



# Transportation Asset Management: From Plans to Practice

A WORKSHOP FOR STATE PRACTITIONERS

THE WORKSHOP WAS CONDUCTED ON MAY 31, 2015

IN DENVER, COLORADO

# Organizing Committee Members

- ▶ Brad Allen, New York State DOT
- ▶ Michael Bridges, Consultant
- ▶ Stephen Gaj, FHWA
- ▶ Matt Hardy, AASHTO
- ▶ Matt Haubrich, Iowa DOT
- ▶ Andy Lemer, TRB
- ▶ Jean Nehme, Arizona DOT
- ▶ Mark Nelson, Minnesota DOT
- ▶ Jim Pappas, Delaware DOT
- ▶ Mai Le & Tom Palmerlee, TRB
- ▶ Hyun-A Park, Spy Pond Partners, LLC
- ▶ Katie Zimmerman, Applied Pavement Technology, Inc. (APTech)



# Workshop Objectives

- ▶ Help states advance the development and use of their Transportation Asset Management Plans (TAMPs)
- ▶ Encourage the exchange of information among peers and practitioners

# Workshop Statistics

- ▶ 75 Participants
- ▶ 34 States
- ▶ 2 Transit agencies
- ▶ Other attendees
  - ▶ Academia
  - ▶ FHWA



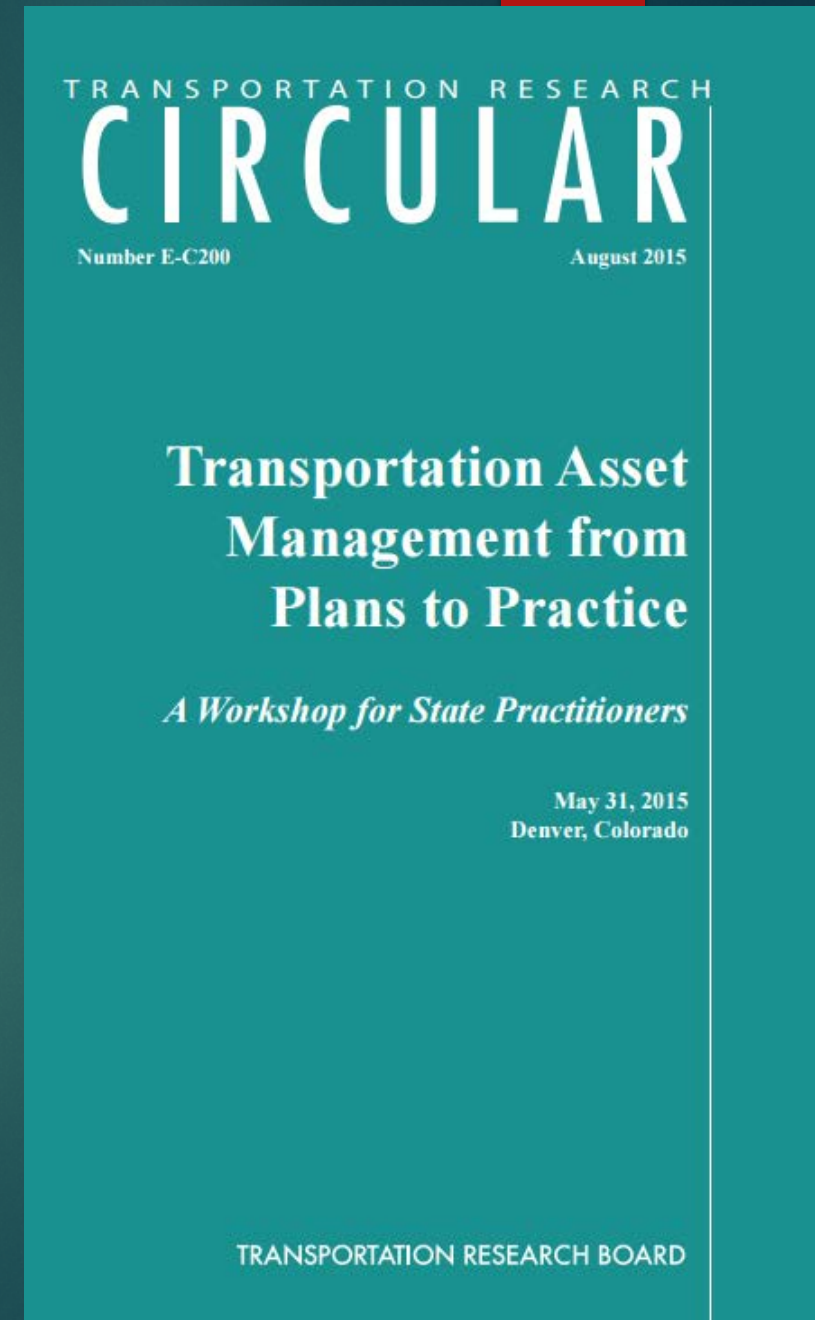
# Workshop Topics

- ▶ Developing a TAMP
- ▶ Risk Management
- ▶ Organizational Alignment
  - ▶ Obtaining buy-in & engagement
  - ▶ Roles, responsibilities, & needed skills
  - ▶ Leadership & communication



# Workshop Circular

- ▶ Summarizes workshop results
  - ▶ Identifies issues & challenges
  - ▶ Presents research needs statements to advance asset management
- 
- ▶ <http://onlinepubs.trb.org/onlinepubs/circulars/ec200.pdf>





# Workshop Scavenger Hunt





# TAMP Development Lessons Learned

**TRB Webinar: Putting Transportation Asset Management Into Practice  
in a State Department of Transportation**

Presented by: Michael Bridges, P.E.

Louisiana DOTD, Retired

September 24, 2015



# MAP-21 TAMP Requirements

- Requires a risk-based asset management plan for pavements and bridges on the NHS that includes, at a minimum:
  - *a summary listing of the pavement and bridge assets on the NHS in the State, including a description of the condition of those assets;*
  - *asset management objectives and measures;*
  - *performance gap identification;*
  - *lifecycle cost and risk management analysis;*
  - *a financial plan; and*
  - *investment strategies.*

# What Assets are DOTs Including?

- At a minimum, DOTs must include pavements and bridges on the NHS
- Many DOTs are including all state-owned pavements and bridges since they already collect the data
- Some states are including more asset classes (e.g. tunnels, culverts) while others DOTs are including only the minimum
- There is a perceived risk that if additional assets are included, FHWA will require that these be managed at same level of detail



# What about non-State owned NHS

- DOT's will need to coordinate with the MPOs on performance measures for non-state owned NHS pavements and bridges
- The importance of coordination with the locals depends on the amount of NHS mileage that is on the local system
  - Some states have very little non-state owned NHS mileage so the effect on the overall condition of the system will be minimal
  - Some states have a lot of non-state owned NHS mileage so it will be critical to coordinate with the MPOs

# Writing the TAMP

- It takes longer than you think
  - Louisiana DOTD took 18 months
  - Get started now and adjust the TAMP after the rules are finalized
- Use available resources
  - AASHTO TAM portal
  - Gap analysis tool
  - TAMP template
  - NHI Training Course on TAMP development
- Some states used consultants



# Role of the FHWA Division office

- Its important to include the FHWA division office from the beginning in the writing of the TAMP
- The FHWA division office will be reviewing the TAMP before it is forwarded to FHWA headquarters
- Some DOTs expressed concern as to the role that the FHWA Division office will play in certification and monitoring of the TAMP and will there be consistent interpretation of the rules?

# Where is the TAM responsibility located in a State DOT

- The TAM unit is located in a variety of locations (Planning, Operations, Maintenance and some in its own Division)
- A lesson-learned is that TAM is performed over the entire agency so the entire agency needs to be engaged
- The TAM Steering committee needs to include representatives from all divisions within the agency
- Communications between divisions is key
  - Need to break down the silos



# Role of Executive Leadership

- The DOT CEO needs to be a hands-on communicator of the benefits of TAM
- He / She needs to understand the benefits of TAM and the challenges of implementation
- A change of leadership in a DOT can adversely affect the DOT initiative so there is a need to insulate the TAM program from leadership change
- Staff level support of TAM is a critical success factor

# TAM Champion

- Several states felt that an executive-level TAM champion was a key to success
- The TAM champion should be high enough in the organization to cross divisions for resources and buy-in
- It is important to have staff engaged so that once the program gets moving, the TAM champion can back off
- Examples of TAM Champions include: CEOs, Deputies, Chief engineers, Division administrators and others

# Communication between Divisions

- Performance targets will affect everyone
- TAM implementation will aid in breaking down silos
- Sharing data across divisions is important
- Collect data once...use it many times
- Good TAM depends on accurate data



# Ten-year financial plan

- A ten year horizon forces the DOT to look long-term versus short-term
- The estimate of funding over the near years is more accurate than the out years
- This is not a ten-year project list, rather it is a projection of the pavement and bridge condition utilizing the estimated revenue available
- The pavement and bridge management systems must incorporate Life Cycle Cost Analysis in the projections of condition
- Strategies for achieving targets could include moving funding between pavements and bridges or from one class to another

# Target setting

- Condition performance targets are up to State DOTs
  - Except for minimum bridge condition
- Its all about a DOT's tolerance for risk
  - If they want to set an aggressive target, there is greater risk of failure
- The inclusion of performance targets and the consequences of non-attainment will get the executive's attention


# Communications

- Communication within the agency and to the outside stakeholders is another key to success
- Once the TAMP is written, the DOT must communicate the content both internally and externally
- Get help from you PR department
- The CEO should be the prime communicator
- Must explain how the TAMP relates to the other plans at a DOT



# Summary

- State DOTs have found the TAMP to be a good place for the written record of your policies for allocating funding
- Keep it simple. Start with what you have.
- Good data is needed for data-driven decision-making
- Communication is the key
- Get started now and use the resources that are available



# Thanks for your attention

Michael Bridges, P.E.

Louisiana DOTD, Retired

[michael.bridges53@gmail.com](mailto:michael.bridges53@gmail.com)

# Risk Management

TRB WEBINAR: PUTTING TRANSPORTATION ASSET MANAGEMENT INTO PRACTICE

IN A STATE DEPARTMENT OF TRANSPORTATION

PRESENTED BY: MARK B. NELSON, AICP

MINNESOTA DEPARTMENT OF TRANSPORTATION

SEPTEMBER 24, 2015



# Expert Panel for Session on Risk

2

- ▶ Andrew Lemer, Transportation Research Board –Moderator
- ▶ Gordon Proctor, Gordon Proctor and Associates
- ▶ Shobna Varna, Starlsis
- ▶ Joe Nestler, Wisconsin Department of Transportation
- ▶ Greg Slater, Maryland State Highway Department



RISK: THE EFFECT OF UNCERTAINTY ON OBJECTIVES

RISK: (A) AN EVENT (B)THE PROBABILITY OF THAT EVENT TAKING PLACE, AND (C) THE CONSEQUENCE OF THAT EVEN TAKING PLACE.



# Risk Management Within an Agency





# Getting Started

- ▶ Risk Management begins by asking a series of questions;
  - ▶ What could happen?
  - ▶ When could it happen?
  - ▶ What is the likelihood?
  - ▶ What is the potential impact?
- ▶ Why would it happen?

# Risk Rating = Likelihood x Severity

S e v e r i t y	Catastrophic	5	5	10	15	20	25
	Significant	4	4	8	12	16	20
	Moderate	3	3	6	9	12	15
	Low	2	2	4	6	8	10
	Negligible	1	1	2	3	4	5
			1	2	3	4	5
			Improbable	Remote	Occasional	Probable	Frequent
			Likelihood				

Catastrophic		STOP
Unacceptable		URGENT ACTION
Undesirable		ACTION
Acceptable		MONITOR
Desirable		NO ACTION





# Risk Management as a Technique

7

- ▶ Risk Management as a technique is relatively new to the US public sector.
- ▶ Start with developing risk register that documents and communicates risks associated with objectives.
- ▶ Ultimately, use risk assessment to facilitate performance based planning and management.

# Estimating Probability

- ▶ Begin with facilitated assessment to determine whether probability is low, medium, or high.
- ▶ Important that decisionmakers have a shared understanding of how probability was determined.
- ▶ Consider risk broadly and keep it simple.
- ▶ Time is better spent managing risk than perfecting process.



# Other Takeaways

- ▶ Once established, revisit risk register periodically. Frequency determined by the nature of risks being managed.
- ▶ Risks are not always defined by threats.
- ▶ In communicating with key decision makers regarding risk, it is important to establish what risks are acceptable (risk appetite)
- ▶ Internationally, countries that have performance based management and planning naturally rely on risk management.

# Embedding Asset Management into the Culture of a DOT

Brad Allen, P.E.

New York State Department of Transportation

9/24/15

# Moving from Initiation to Implementation

---

- ▶ Keynote Address “Communication and Leadership in TAM Programs.” Michael Lewis, Deputy Executive Director, Colorado DOT
- ▶ Three afternoon workshops
  - ▶ Interactive “small group” discussions with report-out
  - ▶ Participants discussed specific scenarios
  - ▶ Identified and discussed:
    - ▶ Challenges, both past and present
    - ▶ Keys to success
    - ▶ Further needs & research areas



# Key Note: Communication and Leadership in TAM Programs

---

- ▶ The challenge to TAM leaders: Obtain buy-in from all levels of the organization.
- ▶ The task: Take information and package it effectively for the audience
  - ▶ Legislators, Public, Stakeholder Groups
- ▶ The challenge to staff: Preparing for and managing changes in leadership
  - ▶ The average DOT CEO tenure is 2.5 years
- ▶ It is likely that in 100 years MAP-21, with its emphasis on TAM principles, will be seen as a distinct change for the better transportation management.





# Obtaining Buy-in and Engagement

---

- ▶ Participants explored three challenges to collaboration between groups within a DOT.
  - ▶ Convincing data owners to provide access to others.
  - ▶ Barriers to different groups, e.g. planning, maintenance, districts, working together.
  - ▶ Convincing management to fund a TAM initiative



# Convincing Data Owners to Share

---

## ▶ Challenges

- ▶ Can be seen as giving up power or control.
- ▶ May require additional work to reformat or translate.
- ▶ Concerns over potential misinterpretation or misuse.
- ▶ May lead to less control over data collection or definitions

## ▶ Keys to success

- ▶ Communication of intended uses and benefits is critical.
- ▶ Invite skeptics to participate on steering committees.
- ▶ Duplicate data sets lead to errors and inconsistency.
- ▶ Centralized data governance
- ▶ Centralized reporting and dashboards



# Barriers to Collaboration

---

## ▶ Challenges

- ▶ Perceived lack of buy-in at lowest and highest levels
- ▶ Unrealistic expectations of data users
- ▶ Lack of resources, or perceived threat to resources
- ▶ Lack of understanding of each group's core mission

## ▶ Keys to Success

- ▶ Lead by example – volunteer your resources
- ▶ Initial “manual” efforts to work together can help justify investments in IT and integration
- ▶ Facilitate discussions between groups to understand each other's obstacles and resources
- ▶ No substitute for strong leadership and executive buy-in



# Convincing Management to Fund TAM

---

## ▶ Challenges

- ▶ Fear of the unknown
- ▶ Fear of losing control

## ▶ Keys to Success

- ▶ Clearly communicate the initiative's objectives and scope
  - ▶ Assets included,
  - ▶ Funding needed
  - ▶ Methodologies
- ▶ Know your stuff
  - ▶ Clearly describe and quantify benefits
  - ▶ Know the costs of performing work
  - ▶ Know your asset conditions and the extend to which state of good repair is being achieved





# Roles Responsibilities and Skills

---

## ▶ Commonalities in Org Charts

- ▶ TAM responsibility gravitated toward Planning.
- ▶ Culture is more important than organizational structure
- ▶ MPO participation may be needed if off-system NHS is significant

## ▶ Key Roles for Successful Initial Implementation

- ▶ Executive Champion
- ▶ Lower-level Coordinator

## ▶ Keys for Further Implementation

- ▶ Greater communication throughout the organization
  - ▶ Staff with accountability for implementing the TAMP
  - ▶ External Relations
  - ▶ Executive Support
- 



# Further Study Topics for TAM Organizations

---

- ▶ Examples of DOTs implementing TAM across multiple administrations.
- ▶ Best practices of implementation at the district level
- ▶ How to build a business case for a TAM organization
- ▶ Synthesis of state DOTs on TAM staffing levels
- ▶ How to incorporate knowledge management to fight brain-drain
- ▶ Best practices for incorporating continual improvement practices



# Leadership and Communication

---

## ▶ Challenges

- ▶ Frequent changes in leadership
- ▶ Uneven progress
- ▶ Executives may not have the time to fully understand the principles of TAM

## ▶ Keys to success

- ▶ Educating employees that TAM is everyone's responsibility
- ▶ Clearly document and communicate a TAM vision and goals
- ▶ Keep information steady even if progress slows: newsletters, e-mails, websites, presentations, etc.
- ▶ Tailor materials for each audience: Executive, Management, Staff



## Further Study Topics for Communication

---

- ▶ Best practices for messaging TAM inside and outside of DOTs
- ▶ Assessing data needs v. existing data. Can we get by with less? How much is too much?
- ▶ Compare and contrast TAM practices in private and public sectors
- ▶ Cross-asset allocation decision support and communication tools
- ▶ Guidance on implementing the TAMP
- ▶ Executive leadership boot-camp

