Sustainable Infrastructure Management

Asset Management Planning Overview
Presentation objectives

✓ Define Asset Management (AM) and its value proposition to infrastructure investment

✓ Describe how to establish an AM strategy

✓ Discuss building blocks and implementation approach for AM

✓ Provide guidance on developing an AM knowledge base
**Asset Management** defined

- Establishes management paradigm and body of management practices
- Applies practices to the **entire portfolio** of infrastructure assets at all levels of the organization
- Seeks to **minimize total costs** of acquiring, building, operating, maintaining, and renewing assets
- Recognizes there are limited resources
  - While **continuously delivering the service levels** customers desire and regulators require
  - Recognizes an acceptable level of **risk** to all stakeholders
The infrastructure asset life cycle
Challenges facing infrastructure owners

- Knowledge Loss
- Customer Demands
- Financial Constraints
- Aging Assets
- Security & Emergency Response
- Growth
- Climate Change
- Regulatory Compliance

Many municipalities have found that a comprehensive approach to Asset Management helped address these challenges.
Characteristics of good Asset Management

“An Asset Management system realizes value from all of the assets in order to achieve organizational objectives”

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Demonstration of Application</th>
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<tr>
<td>Multi-Disciplinary</td>
<td>Crosses departmental &amp; discipline boundaries with focus on net value for money</td>
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<tr>
<td>Systematic</td>
<td>Rigorously applied in a structured management system</td>
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<td>Systems-Oriented</td>
<td>Looks at assets in their system context</td>
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<td>Risk Based</td>
<td>Incorporates Risk into all decision making</td>
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<td>Optimal</td>
<td>Seeking best compromise. Cost vs Performance vs Risk &amp; Short term vs Long term</td>
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<td>Sustainable</td>
<td>Life cycle value, Environmental performance</td>
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<td>Integrated</td>
<td>Joined up - it is more than a sum of the parts</td>
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Source: Adapted from PAS-55:2008 and ISO 55000
US EPA Framework
Five Core Questions of Asset Management

1. What is the current state of my assets?
   • What do I own?
   • Where is it?
   • What condition is it in? What is its performance?
   • What is its remaining useful life?
   • What is its remaining economic value?

2. What is my required level of service (LOS)?
   • What is the demand for my services by my stakeholders?
   • What do regulators require?
   • What is my actual performance?

3. Which assets are critical to sustained performance?
   • How does it fail? How can it fail?
   • What is the likelihood of failure?
   • What does it cost to repair?
   • What are the consequences of failure?

4. What are my best O&M and CIP investment strategies?
   • What alternative management options exist?
   • Which are the most feasible for my organization?

5. What is my best long-term funding strategy?
US EPA Framework
10 Step Process to Build the AMP

1. What is the current state of my assets?
   - System layout
   - Data hierarchy
   - Standards inventory

2. What is the required LoS?
   - Valuation, life cycle costing
   - Demand analysis
     - Balanced scorecard
     - Performance metrics

3. Which assets are critical?
   - Failure mode and effects analysis
   - Business risk
   - Exposure
   - Delphi technique

4. Best O&M and CIP strategy
   - Root cause analysis
   - Reliability centered and Predictive maintenance
   - Optimized decision-making

5. Best funding strategy
   - Confidence level rating
   - Strategic validation
   - Optimized decision-making

- Asset management plan
- Policies and strategies
- Annual budget

Florida Keys Marine Sanctuary – Asset Management Planning Overview
What is the AMP used for?

1. Current State of the Assets
2. Infrastructure Improvement Plan
3. Risk Management Plan
4. Business Improvement Plan
5. Long term capital and O&M projection (Nessie Curve)
6. Funding Plan

The AM Plan tells the story...

Florida Keys Marine Sanctuary – Asset Management Planning Overview
Budget and financial plan

Optimized Maintenance and Renewal & Replacement Planning Process Helps Smooth Investment Curve

Florida Keys Marine Sanctuary – Asset Management Planning Overview
Fit-for-Purpose

ONE SIZE DOES NOT FIT ALL
Thank You!

For more information please contact:

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Role of the Asset Manager

- Asset Managers bridge traditional boundaries.
- Specialists are needed - without them the business would not function, and the context is different.
- A different and wider ranging set of competencies.

Sound easy?

Role of the Asset Manager

Business Managers

Engineering & Technical Specialists

Operators & Maintainers

Why

Strategic 2 to 10 Yrs

What & When

Tactical 1 Mth to 3 Yrs

How

Operational To 3 Mths