

Asset Management

Enterprising Solutions for Four Utilities



Article:
Wendy Huber-Wichelt,
EMA Communications Editor

On the cover: The Civic Plaza in the City of Bloomington (MN), which houses the City's Art Center, City Hall, and Police Department.

Inset cover photos (l-r): A bird's eye view of the Scituate Reservoir and Providence Water Supply Board Treatment Facility (Providence, RI); Pumps at Orange County Utilities' South Water Reclamation Facility (Orlando, FL); A member of the field crew at Cleveland Public Power (Cleveland, OH).

A strong asset management plan can have a far-reaching, profoundly positive effect on how your utility does business.

In truth, all utilities practice some form of asset management. However, it's the clearly defined, well-executed asset management strategy that is the true differentiator between organizations and the key to sustaining the life of your assets as well as your utility. A clear understanding of the condition, reliability, and life cycle of your current assets gives you the insight that enables you to make informed business decisions and plan for the future.

Asset Management: What is it?

Asset management is not a specific product. It isn't even a specific technology, but it relies on technology to get the job done. In its simplest form, asset management is an initiative that is supported by a set of practices that helps your utility know what to do, when to do it, and how to do it best. Asset management focuses on optimizing – getting the most out of each asset throughout its life cycle – all the while meeting your performance standards.

The goal of any strong asset management strategy is a cost-effective, results-oriented program that

considers all facets of an organization. Utilities invest regularly in systems such as CIS, GIS, CMMS, and FIS, all of which are populated with data related to their assets. These systems need to serve collectively as the support structure for functions such as asset registry, condition assessment, customer service tracking, maintenance planning, work order management, and financial planning.

Different Needs, Different Solutions, Big Benefits

Implementing an asset management program is not a "one-solution-fits-all" proposition. It varies from utility to utility. Organizations have different needs, drivers, technical requirements, and circumstances, which require different solutions. The right plan is the strategy that is tailored to meet your specific needs and leverages your utility's existing strengths. And the right plan can deliver significant benefits, namely, a better understanding of existing assets and the ability to use and manage these assets to:

- Increase capability and transparency throughout your organization
- Improve process efficiency, workflows, practices, and services
- Better understand the condition of your assets and improve the integrity of your asset data
- Develop performance measures and practices that promote continuous improvement
- Make sound, data-driven business decisions
- Develop growth, forecasting, and CIP strategies based on reliable work, asset, and performance data
- Build stronger maintenance strategies and practices

Stories from the Field

The following stories feature four utilities that recognize the importance of establishing an asset management program not only to meet their short-term needs, but to provide their utilities with the tools to do business well into the future.

Partnering with EMA, these organizations brought a variety of needs and requirements to the table. Each instance called for a different solution that is not only meeting the need, but making each utility a stronger, more sustainable organization.



A strong asset management program integrates with enterprise systems throughout your organization.



Integrating GIS with Established Enterprise Systems

The introduction of integrated GIS technology at the Providence Water Supply Board (Providence) was a significant step forward in the continued development of the organization's asset management program.

The goal at Providence was to integrate GIS technology with its existing Hansen work and asset management program and Customer Star customer information and billing system to build a single asset and customer information repository that would help better manage the organization's water distribution system assets by geographic location.



Chris Labossiere
Project Manager

"The idea was to bring our information from the paper world into the digital world," said Chris Labossiere, Project Manager at Providence. "Our existing asset management system and customer database partially got us there, but we didn't have a link between them. We wanted to take all of these separate data sources and bring them into one hybrid system that we'd maintain, which would give us access to our data and GIS. Doing it on a server allows us to distribute that data to the entire organization."

Determining the Need

An initial needs assessment revealed that Providence staff had three basic needs when it came to asset data: more timely access to a greater amount of data with more accurate documentation. The assessment led Providence to partner with EMA to begin the design and development of an enterprise GIS to improve the access to and management of its assets.

Establishing the Design

Providence's enterprise GIS was designed to support key business processes. Workshops conducted by EMA helped Providence staff determine which processes would link directly to the GIS using ESRI and other technologies. Workshops also identified other business processes that GIS could support to better meet the business needs of the organization, and applications were created to enable this extended functionality.

Building the Database; Maintaining the Data

Providence created a water geodatabase to integrate with their existing work and asset management system. The data that would populate the geodatabase came from numerous sources, including AutoCAD files, paper maps, and Providence's existing work and asset management system. Providence selected off-the-shelf products GeoResults[®] Sync[™] and GeoResults[®] Toolbox[™], which work with their existing Hansen system and ESRI ArcGIS software.

Now Providence users can access the data they need through a web-based viewer called "eMap" – an electronic map that pulls infrastructure records from the organization's GIS, Hansen, and Customer Star programs. A redlining tool, available with eMap, enables users to identify errors or changes in data, mark the changes, and then send the edited information to Providence GIS data editors. The new redlining process helps Providence maintain their asset data more effectively.

Immediate Benefits

The newly integrated GIS technology has brought significant improvements to Providence. Users have increased capability, more efficient work processes, and greater access to essential asset data. The quality of the asset data has improved as well.

Flexibility for the Future

As training and roll-out continue at Providence, the organization considers its next steps. The enterprise GIS was designed to be flexible to accommodate future expansion and enhancements. Among these: mobile GIS functionality that will provide field crews with system access while in the field.

"It would be nice to get this out to people in the field and get even further away from a paper environment," Labossiere said. "But first things first. We needed to develop a stable, solid system and get it up and running. We're doing that."



eMap allows users to retrieve asset data from a variety of enterprise systems.



Improving Underground Infrastructure Line Location

Orange County Utilities (OCU) of Florida has long ascribed to strong asset management practices for its water, wastewater, and reclaimed water services, enhancing its overall program with expanded capability as opportunities arise. Such is the case with its new infrastructure line location functionality.

When excavating for construction, repair, or other projects, excavators must know of any underground infrastructure that exists at or near their dig sites. OCU ensures that utilities' underground assets have been located and marked or deemed not to exist and that excavators receive timely notification of this information.

Line Location at OCU

OCU wanted to better manage customer excavation requests inside the utility's service areas. Partnering with EMA, OCU is in the final stages of configuring its IBM Maximo® work and asset management system to support its line locate business processes and comply with Florida's regulatory "Call 811 Before You Dig" statutes.

At the center of this functionality is an interface between Maximo and the state-wide computer application used by Sunshine State One Call of Florida (One Call) to manage excavation requests from contractors and homeowners. The project also includes the installation of an interface between Maximo and OCU's GIS, which will provide OCU's locate staff and locate contractors with the most recent spatial data edits of underground infrastructure.

OCU will receive line locate requests from One Call and use Maximo, Mobile Maximo Work Manager, and ESRI/GIS mapping technology to effectively perform requested line location services, enabling the organization to:

- Easily screen tickets using up-to-date asset maps and display locate history
- Link locate tickets with corresponding work orders in Maximo
- Assign mass tickets to line locate personnel using the result set or the GIS as its selection criteria
- Create customized responses for excavators doing the work

- Electronically route/transmit Locate Work Orders to field staff
- Provide timely notifications to One Call, contractors, and homeowners

"When we started to design this application, we met with team members and found they were using three or four different sources to get the information they needed," said Gary Nassoii, Utilities Information Systems Administrator at OCU. "We're trying to consolidate this process, strictly using Maximo and pulling all information into one or two informational resources. We're also automating it so that it has mobile capability, where field workers can pick up their work orders, take care of the job remotely, and actually complete the locate ticket while out in the field."

Benefits

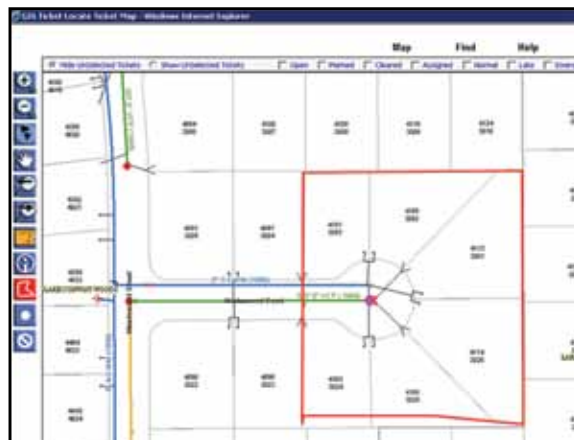
The new functionality promises to improve OCU's line location process dramatically, giving the locate staff the ability to use Maximo to screen tickets easily through a one-stop repository within their work and asset management system. The functionality also will allow OCU to capture and retain

all information associated with each locate request within their system, which will increase work efficiency.

Other benefits that OCU's locate work groups will realize with this integrated functionality include:

- Improved visibility of excavation requests from One Call
- Increased productivity of staff who screen excavation requests
- Better identification/marketing of underground infrastructure
- Improved customer service to contractors and homeowners
- Better work routing and progress reporting
- Reduction in main breaks caused by excavation

The line locate functionality has the flexibility to accommodate Maximo versions 5.x and 6.x and is easily ported to version 7.x, which will meet OCU's needs when the organization decides to upgrade.



The GIS mapping application finds the proper location using data derived from the locate ticket generated in Maximo. The location can be marked as a point or a larger area using a draw tool.



Leveraging Existing Data to Start an Asset Management Program

Several factors led the City of Bloomington Public Works Department (Bloomington) to begin Phase 1 of its asset management program. In addition to issues such as rising construction costs and aging infrastructure, the move would enable the utility to improve processes and overall efficiency and take a more strategic approach toward forecasting future business needs.

“For us to continue to grow as a utility, the next step was to take a real hard look at a formalized asset management program,” said Glen Gerads, Assistant Utility Superintendent at Bloomington.



Glen Gerads
Assistant Utility
Superintendent

Developing a Strategy; Assessing Assets

Bloomington’s asset management program would be a collaboration between its Water, Wastewater, Storm, and Transportation business units, which share common geography throughout the city.

Partnering with EMA, Bloomington developed an asset management plan. A “top down” assessment of all assets helped set the program’s foundation. With input from key support areas such as IT and Finance, the project team developed an effective initial asset valuation and life cycle forecast by creatively mining data in the existing GIS, maintenance and work management systems, and Financial Information System. Data gathering included:

Identifying Assets and Defining Value. By identifying its existing asset inventory, Bloomington gained a better understanding of the assets it owns. “It also helped us figure out what data we were missing and how everything should link together to give us a big picture view,” Gerads said.

Bloomington’s GIS contained a wealth of underground asset data, and its Datastream work management system provided nearly all of the City’s above-ground asset data.

Using an organizational framework called CRAV (Critically Related Asset Views) enabled Bloomington to group assets into categories, such as size, age and material, assets serving critical customers, and even known performance problem areas. “This helped us group assets together in such a way that we could make sense out of them,” Gerads explained.

The CRAV framework also helped Bloomington determine the theoretical life and value of each asset.

Collecting Data - Condition, Performance, and Reliability. The collection of asset condition, performance, and reliability

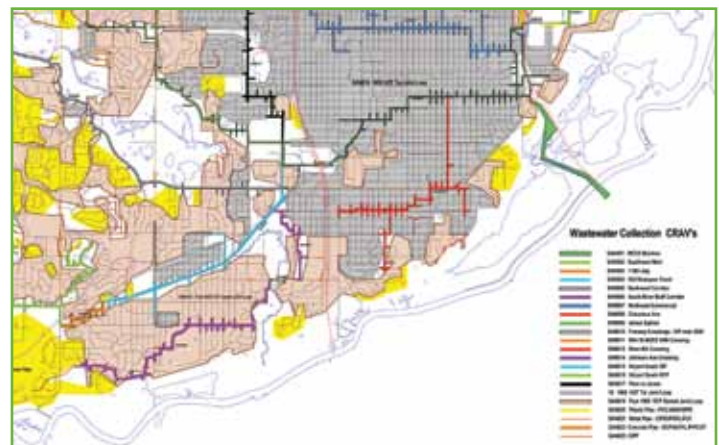
data was critical to the project. The majority of the condition and reliability data was obtained through Bloomington’s maintenance and work management system and GIS. Performance data was acquired by leveraging existing water and wastewater modeling information, staff knowledge, and existing documentation. For each category (condition, performance, and reliability) an assessment protocol was developed to align the collected data.

Establishing Risk Values. Beyond just using remaining life, Bloomington assigned risk values to each asset group to help support their repair, rehabilitation, and replacement decisions. The risk factors consider the impact of safety, environment, operational integrity, as well as cost. The risk assessment also considers redundancy and how it impacts risk.

Next Steps at Bloomington

Bloomington completed Phase 1 of its program without committing upfront to extensive technology enhancements. With staff participation from all levels of the organization, the process helped Bloomington get an initial valuation of existing assets, identify any technology gaps, and begin developing best practices and a culture that supports asset management.

Phase 2 of the project will include analysis of how to integrate technology improvements, according to Gerads. “We have a team looking over all the information created in Phase 1 to figure out how we can best use all this data,” he said. “Next we will develop more of the day-to-day types of tools that we need to use and begin institutionalizing the whole asset management concept into our day-to-day activities.”



A Wastewater Collection CRAV (Critically Related Asset View) at Bloomington.



Implementing a New CMMS

It was the formation of a special Work Order Improvement team at Cleveland Public Power (CPP) that led the organization to consider a new Computerized Maintenance Management System (CMMS). For years, the utility had relied upon an in-house work order management system created in Microsoft Access.

"We looked at our work order process and realized that the vehicle we were using was not supporting our business," said Marcia Hines, Manager of Engineering Process Management at CPP. "It had served its purpose for a long time, but we had incomplete information and no transparency across our organization. We knew we needed to improve."



Marcia Hines
Manager of Process
Engineering
Management

Selection and Implementation

Hines, who was captain of the Work Order Improvement team, proceeded to find a solution that would meet the utility's work order processing needs. In addition to researching the different available software packages, Hines attended conferences and spoke with others in the industry about the systems they were using. Ultimately, her search led to Infor.

"Out of the box, it was the better product for us because it seemed to be user friendly and easily customized to our needs," she said.

Partnering with EMA, CPP moved forward with the implementation of Infor 7i™, which would interface with CPP's Banner Customer Information System. As a web-based system, the new functionality would provide the access and transparency across the organization that CPP required.

Throughout the implementation, CPP and EMA have taken a proactive approach toward the transfer of knowledge on the CMMS. A cross-functional implementation team continues to work with EMA on system configuration and implementation.

The Data Challenge

A major component of the CMMS implementation at CPP has been data collection. "Unfortunately, CPP's data was not just sitting here ready for us to load in," Hines said. "We've had to compile it."

With much of the data archived and in hard copy form, subcommittees were formed throughout the organization to obtain the data, much of which had to be scanned into electronic format. Collecting the information has been no easy feat, but it does have its payoff, according to Hines, as the data

that is populating the CMMS is not only proofed, but verified and extremely accurate.

Benefits of Transparency

The transition from a standalone, paper-driven work order process to an integrated CMMS has introduced immediate benefits at CPP. Among these: greater transparency, improved processes and practices, and work and asset data that is not only more accurate, but also highly accessible across the organization.

"The 100 percent transparency of our work order process will hold people and departments accountable to upholding their workload," Hines said. "And it will help us make better estimates. Before, we weren't even capturing all the true costs of an actual job. Being able to post labor, account for materials, and hours worked, and having all that data in one system will assist in identifying trends and ordering for the future."

"We are moving together as a team with one focus. This has forced us to look at how we do our work and tweak our practices to make them better."

Marcia Hines,
Manager of Process
Engineering Management

The implementation process has been a collaborative effort between departments such as Operations, Marketing, Engineering and Billing, which has helped CPP realize significantly improved work practices throughout the organization. "We are moving together as a team with one focus," Hines explained. "This has forced us to look at how we do our work and tweak our practices to make them better."

Next Steps at CPP

As CPP continues with its CMMS implementation, Hines indicated that already there is discussion about integrating the new functionality with other enterprise systems, including the City's new Financial Information System.

"We're also going to add bar-coding in our inventory component," Hines said. "And we're thinking about integrating Outage [emergency] Management with the system. We're even going to embrace mobile units."