

CMOM: A Dynamic Management Approach for Collection Systems

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Whitepaper
Accela, Inc.

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Overview

Many of the wastewater treatment facilities in operation today serve communities that have experienced tremendous growth in the last 30 years. Most of these facilities have invested heavily in expanding their collection systems (to serve growing populations) and upgrading their wastewater treatment plants (to handle additional volumes and meet environmental regulations). However, a much smaller investment has been made to maintaining and improving the infrastructure of the collection system—sewers, manholes, and pump stations for example.

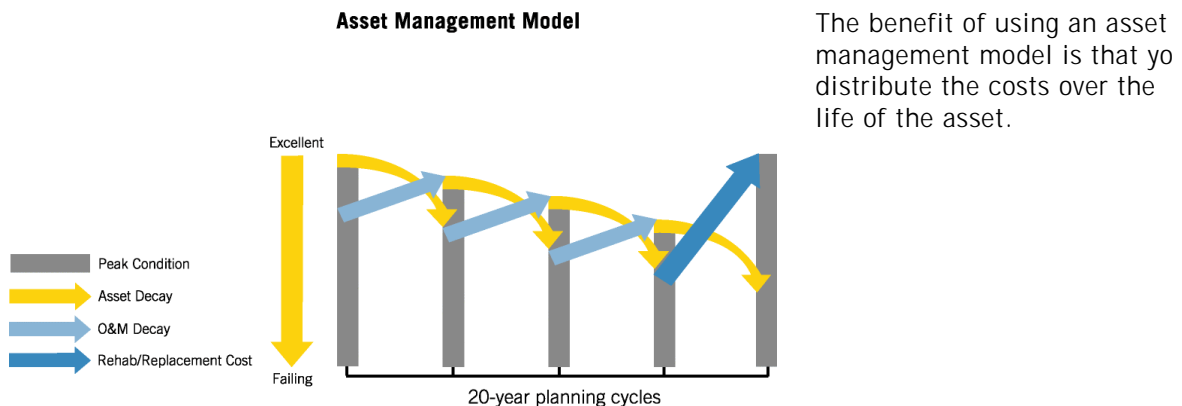
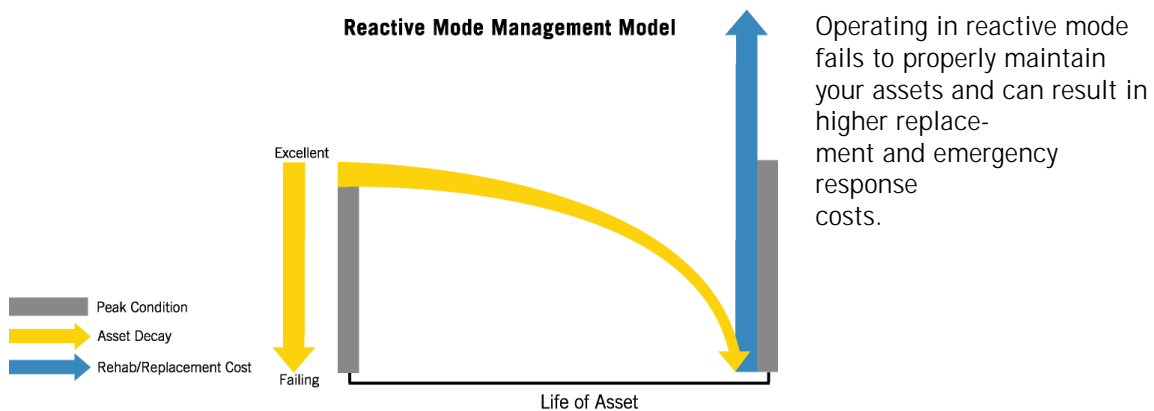
The result of this approach is that many of today's collection facilities have antiquated systems—most are 30 to 100 years old. These systems are at risk for leaks, blockages, and malfunction due to deterioration. In the most extreme case, these facilities can experience sanitary sewer overflows (SSOs). SSOs are releases of untreated wastewater into the environment and they are regulated under the EPA's Clean Water Act. SSOs affect a community's public health by contaminating drinking water, fish and wildlife, and open water sources such as lakes and streams.

Improperly maintained equipment deteriorates at an even faster pace and the result is that collection agencies spend most of their operational resources on emergency response and repair. Operating in this reactive mode is not cost-effective and ignores long-term problems that may be developing.

In an effort to reduce both the frequency and severity of SSOs, the EPA introduced the Capacity, Management, Operation, and Maintenance (CMOM) approach. CMOM is an information-based approach to making wastewater facilities more proactive and less reactive. The regulation requires that wastewater facilities develop a plan that addresses the potential issues that could lead to a SSO. This plan includes using an information-based approach to setting priorities, evaluating capacity for all parts of the system, developing a strategic approach to preventative maintenance, and conducting periodic program audits to identify deficiencies and potential problems.

Asset Management for CMOM

Integrating asset management planning with a CMOM program can improve the effectiveness of a facility's CMOM plan. Asset management is a continuous process that guides the acquisition, use, and disposal of infrastructure assets to optimize service delivery and minimize costs over the asset's entire life.



There are many software solutions available that are designed to provide an automated solution to asset management. Besides the ability to comply with CMOM regulation standards, you should look for several key criteria in selecting an asset management software solution:

- **Asset identification and capitalization** A solution should be able to identify and number the assets at your collection facility (pump stations, sewer lines, manholes, etc.) and also indicate their location using GIS. The system should be able to track the historical cost of an asset and also add any capital improvements.
- **Condition assessment** – Condition assessment refers to the physical condition of an asset. An assessment evaluation can identify assets that are underperforming, determine the reason for their deficiency, predict when failure might occur, and determine where corrective action might be taken and when.

An effective software solution has a built-in condition level assessment tool that has a rating scale for evaluating the condition of equipment. The scale should be easy to use and remotely accessible since it is field inspectors who are the primary personnel for rating the condition of field equipment.

- **Maintenance analysis and planning** – The goal of maintenance analysis and planning is to maximize planned maintenance and minimize unplanned maintenance. Planned maintenance is more cost-effective because it is performed on a non-emergency basis and can therefore be coordinated with other system operation activities.

Additionally, planned maintenance can be improved by evaluating the causes that led to unplanned maintenance. Causes can be related to timing, ineffective maintenance methods, advanced deterioration, or poor design. Having a method to analyze and evaluate unplanned maintenance can be helpful in preventing future problems.

Accela Asset Management

Accela, Inc. is the leading provider of government enterprise software solutions for local, state, and federal government agencies of all sizes. Accela solutions provide agencies with the ability to automate workflow, track information, and manage data from a centralized database. Accela products allow agencies to reduce workload, increase efficiencies, and provide citizens and businesses with easier, more convenient access to government services.

Accela Asset Management tracks and manages all of your wastewater assets and resources and provides an automated solution for costing, inventory, maintenance, inspections, and more. Accela Asset Management is designed to help you comply with CMOM standards and provides the tools necessary for your agency to take a proactive approach to managing your wastewater assets.

Manage Key Asset Information

Accela Asset Management allows you to identify and cost all of the assets in your collection facility. For each asset, you can assign unique characteristics such as make, model, vendor, parts, date purchased, etc. The system allows you to create an unlimited number of user-defined fields and attributes so no matter what asset you are tracking, you can record all of the relevant information. Additionally, each asset can be identified with an accompanying photograph, chart, or CAD drawing. GIS information can be linked to provide information about the location of the particular asset.

Accela Asset Management also tracks costing information for all of your assets. For each asset, you can record historical cost and also track any additional capital improvements that are made.

By creating a complete and comprehensive inventory of your facility's assets, Accela Asset Management provides the necessary foundation for your CMOM program.

Perform Condition Assessment

Field crews play an integral role in providing up-to-date information about the condition of an asset. They survey the condition of assets continually and can be the first ones to identify potential problems with a system or its components.

As part of the inspection module in Accela Asset Management, you can create a condition level assessment tool. This tool is available to field inspectors as they are performing their daily tasks so if they come across a defect during the inspection, they can input the condition rating immediately.

This rating is then combined with a failure impact rating for the asset to determine whether the asset meets the minimum condition levels to remain operational. If it does not, then repairs can be scheduled or the asset can be taken out of service.

Example of a condition assessment grading system:

Grade	Condition	Description
0	Abandoned	No longer in service
1	Very Good	Operable and well-maintained
2	Good	Superficial wear and tear
3	Fair	Significant wear and tear; minor deficiencies
4	Poor	Major deficiencies
5	Very Poor	Obsolete, not serviceable

Initiate Preventative Maintenance

Accela Asset Management provides historical data on your assets to allow your agency to perform intelligent maintenance analysis and planning. You can track past work orders by history, costing, parts, location, and more. Using the system's customized reporting tool, you can analyze this information to determine what led to an unplanned maintenance procedure. This information helps in scheduling future preventative maintenance.

Preventative maintenance is a key component in taking a proactive approach to asset management. It improves system performance and preserves the condition of your assets longer. Accela Asset Management offers an integrated scheduler that allows you to easily coordinate work orders with preventative maintenance.

Conclusion

Asset management is a logical, cost-effective framework for meeting the environmental regulations set forth by CMOM. A successful CMOM plan will incorporate an asset management solution that can identify and manage key assets, provide tools for condition assessment, and offer analysis capabilities for performing preventative maintenance.

Accela Asset Management provides a flexible software application to effectively track and manage your wastewater assets and resources. The automated solution allows your agency to comply with CMOM guidelines and take a more proactive approach to managing your assets.