Asset Management and Reporting Systems

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GASB 34 Asset Management and Reporting: A Practical Guide for Utility and Municipal Managers
Asset Management, CMOM, and GASB 34 Are All Intended to Focus on Long Term Utility Management

- **Asset Management**: minimize the life cycle cost of an asset or group of assets
- **CMOM**: properly maintain assets so that get full use of designed/intended capacity
- **GASB 34**: fully reflect the “full cost” of providing a government service & show that ratepayers are getting what they paid for
Who Is GASB?

- Governmental Accounting Standards Board - non governmental agency
- GASB 34 a statement issued by GASB which redefines financial reporting for public agencies
- Although not a law; non compliance may effect the acceptance of financial statements by auditors, rating agencies & the ability to obtain grants and loans from state or federal agencies
What Does GASB 34 Require?

- State and local government units should report financial condition, by one of these methods
  - depreciated value of capital and infrastructure assets of all government property
  
or
  - adopt “modified approach”, which involves asset management
What is Asset Management?

Asset Management is a process for providing the public with a cost-effective level of service through the creation, acquisition, maintenance, operation, rehabilitation and disposal of assets for existing and future customers.
How Does Asset Management Work?

- Uses an asset register
- Uses maintenance management systems
- Inventory control
- Condition assessment
- Defined levels of service
Why is Asset Management Important Now?

- Regulatory drivers requiring a longer term view and better knowledge of conditions of your systems
- More meaningful financial reporting
- Aging infrastructure system
- Increased pressure of privatization and competition
- More powerful computer systems and sophisticated software make integration of data more viable
Utilities Are Often Forced to Take Short-term View

- Significant effort in creating new assets, but **not** using and properly maintaining existing assets
- Maintenance deferred because:
  - Pressure to keep rates low
  - Other increased costs of doing business
  - Competing priorities / other projects
- Maintenance problems often are “invisible” to decision makers until something bad happens
Modified Approach

- Inventory & assess current condition of assets
- Estimate funds needed to maintain at a condition level set & disclosed by the government agency
- Assess condition of assets at least every 3 years
- Report whether assets are being preserved at or above the condition level set
Modified Approach (continued)

- Disclose in financial statements
  - Past 3 condition assessments
  - Past 5 years estimated expenses vs. actual
- Basically, accountability
Asset Management Makes Good Business Sense

- Clearly documented strategy for managing utility assets from design to disposal at the end of its useful life
- Repeatable & verifiable methods/measurement of asset condition
- Minimize life-cycle costs
- Clearly calculated levels of asset service, reliability and long term funding requirements
- Creates long-term capital funding program
Asset Management Makes Good Business Sense

- Improved risk management
- Accurate & concise asset information to support strategic decision-making
- Provides a reliable needs assessment for federal assistance
- Provides a fact based dialogue between system managers and other stakeholders, government officials, grant agencies to document funding needs
Asset Management Common Misconceptions

- Asset management is a computer system
- Asset management is an accounting system
- Asset management is required by the EPA or the federal government
Asset Management Is a Plan Which Requires Asking Some Hard Questions

- **Strategic Planning**
  - What is the business?
  - What are we trying to accomplish?

- **Service Level Review Process**
  - Facility plan type needs assessment

- **Asset Management Process**
  - What do we need?
  - How do we provide it?

- **Implement Asset Management Solutions**
  - Finance, design, construction, operation and maintenance activities
The Plan is the Core of Asset Management

This plan includes initial ownership costs, O&M activities (and costs), likely refurbishment activities (and costs), and timing/cost of replacement.
The Asset Management Team

Cross Functional

All stakeholders should be represented

Key Players

Planning, engineering, O&M, finance, and IT

Job

Formulate “strategic” plan

Goal

Thorough, consistent program across the agency
Implementation Plan

- Lay out objectives, levels of detail, “to-do” lists for the overall program
- Assign responsibilities in each division
- Oversee plan implementation
- Don’t have to do the entire system at the same time, consider phased approach of most critical systems first
- Monitor performance against plan, make mid-course corrections
Improves Business Understanding

- Understanding business practices associated with asset management - can be continuously improved
- What are the priorities and risks in your business
- What improvements need to be made to optimize the use & extend the life of assets
- How to most effectively fund maintenance, refurbishment, & replacement of these assets
Objectives of the Asset Management System

- What are your assets, where are they, what condition are they in
- More planned less unplanned maintenance
- Have and maintain a rational long-term plan for replacement and refurbishment
- Demonstrate a technical and financial commitment to long-term integrity and improvement of your infrastructure
Basic Steps to Asset Management

- Build an asset hierarchy
- Establish asset criticality and the service standard for each asset
- Assign a level of maintenance
- Evaluate the asset condition
- Analyze data to optimize reliability and costs
Information Required

- System Inventory
- Criteria for Monitoring Conditions
- System to Track Assets
- Inventory Budget $ Actual $ Condition
- Relationship of Asset Condition to Criteria

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System Integration

One of the core requirements of a sound asset management system is to identify and track assets throughout their lifecycles.

Most of the data utilized by the Asset Management system are generated from other systems, but is integrated into a reporting system that will allow inquiry and generation of reports of useful information.
Asset Management System Integration

GIS for Inventory of Assets

Ability to Track Costs

Calculating Actual Utility Rate & Charges

Data Management System Needs and Procedures

Administrative Policies and Procedures Manual

Stormwater Utility Ordinance

Work Orders

Asset Management System Integration

Payroll

Purchasing

Equipment Needs

Labor Costs

Materials

Equipment

Work Orders

Ability to Track Costs

Calculating Actual Utility Rate & Charges

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Asset Management System Integration

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Materials

Equipment
Asset Identification

- Start with a complete inventory of assets
- Group and classify assets into hierarchies
- Assign hierarchies through an asset register which defines the associated properties of each asset by facility, location/area, system etc
- Register each asset
- Decide on a minimum dollar amount that will have an individual asset number
Asset Categories and Classifications

- Process (plant) assets
  - Subsystems of pipes, controls, instruments
- Infrastructure assets
  - Pipelines, wells, pumping stations
- Building assets
  - Aggregation of the components
- Site assets
  - Parking lots, fences
- Equipment & furnishings
Equipment and Furnishing

- Vehicles, trailers, office equipment & furniture, storage fixtures, portable equipment
  - Equipment categories will be matched with the fixed asset management component of the FIS
  - Movable equipment will be usually be individually tagged for property management purposes

- Certain categories, e.g. furnishings, will be treated as a group
Process (Plant) Asset - Example Hierarchy

- AWTP
- MF
- MF Generator building
- Train A
- Master control system
- Generator
- Controller
- Facility
- Process unit
- Location
- Area
- System (group)
- Equipment (parent)
- Component (child)
Example Asset Tag

Process Asset Register

<table>
<thead>
<tr>
<th>Facility</th>
<th>AWTP</th>
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<tbody>
<tr>
<td>Process Unit</td>
<td>RO</td>
</tr>
<tr>
<td>Location / Area</td>
<td>320</td>
</tr>
<tr>
<td>Train / Block Number</td>
<td>A-15</td>
</tr>
<tr>
<td>System / Service</td>
<td>CIP</td>
</tr>
<tr>
<td>Component ID</td>
<td>PMP</td>
</tr>
<tr>
<td>Sequence Number</td>
<td>1</td>
</tr>
</tbody>
</table>
Asset Costs Will Be Consolidated on a Total Cost of Ownership (TOC) Basis

- Ownership costs
- Costs reflect all costs associated with owning & administering the asset
  - Can be thought of as all costs other than O&M costs
- May include capital costs, debt service, depreciation management & administrative costs, etc.
  - For asset management system, these will primarily be capital costs and allocated debt service costs
Operating and Maintenance Costs

- **Operating costs**
  - Associated with operating facilities, e.g., energy costs, consumables, operations related labor, etc.
  - No effect on asset except to operate asset

- **Maintenance costs**
  - Ongoing day-to-day work required to keep assets operating at required service levels
  - Associated with non-capitalized maintenance work orders including inspections, service, repairs, etc.
Asset Rehabilitation & Replacement

- When should an asset be rehabilitated or replaced based on its remaining useful life cost analysis
- Initially use manufacturers recommendations
- Update to reflect condition assessments and maintenance history
- Asset history is used to update the entire asset plan
Asset Condition Monitoring

- Helps to determine if the asset should be replaced or repaired
- Helps determine optimal types & frequencies of preventive maintenance
- Provides early warning of asset deterioration & prediction of equipment failure
- Condition monitoring is key to optimizing the physical activities involved in asset management and is used to update the entire Asset Plan
Condition Monitoring

Each asset plan has an assessment plan

How can this asset deteriorate or fail?

How do we monitor this?

What do we check and how often?

What are our key decision points for refurbishment or replace?
Next Step - Measurement

- Record actual asset-based activities against the plan – information systems generate actual costs
- During operations, the system acquires data from a variety of sources
  - Maintenance management systems (CMMS)
  - Distributed Control and SCADA systems
  - Stores, procurement, accounting, and financial reporting systems
Next Step – Measurement (continued)

- Over time, compare plans with actual costs – and manage by variance
- Assess assets’ conditions and modify asset plans accordingly
The Asset Management Process Includes Periodic Reviews

- Asset-related costs are being reduced as anticipated
- Required service levels are being met
- Asset-related procedures are being conducted as planned
- Asset plans are being properly updated and improved
- On findings from these reviews, the Asset Management Plan will be updated
In broad terms, use the histogram of original installation and the asset elapsed life tools to yield renewal and replacement curves for assets. The “Nessie” curve would be a starting point.

A major focus is placed on understanding the deterioration rate of the assets and an initial classification of the likely condition of common components of the system.
If you apply this approach to the aging of a pipe network, this is the picture an upcoming challenge that continues to ramp upward over a long period.

Table 4: Growth in the lower classification

<table>
<thead>
<tr>
<th>Year</th>
<th>Poor</th>
<th>Very Poor</th>
<th>Life Elapse</th>
<th>% of System</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>12276</td>
<td>9229</td>
<td>24667</td>
<td>7.8%</td>
</tr>
<tr>
<td>2020</td>
<td>149627</td>
<td>126892</td>
<td>46172</td>
<td>54.8%</td>
</tr>
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</table>

Figure 16. The aging curves related to the histogram of pipe assets makes it clear that replace and renewal is a relatively new issue.
The aging process of the network, as a whole, sheds light on the relative patterns of growth in maintenance, repair, renewal and replacement budgets.
Financial Management Strategies

- Managers will use the system to project current maintenance trends into the future
- The system will assist in developing annual funding profiles for maintenance, repair, rehabilitation, and replacement of assets
- Historic levels of maintenance can be projected for assets nearing the end of their useful lives
- The identification of assets projected for disposal will trigger requests for planning support and design funding for replacement
Financial Benefits

By tying costs to asset condition, and by long-term planning for each asset, we give policy makers the facts they need to understand funding needs.
Everything Fits Together

- Asset management
- Maintenance planning & projecting
- Financial planning
- Capital project planning
Asset Management Benefits

- We know our infrastructure’s condition in detail and can better manage it
- Unexpected failures are minimized
- R&R actions are taken at the right time – not too soon and not too late
- Life-cycle approach means we always get the most asset for our money