

## Decision Analysis/Implementation Guidance

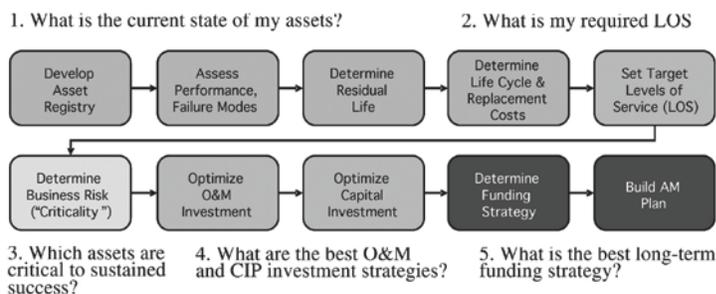
**W**astewater utilities typically have a gap between the funds they have available for assets and what they truly need. Utilities with established asset management programs have realized improved performance after a period of trial and error. This report presents the first step towards developing the Strategic Asset Management (SAM) “tool kit” in SIMPLE (Sustainable Infrastructure Management Program Learning Environment). A 10-step process model for building an asset management plan along with corresponding tools to assist each step of the process are included. Factors are identified that practitioners felt either contribute to successful implementation and maintenance of asset management programs, or inhibit program success. The factors depend on the entire organization working in tandem to achieve the goals of a sustainable utility. Because asset management requires change management as well, this research is relevant to not only engineers, but also to managers, financial officers, line personnel, and local officials.

Because asset management depends on a team approach to succeed, there are different pathways that can be taken. The seven pathways for implementing asset management, ranging from approaches that focus on single problematic assets to an asset management plan for an entire asset portfolio are discussed. A structure is presented for determining the information requirements for SAM decision making. A core set of information elements is described to allow asset managers to identify the current state of assets, monitor levels of service to meet customer expectations, identify high-risk critical assets, optimize investment strategies, and determine long-term funding needs.

### Catalog of Tools for Decision Support

To develop a comprehensive guide, it is necessary to identify tools available to the user community. The research team conducted a search of websites of global associations and governmental agencies to identify non-commercial decision support tools that had a potential use to the utility industry. In the context of this project, “tools” were considered to be decision tools, process guides, or standards for management of public assets. The general subject areas covered were life cycle costing, infrastructure assets, valuation and renewal, risk management, and asset management. However, few of the tools were web-based, interactive, and applicable to the wastewater community. To expand the search tools, guidance, and other materials were cataloged that may have some relevance for best practices.

Many of the tools identified were developed for road or facility infrastructure rather than for water services. However, the study also identified some commercially available tools and guidelines directly related to water services. The commercially available tools and guides were included in this report for completeness. Although the list is extensive, a representative listing of tools includes Sustainable Infrastructure Program Management Learning Environment – SIMPLE (WERF), Sewer Cataloging, Retrieval, and Prioritization System –



**This report highlights a 10-step process for developing an asset management plan.**

### BENEFITS

- Assists utilities in building an asset management plan through a 10-step process – identifying tools that assist in each step.
- Lists available non-commercial decision support tools and guidance available to WERF subscribers.
- Addresses the why and how of asset management at levels for starting, intermediate, and advanced practitioners.

### RELATED PRODUCTS

*Leading Practices for Strategic Asset Management (SAM1R06)*

*Public Communications – Perceptions and Early Communications Tools (SAM1R06a)*

*Sustainable Infrastructure Management Program Learning Environment – SIMPLE (03CTS14)*

### AVAILABLE FORMAT

Soft cover and online PDF.

### TO ORDER

Contact WERF at 571-384-2100 or visit [www.werf.org](http://www.werf.org) and click on Search Research Publications & Tools.

WERF Subscribers: Your first hardcopy of this report is free. Additional copies are \$10 each or download unlimited free PDFs at [www.werf.org](http://www.werf.org).

Non-Subscribers: Charges apply to some products. Visit [www.werf.org](http://www.werf.org) for more information.

Refer to: **STOCK NO. SAM1R06C**



For more information, log on to [www.werf.org](http://www.werf.org).

SCRAPS (WERF), Valuation Guidelines for Plant, Property, and Equipment (New Zealand Department of Treasury), and Check Up Program for Small Systems – CUPSS (U.S. EPA).

## The “How To” of Asset Management

### Identifying Inhibitors and Success Factors

Most public agencies implement some form of asset management to move from a “design, construct, run, and monitor” management regime to one that also focuses on long-term planning for renewal, replacement, and disposal of infrastructure assets. The WERF toolset for asset management implementation includes SAM-Gap which assesses seven primary elements of asset management. The assessment is a first step to identifying organizational change that will be needed to move towards an asset management mode of operation.

### Critical Success Factors and Alternative Routes

A workgroup of experienced and beginning practitioners discussed what worked for them and how they went about doing their work. The group identified barriers or roadblocks they had encountered or had anticipated. This was very helpful because ways to address each issue were then determined. The experience of the group yielded some interesting tactics and strategies for success. This underscores the notion that asset management best practices are not set in stone. What works for one utility may be inappropriate for another.

The universe of best practices is constantly expanding and WERF wants to ensure that subscribers are able to keep abreast of developments. Consequently, a group of members who were part of this research are now part of the WERF Asset Management User Group on LinkedIn. The group was created by request, for WERF subscribers to connect with other asset management practitioners with questions, tips, tactics, strategies, or anything else of interest.

Recurring themes include the importance of management commitment, adequate staff and funding, clearly defining benefits for stakeholders, change management, phased implementation, and feedback for continuous improvement. Other important issues include building business cases for investment decisions, minimizing life cycle costs, and leveraging “whole of government” savings by adopting best asset management practices in all sectors that manage assets.

There is not one way to implement asset management. The research identified seven pathways for implementing asset management, ranging from approaches that focus on single problematic assets to an asset management plan for an entire asset portfolio. The pathways are refinements of the original “Six Alternative Routes to Implementation” found in the first version of SIMPLE. A checklist of organizational and asset cost and performance factors is included that presents the suitability of particular implementation pathways, and illustrates the selection process using three hypothetical examples.

### Organizing Information for Asset Management

Finally, there is a need to organize the information that is collected during the implementation. Collecting data and building or buying a data management system is expensive. Therefore, it is essential to construct a model that guides the investment decisions about what data to collect, and how to analyze and report them. A core set of information elements is described to assist asset managers to identify the current state of assets, monitor levels of service to meet customer expectations, identify high-risk critical assets, optimize investment strategies, and determine long-term funding needs.

This research presents information in a manner that can help all members of an organization start or improve their asset management program. Factors that led to success are presented from the perspective of those that have experience in the practice. The report can help improve asset management practices at utilities of different sizes and levels of implementation.

## CONTRACTOR

Duncan Rose  
GHD Consulting, Inc.

## TECHNICAL REVIEWERS

Greg Cawston  
Greg Kane  
Sydney Water Corporation

Wayne Green  
Green Management Ltd.

Kevin Hadden  
Orange County Sanitation District

Kendall Jacob, P.E.  
Cobb County Water System

Steve Krai  
Los Angeles County Sanitation District

Tim Madhanagopal  
Orange County Utilities Department

Terry Martin  
Seattle Public Utilities

Ted Regan  
Massachusetts Water Resources  
Authority (MWRA)

Manju Sharma  
Metropolitan Water Reclamation District  
of Greater Chicago (MWRDGC)

The research on which this report is based was funded in part by the U.S. Environmental Protection Agency (U.S. EPA) through Cooperative Agreement No. CR-831559-01 with the Water Environment Research Foundation (WERF). Unless an U.S. EPA logo appears on the cover, this report is a publication of WERF, not U.S. EPA. Funds awarded under the agreement cited above were not used for editorial services, reproduction, printing, or distribution.