

# **Risk Based Transportation Asset Management**

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# What is Asset Management?

- Asset Management is a distinct way of doing business.
- Asset management is about managing your network over the whole life, life-cycle management.
- Asset Management is more than a pavement management, bridge, maintenance management systems, etc.
- We are all managing are assets, but are we doing Asset Management?

# Asset Management as compared to Performance Management?

- The initial work on defining the core principals of performance management were developed by AASHTO and FHWA to promote strategic approach to asset management
- The basic principles of Asset Management and Performance Management are identical.
- Good Asset Management must be performance based (by definition) and remains one of the best examples of the application of broad performance management principals in the transportation industry.

# Asset Management Basics: Five Core Questions

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

# Asset Management Basics: Five Core Questions

## 1. What is the current state of my assets?

- What do I own?
- Where is it?
- What condition is it in?
- What is its remaining useful life?
- What is its remaining economic value?

# Asset Management Basics: Five Core Questions

## 2. What is my required level of service/ performance level?

- What is the demand for services by stakeholders?
- Are there regulatory requirements?
- What is my actual performance?

# Asset Management Basics: Five Core Questions

## 3. Which assets are critical to sustained performance?

- Performance gaps
- Risk

# Asset Management Basics: Five Core Questions

**4. What are my best “Operations and Maintenance” and “Capital Improvement” investment strategies?**

- What alternative management options exist?
- Which are the most feasible for my organization?

**5. What is my best long-term funding strategy?**



# How to Develop and Implement a Transportation Asset Management Program

The AASHTO Transportation Asset Management Guide - A Focus on Implementation recommends a 14-step process broadly covered in the following:

- Assessing where you are;
- Identifying gaps;
- Setting goals and objectives;
- Developing a TAM Plan (TAMP) that **incorporates risk**
- Implementing the TAMP;
- Communicating the TAMP;
- Learning from peer exchanges and best practices.

# Transportation Asset Management and Proposed MAP21

- MAP21's National Highway Performance Program would require State DOTs to develop a **Risk Based** TAMP for the National Highway System.
  - TAMPs include strategies leading to a program of projects that would make progress toward achievement of agency targets for asset condition and performance.
  - TAMPs feed into priority setting and programming processes to generate a work program for delivery.

# Is there a template on what is included in a Transportation Asset Management Plan?

1. Executive Summary
2. Introduction
3. Levels of Service (identify performance gaps)
4. Life-Cycle Management (Economic analysis and risk management)
5. Growth and Demand
6. Financial Summary (medium and longer-term financial cash flow)
7. TAM practices
8. Improvement Plan
9. Appendices

# What is Risk and Risk Management?

- Risk is the positive or negative effects of uncertainty or variability upon agency objectives.
- Risk management is the cultures, processes and structures that are directed towards the effective management of potential opportunities and threats.

# What Risks should be considered?

- Agencies should identify risks that could affect their objectives
- Risks can be external such as price changes, legislative actions, economic changes, climatic events, seismic events or malevolent acts
- Risks can be internal such as operational failures, data failures, conflicting internal program objectives or a lack of personnel
- All risks are generally recorded in a formal Risk Register

# What are the steps in undertaking Risk Assessment?

- **Establishing the Context**
- **Risk Identification**
- **Risk Analysis**
- **Risk Evaluation**
- **Risk Treatment (mitigation)**
- **Monitoring and Review**

# Incorporating Risk Management into Asset Management

Agencies should address the following questions as they apply Asset Management:

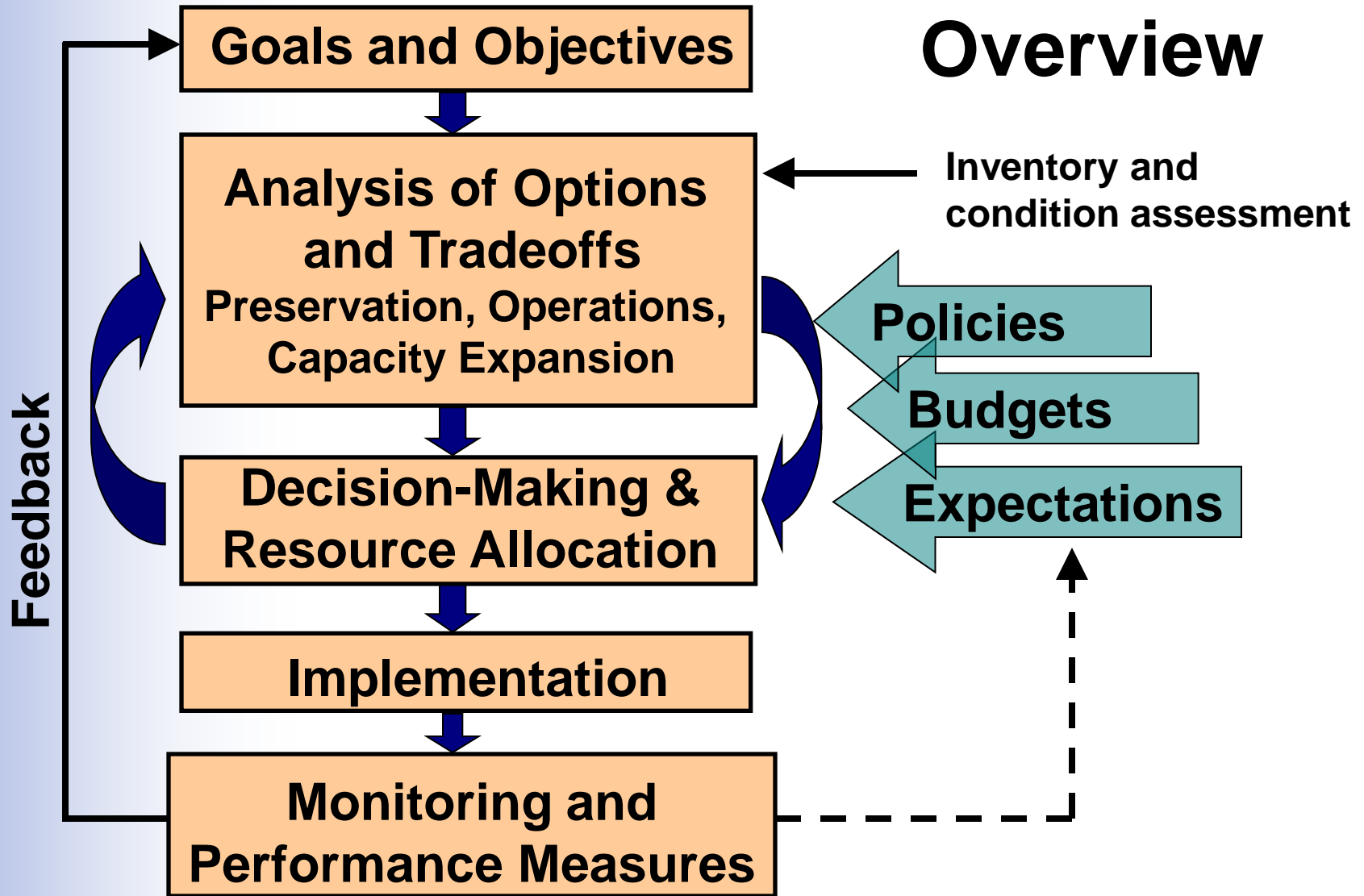
- **What risks are involved at each level?**
  - What are the risks to the enterprise or the agency?
  - What are the risks at the program or asset class level?
  - What are the risks at the project level or to specific assets?

# Incorporating Risk Management into Asset Management

- **What is my asset risk tolerance and mitigation strategy?**
  - Which critical assets are at high risk?
  - What is the risk tolerance at the enterprise, program and project level?
  - What is the cost to keep my assets within the acceptable risk tolerance levels?
  - What is my financial asset risk gap?
  - What is my risk mitigation strategy?



# Transportation Asset Management



ASSET MANAGEMENT

# Information and strategies from the TAMP, Statewide Safety Plan, Congestion Management Plan, etc., used to develop the State's Investment Plan - STIP

**RESOURCES**

**Preservation of physical assets**

**Operations**

**Capital Improvement**

**Safety**

**Other**



ASSET MANAGEMENT

## The most successful asset management programs:

- Have performance measures that guide investment decisions
- Adopt a ‘preservation first’ strategy for their investment priorities
- Moved away from a “worst first” investment strategy, and adopted investment principles that are based on life cycle/whole life costing
- Had strong leadership support – “A Champion”

# Resources Are Available

- AASHTO Transportation Asset Management Guide A Focus on Implementation
- Transportation Asset Management NHI course
- FHWA Short Briefs – Risk Based Transportation Asset Management (will be available shortly)
- Asset Management Today website / community of practice:  
<http://assetmanagement.transportation.org>
- FHWA Office of Asset Management – new updated website!
- AASHTO Asset Management Subcommittee
- TRB Asset Management Committee