

An Executive Brief

to

Advancing a Transportation Asset Management Approach

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Current Demands Faced by Agencies

- Operate sustainably
- Demonstrate accountability
- Be transparent - document
- Address aging infrastructure and new needs
- Reduced resources - make trade-offs
- Improve long-term performance of infrastructure assets

Facts

- *DOTs face the challenge of managing aging infrastructure that carries traffic volumes far beyond what it was designed to handle.*
- *Infrastructure continues to age as bridges and pavements of the Interstate Highway era pass their 50th anniversaries.*
- *As DOTs are coping with aging infrastructure, their purchasing power has sharply declined.*





The How's

- How can agency executives change their organizations to fully utilize TAM?
- How can they use strategic planning, organizational theory, change management and organizational communication to shift from a *short-term, worst first* to a *long term sustainable, accountable and performance driven* approach to manage transportation assets?



Asset Management as an Organizing Framework

TAM can help answer the "How's"

What is TAM?

- It is a framework for decision making (it is not a computer system)
- It also provides an organizing framework to communicate ongoing activities and approaches
- It helps to improve the management of infrastructure, and
- It helps address public concerns about infrastructure health



Seeing TAM in a New Light

- TAM closely resembles other quality systems
- Agencies using TAM have become more strategic in managing infrastructure assets. They tend to be data-driven and work towards achieving long-term outcomes.
- Terry Gibson, SHA, North Carolina DOT noted *"adopting TAM leads agencies to migrate to a more policy-based, result-focused, data-driven organization, where producing performance metrics to demonstrate results is practically incidental"*



Essentials of TAM

- *Asset Management is a distinct way of doing business*
- *It is a strategic and systematic process of operating, maintaining, upgrading, and expanding physical assets effectively throughout their lifecycle*
- *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 and comprehensive processes*

TAM Capitalizes on Three Key Components

1. Pavements, bridges and maintenance appurtenances tend to degrade at predictable rates
2. Timely preservation, preventive and rehabilitative treatments at the right point of the deterioration curve can be very economical
3. Assets have significantly different values
 - For example, high-volume pavements and bridges create more public value than do lightly traveled ones





Change Required

- Addressing the three components requires change in Organizational Direction, so all units operate in a coordinated fashion than independently
- People and Processes need to be coordinated to fully optimize funds and activities
- This requires:
 - Organizational Directional Information
 - Organizational Competency Information and
 - Organizational Asset Data



Organizational Directional Information

Role of leadership is important to success of TAM. Strong leadership involvement is needed in

- Making Organizational Change
- Overcoming Institutional Inertia
- Breaking Silos and Aligning Arrows to Work Towards One Common Goal

Changing Organizational Direction to Embrace TAM

- In a fully coordinated Asset Management environment, both funds and activities are optimized- This often is not natural
- TAM Aligns the organizational arrows and links process so organizational units work in a coordinated fashion
- Requires shifting resources across units and asset categories





Organizational TAM Competency

- Often there exists a competency gap
- Need to assess size of gap
- Leadership to articulate strategic vision and devise an implementation plan
- Strategic elements to implement TAM
 - Have a competent, well trained workforce
 - Fact-based decision making is the norm
 - “Preservation First” is an organizational priority
 - Multi-year, long-term TAM goals through maintenance treatments and preventive maintenance treatments
 - Short-term objectives and performance measures will be deployed as incremental steps toward achieving the long-term goals



Organizational Asset Data

This includes:

- Asset Inventories
- Level of Service Data
- Predicted Future Demand Data
- Remaining Useful Life Forecasts
- Risk-Analysis Data
- Treatment-Sensitivity Data
- Benefit/Cost Data
- Fiscal Forecasts

Use of Metrics as the Guideposts for Long-term Health and Improvement

- Lower network pavement conditions today may be part of higher long-term pavement conditions
- Deploy short-term objectives that are incremental steps to meeting long-term goals
- Measures should not encourage short term metrics at the cost of long-term investments
- Failure to achieve short-term measures should trigger assessment, learning and necessary corrective action





TAM Helps Agencies Address

- What is the state of my assets?
- What is my required level of service?
- Which assets are critical to sustained performance?
- What are my best “Operations and Maintenance” and “Capital Improvement” investment strategies?
- What is my best long-term funding strategy?



Implementing Transportation Asset Management

Steps include:

- Assessing where you are;
- Identifying gaps and setting goals and objectives;
- Developing a TAM Plan and Implementing the TAM Plan;
- Communicating the TAM Plan;
- Learning from peer exchanges and best practices

Also evaluate and plan for risk management

- What are the risks to my assets?
- What is my asset risk tolerance and mitigation strategy?



Case Studies

North Carolina -used TAM to develop a tiered approach to categorize the transportation network and prioritize investment strategies linked to maximizing mobility and connectivity to a core set of highway corridors.

- Allowed agency to move resources from low-volume roads and invest proportionality more on high volume roads
- TAM has refocused strategic efforts and financial priorities

Utah- director led an organization-wide epiphany that the agency should invest the same effort and enthusiasm into preserving existing assets as building new ones

- Focus on “whole-life” of assets
- Resulted in agency-wide focus on TAM down to individual asset categories including maintenance assets

Missouri-a major focus on addressing customer feedback regarding ride quality led to a focus on improving system conditions.



Case Studies

Oregon-illustrates how the agency took a systematic approach to communicating and coordinating its effort to shift from a “worst-first” to a more long-term Asset Management approach

- Broke down institutional barriers and organizational silos through a formal Asset Management strategic planning effort

Maryland -Asset Management program also grew from its performance-enhancement efforts including its Baldrige quality approach.

- TAM began with performance measures and evolved to a long term approach for all major assets.
- TAM helped agency explain a rational, long-term approach of managing assets that resonated with their legislature



TAM –A framework to satisfy mission critical needs

1. Can provide a DOT a *long-term rational framework* for making its infrastructure management decisions.
2. A template that *dispersed and far-flung agency staff* can use to make *repeated*, and *on-going day-to-day* decisions about how to responsibly treat the assets under their jurisdiction.
3. Can provide *Programmatic decisions and rational tradeoffs* in investments between classes of transportation assets.
4. Can provide executives with a *defensible, long-term set of metrics* with which to demonstrate that their organizations are *accountable, responsible and seek to be sustainable*.



Conclusions

TAM principles have long been recognized as a means to sustain highway conditions over time to identify a sequence of maintenance, preservation, repair, rehabilitation, and construction actions that will achieve and maintain a desired state of good repair over the lifecycle

In an era of accountability, TAM can produce abundance of sound performance metrics to satisfy short-term reporting needs and ensure long-term performance of transportation assets

TAM, like other quality process used by fortune 500 companies, can help demonstrate accountability, responsibility in use of limited funds and show transparency



Thank You
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