

# PORTLAND WATER BUREAU:

## Further advances in asset management would benefit ratepayers

### AUDIT SUMMARY

From City Auditor LaVonne Griffin-Valade

June 2012

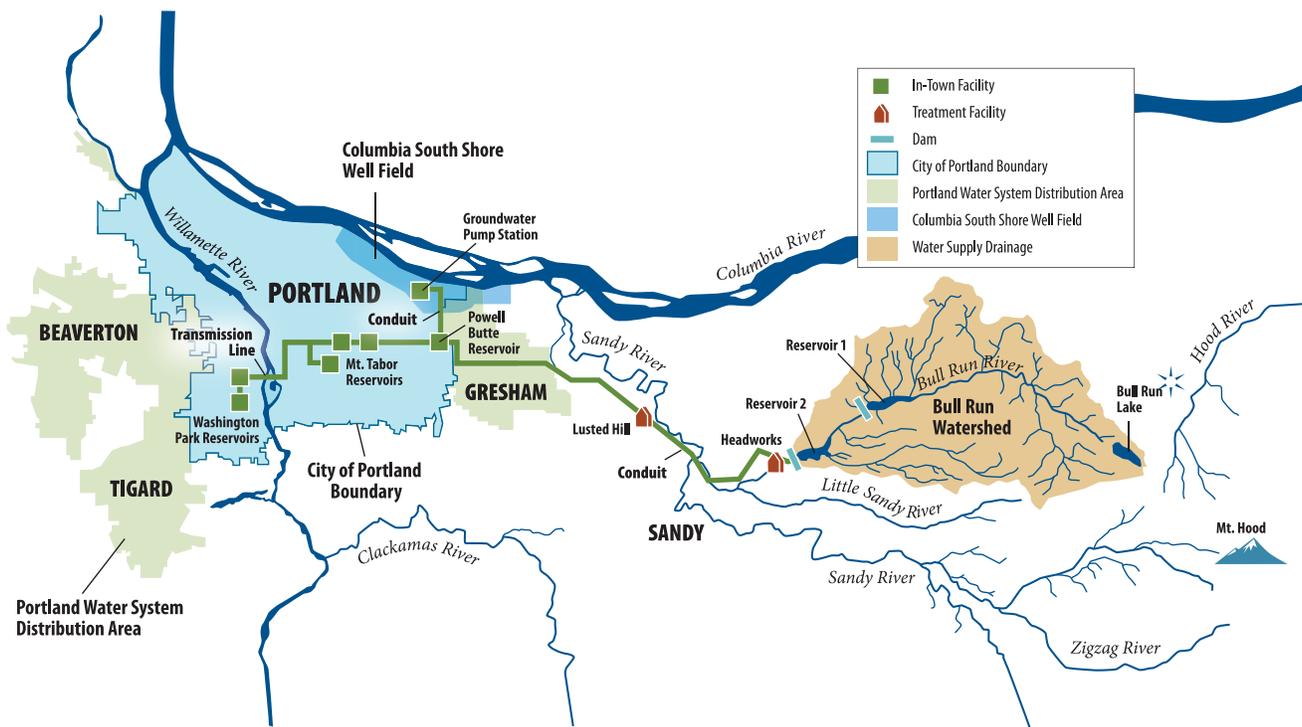
Water users depend on Portland Water Bureau assets - pipelines, pump stations, tanks, and other equipment that supply homes and businesses with clean water. These physical assets are valued at \$7 billion. The Bureau supplies an average of 100 million gallons of water per day.

Asset failures, such as pipe breaks, could result in health emergencies and significant repair costs. But with good management, the Bureau can minimize its overall costs while providing the water service customers expect. We undertook this audit to review the way the Bureau manages the City's water assets.

Benefits to ratepayers that result from applying asset management principles include:

- Reducing overall costs through efficient operations and maintenance that prolongs asset life.
- Using service levels that regulators require and customers agree on, drives management decisions and helps prevent unnecessary spending.
- Using a sound basis for setting rates. Rates should be tied to and limited to providing agreed-upon services through cost-effective asset management that maintains required services at an acceptable risk.

### Portland's Water System



Source: Portland Water Bureau, 2011

Best practices for asset management, while not yet widely adopted in the U.S., involve systematically basing choices on an understanding of asset performance, risks and costs in the long term. Best practices include:

- Having knowledge about assets and costs,
- Maintaining desired levels of service confirmed by customers,
- Taking a lifecycle approach to asset management planning, and
- Implementing the planned solutions to provide reliable cost-effective service.

The Bureau, City Council, and the utility industry agree that the internationally accepted process for asset management provides the best way to deliver the service levels customers want at the minimum overall cost.

City policy requires bureaus to maintain assets in good working order to minimize future costs of maintaining and replacing them, especially to avoid costly deferred maintenance.

### Bureau milestones in asset management

2004	Formed Asset Management work unit
	Audit report on distribution system maintenance, conducted by Audit Services Division
2005	Formed Asset Management Steering Committee
	First "business case" analysis
	Self-assessment for benchmarking
2006	Improved asset information in the <i>Water System Status and Condition Report</i>
	International benchmarking
	First Asset Management Plan, for mains
2007	Signed <i>Asset Management Charter</i>
	Began reviews of work order data in the maintenance information system
	Developed and applied risk methodology
2008	Key service level indicators included in Strategic Plan
2009	Published the <i>Business Case Development Guidebook</i>
2010	<i>Guidelines for How to Develop an Asset Management Plan</i>
	Five-year work plan for Asset Management Plans

Source: Portland Water Bureau

## Audit Results

### Progress made in asset management

In its 2007 Asset Management Charter, the Bureau set a high standard for its asset management work. It has made progress and is considered a leader among U.S. water utilities. Bureau managers are involved in making improvements. The Bureau began using maintenance task management and cost forecasting software tools, defined its levels of service, and drafted asset management plans for some asset groups. As it works on many more plans, its asset management practice is improving cooperation among Bureau divisions.

### Data management progress has not kept pace with asset management needs

At its core, asset management is about making decisions based on data and other evidence. We found that the Bureau has developed an overarching data management strategy, but has not yet implemented key tasks to meet general Bureau needs nor to meet specialized asset management needs.

For many years the Bureau has known about its data limitations. These limitations impact the data quality used for decision-making, and the efficiency of its business processes. Improving data management depends on leadership, dedicated technical resources and assigning responsibility for making data management improvements.

### Use of service levels limited

One example of a service level is “limit outages to no more than three events per year per customer.” We found that although the Bureau has defined its service levels, it is not using essential service levels systematically in budgeting.

The Bureau has not gotten agreement from representative customers that the identified service levels are appropriate for decision making. In addition, many of its 27 defined service levels do not clearly express which service is delivered, and some are not clear about what is actually measured.

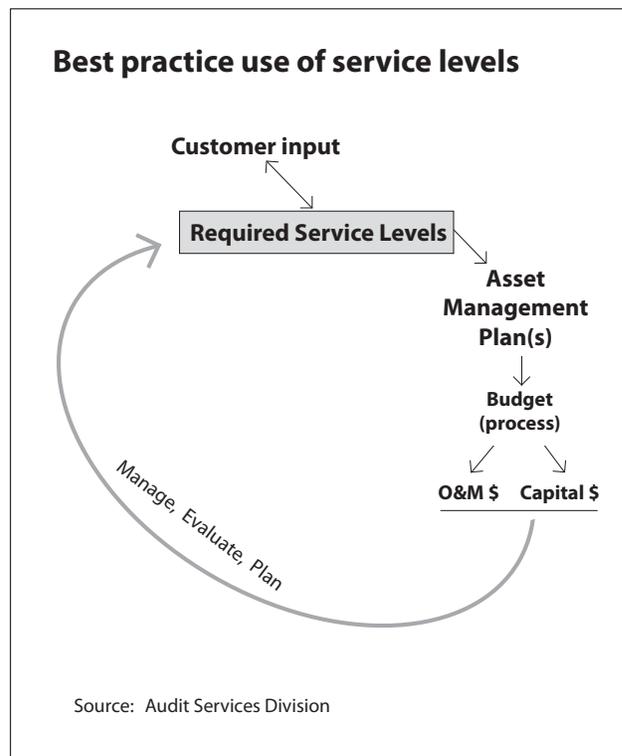
### Without useful plans, decisions may not be the most cost-effective

Instead of an overall written plan for managing assets, the Bureau is developing separate Asset Management Plans (AMPs) for about 20 of its major groups of similar assets, like valves and fire hydrants. It completed drafts for less than a third of those plans.

Meanwhile, the Bureau continues to rely on systems and practices that lead to reactive maintenance, although Bureau managers told us that more proactive maintenance is needed to reduce long term costs.

Without plans, decisions are typically made on a case-by-case basis by individual managers, and the Bureau may not perform asset maintenance, repair and replacement at the best times to save costs.

We also found that even when the Bureau had plans for asset groups, the extent of implementing the plans was unclear. Plans were partly implemented, but lacked elements needed for accountability.



### Status of Asset Management Plans (AMP) as of December 2011

Asset group	Started	Completed	In use
distribution mains	yes	yes (2008, in revision)	partly
large valves	yes	yes (2008)	partly
fire hydrants	yes	yes (2010)	partly
large meters (commercial)	yes	yes (2007, in revision)	partly
pump stations	yes	yes (2008, in revision)	partly
tanks	yes	yes (2007, in revision)	partly
Bull Run road system	yes	no (revision sched for 2011)	-
services (from main to meter)	yes	no (revision sched for 2011)	-
wholesale meters & vaults	yes	no (revision sched for 2011)	-
distribution - transport mains	yes	no (revision sched for 2012)	-
conduits (pipes from supply)	yes	no (revision sched for 2012)	-
fountains	yes	no (revision sched for 2012)	-
groundwater supply system	yes	no (revision sched for 2012)	-
line valves	yes	no (revision sched for 2012)	-
system meters	yes	no (revision sched for 2012)	-
transmission mains	yes	no (revision sched for 2012)	-
facilities, buildings	no	-	-
Bull Run supply	no	-	-
Sandy River Station	no	-	-
terminal storage (reservoirs)	no	-	-
regulator stations	no	-	-

Source: Portland Water Bureau planning documents

# Recommendations

We recommend that Commissioner in Charge direct the Portland Water Bureau to:

- Deploy resources, formalize leadership and develop accountability structures to implement a data management approach that meets the Bureau's asset management needs.
- Identify and clarify the essential required service levels, obtain confirmation from representative customers so that required service levels can be more useful in decisions about resource allocation, and apply service levels as budget criteria.
- Document management decisions and directions for action in Asset Management Plans to increase accountability and the likelihood of implementing the plans to benefit customers. Consider an overall asset management plan or other means of clarifying management policy and providing guidance for decision making.
- Incorporate an accountability framework throughout the Bureau to increase the likelihood of successfully meeting its objectives.

# How we conducted this audit

This report is a summary of a larger technical report that is available by contacting the City Auditor's Office or on our website: [www.portlandoregon.gov/auditor/auditservices](http://www.portlandoregon.gov/auditor/auditservices).

The Objectives, Scope and Methodology section of the technical report describes why and how we conducted the audit. We conducted this performance audit in accordance with generally accepted government auditing standards.

We appreciate the assistance and cooperation we received from the Water Bureau and the Commissioner in Charge throughout the audit.

# Response to the audit

The Commissioner's Office and the Administrator of the Portland Water Bureau responded jointly to the audit. Their response, contained in the technical report, states that they "**...generally concur with the analysis and recommendations of the audit.**" The response also notes the Bureau's recognition as a leader in public utility asset management.

The comments and observations presented in the response correspond to each of the nine audit recommendations and detail areas of disagreement, as well as agreement, with those recommendations. The response also contains an attached table of "Resources Currently Committed to Asset Management Plan Development."



Audit Summary

**Portland Water Bureau:**

Further advances in asset management would benefit ratepayers (#405, issued June 2012)

for the complete report, go to:

[www.portlandoregon.gov/auditor/index.cfm?c=53777&a=399785](http://www.portlandoregon.gov/auditor/index.cfm?c=53777&a=399785)