



Transportation Decisionmaking: Information Tools for Tribal Governments

Asset Management



**U.S. Department
of Transportation**

**Federal Highway
Administration**

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Presentation Overview

- Who is the audience for this training?
- What is asset management?
- How to implement asset management.
- Tools and techniques to support asset management.
- Summary and additional resources.

The Module Training Series

- Designed to assist tribal professionals with transportation planning for capital, operating, and maintenance needs on tribal lands.
- Six modules developed from 2004 to 2008. Five additional modules developed in 2012.
- Available from:
http://www.tribalplanning.fhwa.dot.gov/training_series.aspx

Training Modules for Tribal Transportation Decisionmaking





I. INTRODUCTION



Who is the Intended Audience for this Training?

- Any official responsible for tribal transportation planning, budgeting, and decisionmaking.



What is Asset Management and Why is it Important?

- A decisionmaking process designed to achieve the best performance from the tribe's transportation assets, given available funds.
- Helps to effectively manage the tribe's assets with available resources.





II. HOW TO IMPLEMENT ASSET MANAGEMENT



What Does Asset Management Involve?

- A business process that covers a long-term period, looks at financial and technical issues, and considers the best decisions for tribal transportation assets.
- Requires knowledge about owned assets, how they are performing, maintenance needs, and how tribal actions will affect the asset's performance long term.

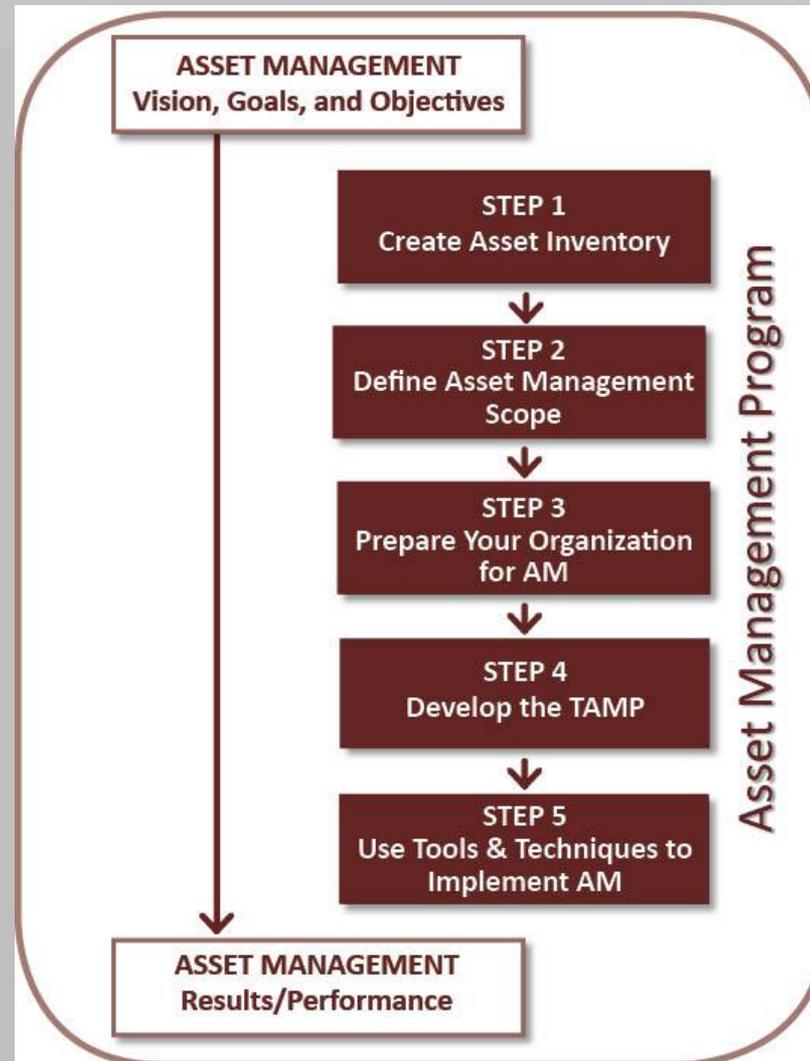
Steps in Asset Management

1. Create an Asset Inventory
2. Define Asset Management Scope
3. Prepare the Organization for Asset Management
4. Develop the Transportation Asset Management Plan (TAMP)
5. Use Tools and Techniques to Implement Asset Management



How to Implement Asset Management

Steps in Asset Management



How to Implement Asset Management=

Step 1: Create an Asset Inventory

The inventory is a record of the tribe's transportation assets that includes descriptive data for each asset.

Example:

Asset Types	Data Attribute
Roadway	<ul style="list-style-type: none">• Roadway• Location• Descriptions/Dimensions including: boundary-boundary width; number of lanes; lane widths; speed limit• Summary traffic volumes and loads• Jurisdiction data: ownership; department; political boundary• Condition• Work activities (such as repair and maintenance)• Pavement types• Any special classification such as: tourist route; historical significance; presence of school bus or transit routes
Medians, curbs, & gutters	<ul style="list-style-type: none">• Location• Type• Description and dimensions
Drainage	<ul style="list-style-type: none">• Dimensions, type• Location• History of work activities

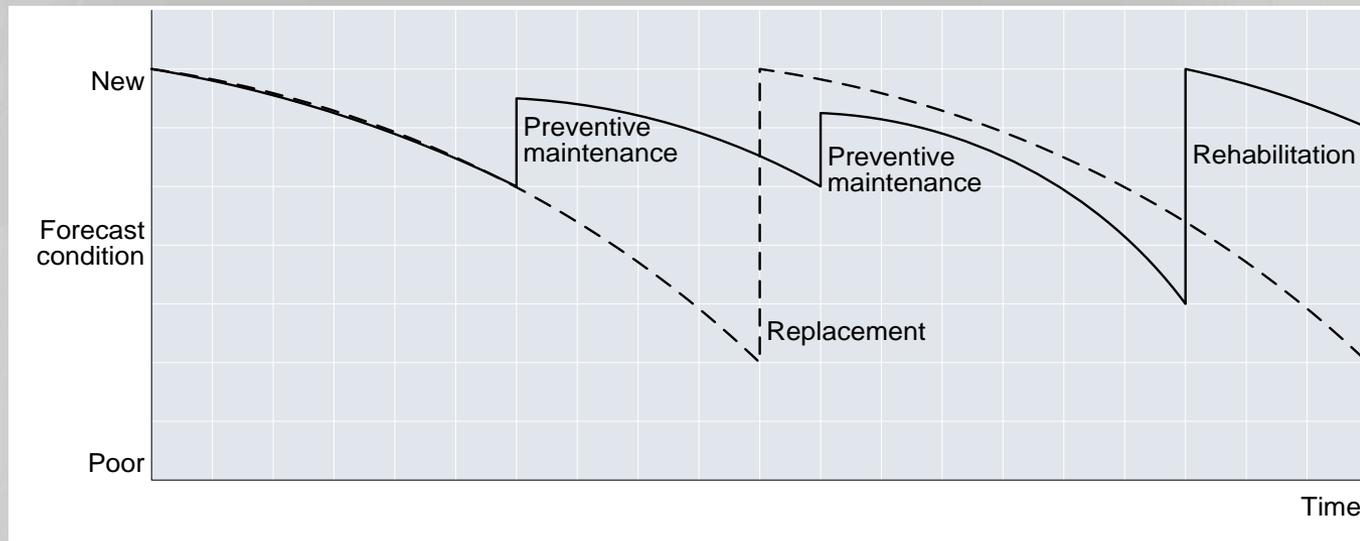
Step 2: Define Asset Management Scope

- Determine what should be done to better manage the tribe's assets, including what assets to include in the scope.
- The Asset Inventory will help define where there is the most need using condition/age information.
- A broad scope requires more data and more sophisticated tools.
- The scope helps determine the resources, cost and tools needed to implement asset management.

Step 2: Define Asset Management Scope

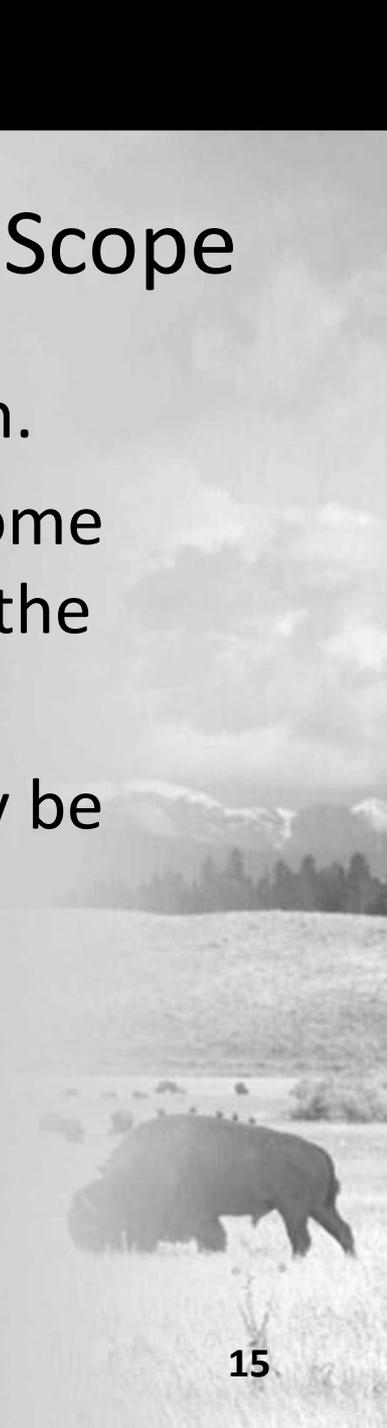
- **Asset management decisionmaking.** Helps tribal governments select the most economically efficient set of actions over the life of an asset while maintaining the services that asset delivers.

Example Asset Condition Models:



Step 2: Define Asset Management Scope

- Many agencies use a “worst first” approach.
- Asset management suggests engaging in some preventive maintenance actions as part of the broader transportation program.
- These preventive maintenance actions may be more cost-effective in the long-term.



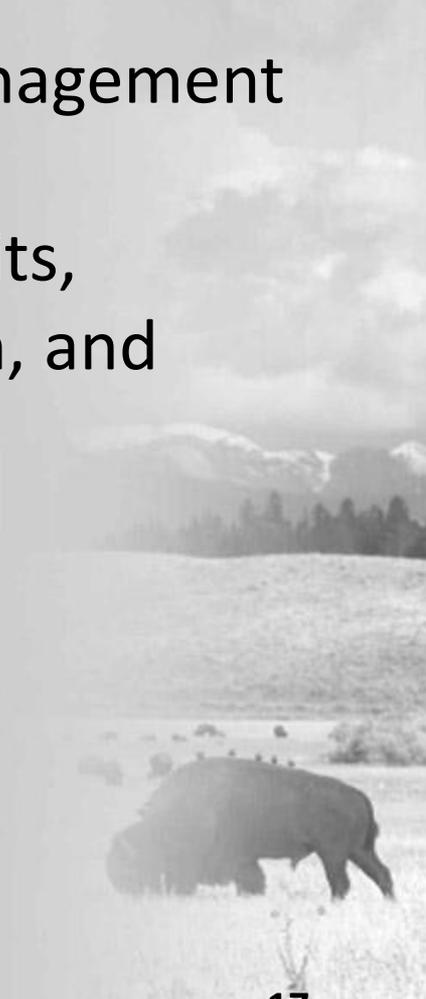
Step 3: Prepare the Organization for Asset Management

- **Change Management.** Asset management should align with management direction, strategies, and business processes.
- Successful organization change includes:
 - ❖ Consensus among tribal leadership on need/benefit of change
 - ❖ A vision of changes and strategy
 - ❖ Constant communication of the vision
 - ❖ Actions consistent with the vision
 - ❖ Tribal leadership involvement
 - ❖ Short-term success



Step 3: Prepare the Organization for Asset Management

- **Roles and responsibilities.** The asset management champion is the person responsible for coordinating across tribal government units, keeping a focus on implementing the plan, and communicating with stakeholders.



Step 4: Develop the Transportation Asset Management Plan (TAMP)

- Formalizes and documents key information.
- Can be thought of as a “business plan” for the tribal government.
- Communicates commitment to the asset management process.
- Has to be reviewed and updated from time-to-time.

TAMP Content Example

Section Name	Description of Contents
Introduction	<ul style="list-style-type: none">• Discussion of study area, assumptions, and structure of the document
Performance Measures	<ul style="list-style-type: none">• Mission is divided into: key drivers, transportation services, and performance measures.• Identifies any Federal or tribal laws and regulations that impose mandates or constraints on performance or the implementation of asset management.
Growth & Demand	<ul style="list-style-type: none">• Identifies what drives or influences change on the transportation network. Assesses how future growth and demand for transportation services will impact the demand for new or better assets and asset maintenance in the future.• Also describes tribal government's current and desired capabilities to measure demand and growth as they affect asset management.
Life Cycle Management	<ul style="list-style-type: none">• Information about the assets, asset life cycles, and critical assets.• Life cycle strategies and management methods for all activities relating to the assets• An overview of current and desired capabilities in pavement and bridge management, and other asset management systems for life cycle management.
Financial Summary	<ul style="list-style-type: none">• Brings together all needs identified in the TAMP into medium and longer term financial cash-flow forecasts – to support the more detailed annual budget process.
TAM Practices	<ul style="list-style-type: none">• Current tribal government processes supporting asset management decision-making.
Improvement Plan	<ul style="list-style-type: none">• A work plan for improvements to asset management activities

Step 5: Use Tools and Techniques to Implement Asset Management

- Asset management requires routine collection of good data that can be converted into useful information for decisionmaking.
- Many tools and techniques exist to support the asset management program. These tools are collected in the AASHTO Asset Management Manual.





III. TOOLS AND TECHNIQUES TO SUPPORT ASSET MANAGEMENT

Risk Management

- The systematic identification, assessment, planning, and management of threats and opportunities faced by the transportation system.
- Risk management includes:
 - ❖ Gathering information about future events, threats, opportunities.
 - ❖ Identifying how future events trigger threats and opportunities.
 - ❖ Assessing likelihood and impact of risks.
 - ❖ Prioritizing risks by expected value and relative importance.
 - ❖ Carrying out risk management strategies.

Life Cycle Management

- Helps determine best actions for assets in the transportation system at various stages of their life cycles. Life cycle stages are:
 - ❖ New construction (asset creation)
 - ❖ Preservation: Actions (including routine, periodic, and preventive maintenance) to slow or correct deterioration
 - ❖ Operations: Activities to improve efficiency and use of the asset
 - ❖ Replacement: Reconstruction, partial, or complete replacement of an asset
 - ❖ Functional improvement: Improvements beyond the original level of service, capacity, or strength
 - ❖ Disposal

Maintenance Planning

- Maintenance activities can be organized into 2 categories:
 - ❖ Planned and Routine
 - ❖ Reactive
- Ensures that resources are allocated to planned maintenance activities while reactive and routine maintenance activities are also being conducted.

Program Delivery

- The period where the resources that have been allocated are utilized. Key aspects are:
 - ❖ Selecting a delivery method: tribal employees or contractors
 - ❖ Maximizing efficiency to minimize costs during Program Delivery
 - ❖ Maintaining flexibility of management delivery methods
 - ❖ Minimizing negative impacts to customers and stakeholders
 - ❖ Monitoring to ensure that goals and objectives are being met

Data Tools

- **Asset Management Systems.** A collection of hardware, software, data, and processes that support asset management.
- **Data Collection and Management.** Keeping data current and useful is called data management.



IV. SUMMARY AND RESOURCES



Asset Management Toolbox

Techniques and strategies that have been applied in this module:

- Understand asset management
- Create an asset inventory
- Define the asset management scope
- Develop a Transportation Asset Management Plan
- Deploy an asset management system

Asset Management Checklist

Step 1: Create an Asset Inventory

Decide what assets to inventory.

Decide what information to collect about the assets.

Gather information to create the inventory.

Step 2: Define Asset Management Scope

Determine what decisions will be influenced with better asset management.

Decide what assets are most important to the tribal government.

Produce a list of what will be accomplished with the asset management program.

Step 3: Prepare Your Organization for Asset Management

Develop a list of asset management roles and responsibilities.

Determine who are the individuals, teams, and organizational units that need to be involved in implementing the asset management scope.

Explicitly think about the change management activities that are needed to implement the asset management scope and get the sought after results.

Identify an asset management champion.

Summary and Resources

Checklist Part II

Step 4: Develop the TAMP

	Document what is trying to be achieved with the asset management program.
	Determine the performance measures that will be used to make decisions about what will be done with the assets and if the decisions have been successful.
	Document the baseline information about the assets so that future improvements can be measured.
	Decide on the actions that will be taken to make improvements.
	Describe any management strategies available to maintain assets in the desired condition.
	Describe the funds that are available and sought after for managing assets.

Step 5: Use Tools and Techniques to Implement Asset Management

	Inventory what tools exist in the tribal government for asset management.
	Determine what areas in the TAMP need support to implement asset management.
	Decide how to manage the collected data about the assets – is an asset management system needed?
	Evaluate the tools and techniques that are available from FHWA for asset management.
	Apply the tools and techniques to get the desired outcomes.

For Further Reading

- Transportation Asset Management Guide, Volume 1. (American Association of State Highway and Transportation Officials, 2002).
- Transportation Asset Management Guide, Volume 2 – A Focus on Implementation. (American Association of State Highway and Transportation Officials, 2011).
- Asset Management Overview, FHWA
http://www.fhwa.dot.gov/asset/if08008/amo_09.cfm.
- Asset Management and Management of Highway Performance (Peer Exchange), FHWA <http://www.fhwa.dot.gov/asset/hif10006/index.cfm>
- Asset Management Primer, FHWA
<http://www.fhwa.dot.gov/infrastructure/asstmgmt/amprimer.pdf>
- FHWA Asset Management Case Studies:
<http://www.fhwa.dot.gov/infrastructure/asstmgmt/casestudies.cfm>