of preventive maintenance target met
• Programming to achieve short-term, mid-term and long-term pavement-condition targets
Michigan Bridge Trends
Michigan Bridge Focus

Bridges Cycle of Life
2004 - 2010

16% Bridges

2004 ...... 40.6%
2010 ...... 40.9%
Good
32.2% Unchanged

2004 ...... 43.1%
2010 ...... 45.7%
Fair
32.5% Unchanged

2004 ...... 16.3%
2010 ...... 13.4%
Poor
7.2% Unchanged

14.2% Bridges

2012 NATIONAL PAVEMENT PRESERVATION CONFERENCE
ROAD TRIP: DRIVING THE MESSAGE FOR CHANGE
Infrastructure Sustainability Measures

- Hopefully we’ll see a growing focus on metrics that encourage sustainability, preservation

- Australians use
  - Asset Sustainability Index
  - Asset Consumption Ratio
  - Asset Renewal Funding Ratio
Definitions

Asset Sustainability Ratio
- Expenditures on Asset Renewal
- Depreciation of Assets

Asset Consumption Ratio
- Current Value of Assets
- Replacement Cost of Assets

Asset Renewal Ratio
- NPV Invested Over 10 Years
- Needed Investment to Sustain Assets
Declining Asset Values
Asset Management Plans

- MAP-21 requires Transportation Asset Management Plans for the NHS
- These could include goals and targets for preservation
- Metrics that focus on short-term, mid-term and long-term sustaining of assets are best
- These inherently encourage preservation
Performance Measure Lessons

• Focus on leading measures
• Focus on long-term asset performance
• Incentivize sound asset management, preservation principles
• A challenge will be to improve our management systems to provide sound, leading indicators of future condition trend lines