

Public accountability. Municipal utilities may have a greater need for accountability. The 1996 edition of “Municipal Purchasing,” published by the Colorado Municipal League states:

Purchasing is a term used to denote the process of procuring materials, supplies, equipment, and services. In a narrow sense, the word “purchasing” simply describes the act of exchanging money or its equivalent for goods. In a broader sense, however, the term “purchasing” implies a systematic approach to the process of buying required goods and services in proper quantities and qualities, from the right sources at the right times, and at fair prices. The primary difference between private and public purchasing is that dollars expended by government are generally acquired through taxation. Initially this distinction may seem to have little import; in actuality it sets the climate for public procurement. The use of tax dollars propels most government buying into the public and sometimes political arena. Coupled with the moral obligation to maximize the use of citizens’ tax dollars, governmental purchasing must take place within a prescribed framework of law designed to protect the public interest. While their non-governmental counterparts may choose whether to reveal prices paid, or the reasons behind the selection of a particular vendor, governmental entities usually have no such choice. Government bids, purchase orders or contracts, and other purchasing documents are public records.

The Government Finance Officers Association for the United States and Canada has expressed concern about outdated procurement policies and practices that require excessive time and resources and exclude viable lower-cost alternatives. To address this, the association’s capital planning committee is now considering a new best practice policy (Mucha, 2011).

Elected officials and members of the public no longer accept old habits of nonaction as utility costs increase and are transferred to the next generation. The “new public” is more informed and expects the use of technology, better management of all assets, and new alternative and sustainable approaches to find the best cost solution. The new public is now the “next generation,” and accountability is knocking at the doors of all decision-makers.

CONSIDERING IT

The driving force of change in the water and wastewater industries includes the downturn in the economy and a new awareness of conservation and sustainability practices. Climate change has also gained a great deal of attention with regard to long-term planning efforts with very high cost estimates (AMWA, CH2M HILL, & NACWA, 2009), but utilities are asked to make changes today to lower costs and increase efficiencies. Constricted budgets, dwindling reserves, and financial capacity are at the core of what is driving utilities to

begin exploring alternatives to both their current operations and capital planning efforts. The wave of utilities searching out assets’ locations and condition while developing geographic-information-system- (GIS-) centric asset inventories is evidence of the adoption of public asset management practices to achieve greater operational control and cost-effectiveness. This historical infrastructure review is the first step toward developing a prioritized capital plan (Baird, 2010). However, utilities may find the new prioritized capital plan’s renewal and replacement costs overwhelming and shocking.

Project delivery. As a result, new alternative project delivery methods and material selections should also be considered and analyzed to further reduce the capital costs of a project. The new lower project costs can roll into a revised capital improvement plan to help reduce future debt and rate requirements. Mike Cadei, expert integrated design–build contractor and vice-president of a large California construction firm, reports that many utilities are considering alternative project delivery methods like design–build just to achieve overall project cost savings between 6 and 8% (Cadei, 2011). Many utilities doing water and sewer line renewal and replacement projects see the benefits of applying a design–build method over traditional design–bid–build practices to achieve overall lower costs, the ability to fast-track a project, a single point of accountability, greater focus on overall quality, a reduction in litigation claims, early determination of true costs leading to improved budget control, and public confidence (Water RF & USEPA, 2009). The integrated design–build approach combines both the general contractor and the design engineer into a single point of contact. This structure targets at least a 6% project savings over traditional bids, has an average 30–33% shorter project duration, and has a 60% reduction in claims litigation (WVC, 2011). Water main or sewer line repair and replacement projects are a perfect fit for integrated design–build projects (Thomas, 2011). A method similar to that documented in California includes job order contracting (JOC), which is a way for organizations to get numerous commonly encountered construction projects done quickly and easily through multiyear contracts. JOC reduces the unnecessary levels of engineering, design, and contract procurement time along with procurement costs by awarding long-term contracts for a rehabilitation, repair, and replacement project. JOC contractors are selected based on qualifications and performance at best value, low price, or low bid, depending on local, state, or federal statutes. The San Jose Water Company (SJWC) in California is an example of a water utility effectively applying design–build to both expedite main replacements and reduce costs (Baird, 2011). As with any project management or project delivery method, the certification and experience of the firm are critical selection components to achieve the goals of the project.

Materials selection. Materials selection is another hot topic for reducing the overall renewal and replacement costs of transmission and distribution lines. Even elected officials are promoting new technologies and materials to their voting public as evidence of innovative thinking and lower costs. One example of this is Jennifer Hosterman, mayor of the city of Pleasanton, Calif., and co-chair of the US Mayors Water Council, who embraced a nontraditional approach to pipe material selection, explaining that polyvinyl chloride (PVC) pipe is about 70% cheaper to use than ductile iron and that its installation is less labor-intensive (US Mayor, 2011).

City councils and water boards across the United States are learning that corrosion is not reversible and that nonmetallic pipe materials are the best suited for poorly drained soils of low resistivity and high-corrosion soil conditions with excessive stray currents. Private studies also report that alternative pipe materials such as PVC have an average overall project cost reduction—including bedding and installation—of nearly 35% (JM Eagle, 2011). Further, the old concerns of not being able to find nonmetallic pipes underground has been alleviated through new water distribution management technologies and best practices such as valve point control management (Wilson, 2011) and GIS/global positioning systems pipe inspection and mapping ser-

vices through fire hydrants and valves (Wachs, 2011). Pipe location mapping enables utilities to know exactly where pipes are located—regardless of pipe material—in the event of a nearby excavation or disaster event in which aboveground markers are missing.

During AWWA's Annual Conference & Exposition this year in Washington, D.C., visiting members of the Japan Water Works Association studied various pipe renewal and replacement alternatives while visiting the exhibit hall. They were especially interested in these new alternatives because in Japan utilities replace their ductile-iron pipes every 40 years (at a very high cost) to avoid tuberculation and excessive leak concerns (Yamada, 2011).

Outdated procurement policies. Elected officials support open procurement practices and transparency within their organizations, as noted by Harney (1998).

Too often, local government purchasing ordinances or regulations become outdated, no longer reflecting current procurement environment and trends. Procurement regulations should be reviewed and updated every year or two to reflect current trends or changes to laws. If the state government or a neighboring local government amends its laws governing purchasing, one should review the changes and use them as a model and justification to upgrade the local regulations. The next time the legal department says



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that a procedure is not authorized under local law but is authorized under state law, ask how one can be amended to track the state law. Many are surprised at the support one receives from the elected officials when trying to modernize archaic procurement laws.

At a policy level, most officials already believe this is occurring; however, the difficulty may actually be the willingness and ability of staff to change the procurement process to evaluate alternative options and their respective financial effects. The next stage deals with a shift from policy to management called “change management.”

PREPARING FOR ACTION

There are some simple principles for managing effective organizational change. Change management—whether for asset management, predictive maintenance, enhanced inspection requirements, new polices, or new procurement practices—entails thoughtful planning and sensitive implementation, and above all, consultation with and involvement of the people affected by the changes. Forced change creates problems. Change must be realistic, achievable, and measurable. Change needs to be understood and managed in a way that people can effectively cope with it. Because change can be unsettling, the manager needs to be a settling influence. When change is implemented, the manager needs to ensure that the people affected by the change agree with, or at least understand, the need for the change; that they have a chance to decide how the change will be managed; and that they have the opportunity to be involved in planning and implementing the change. The responsibility for managing change is with management and executives of the organizations. Participation, involvement, and open, early, full communication are the important factors (Chapman, 2010). To effectively change formal procurement policies or other formal purchasing processes that include “best value”-based selection or fix-priced contracts, adequate specifications and documentation must be provided. These materials should be developed by staff or an owner’s agent and also “approved as to form” by the legal department. Many examples of adopted open procurement policies and specifications documents and educational materials on the process are readily available from various associations and subject matter expert websites.

TAKING ACTION

The manager’s review of a proposed award of a contract is usually the last step before the process is opened to public scrutiny. When approving an award or presenting a decision to award to elected officials, the manager relies on a report countersigned by the head of the department using the goods or services. This report should summarize the key elements of the solicitation and contain informa-

tion that both describes the bid process and anticipates questions that may be raised by the manager, elected officials, or even the media. Sample entries could include

- the background of the purchase and how it supports a specific municipal program or programs;
- unusual circumstances of the purchase (e.g., sole source or intentionally restrictive specifications), an explanation and justification of the actions taken to address them, and any indication that adverse comments or protests of the award recommendation can be expected;
- the total number of bidders notified, the names and locations of bidders responding, and the prices that were bid by each;
- the reason for rejecting any bidder and an explanation of the reason;
- the funding source (e.g., bond funds, general funds, capital improvement plans);
- budget comparisons including the original estimate and reasons why the purchase came in over or under budget; and
- identification of staff members preparing the report. (Harney, 1998).

ACHIEVING SUCCESS

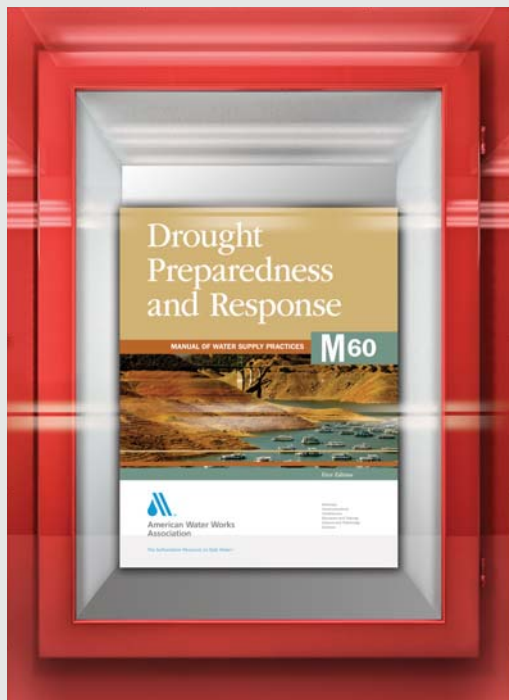
The global economic downturn has also created a surge in individual nations updating procurement policies, laws, and practices in order to achieve an increase in transparency, greater efficiencies, and cost savings (European Bank, 2010). A new report published in July 2011 by the American Society of Civil Engineers claims that “the design-build project delivery method was found to provide cost savings of up to 43% and reduce project schedules as much as 33% when compared with the conventional design-bid-build approach for water and wastewater treatment projects” (Culp, 2011). An at-risk design-build company can make reliable cost comparisons for all pipe options in early project stages because of the experience it has regarding how to install each of these pipe systems with different materials. As a result, a designer-builder can stand by its budgetary cost estimates whereas a consulting engineer can only provide “opinions of probable costs” and is not at risk in a “bid-build” situation. Each pipe material has unique qualities that can prove advantageous, depending on many engineering and construction factors. PVC has the edge for trenchless installations (horizontal directional drilling, pipe bursting, sliplining) and for highly corrosive environments (Cadei, 2011).

Combining the best practices of alternative project delivery and materials selections in an open procurement process offers utilities an increased amount of potential cost savings. Innovation and continued change dictate that the best low-cost solutions are evaluated and implemented. Updating procurement policies may not seem like a sexy cost savings approach, but in the current economic environment every dollar counts.

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REFERENCES

- AMWA (Association of Metropolitan Water Agencies), CH2M HILL, & NACWA (National Association of Clean Water Agencies), 2009. *Confronting Climate Change: An Early Analysis of Water and Wastewater Adaptation Cost*, CH2M HILL, Englewood, Colo.
- Baird, G.M., 2011. *Achieving Lower Costs Through Design-Build Contracts*. California-Nevada AWWA. http://ca-nv-awwa.org/iMISpublic/Spring2011/13/Session_13_FinancialMgmt_Baird_033011.pdf (accessed May 15, 2011).
- Baird, G.M., 2010. *A Game Plan for Aging Water Infrastructure*. *Jour. AWWA*, 102:4:74.
- Cadei, M., 2011. Personal communication.
- Chapman, A., 2010. *Change Management*. www.businessballs.com/change-management.htm (accessed June 22, 2011).
- Colorado Municipal League, 1996. *Municipal Purchasing*. Denver, Colo.
- Culp, G., 2011. *New Report Describes Time and Cost Savings from Design-Build Project Delivery*. www.prweb.com/releases/2011/6/prweb8563707.htm (accessed June 15, 2011).
- European Bank, 2010. *Public Procurement*. www.ebrd.com/pages/sector/legal/procurement.shtml. (accessed June 22, 2011).
- Harney, D., 1998. *Public Purchasing: A Checklist for the Local Government Manager*. ICMA, Washington.
- Hosterman, J., 2011. *Pleasanton's Underground Infrastructure: Sustainability, Cost-Efficiency Through Better Materials Procurement Practices*. U.S. Mayor, 78:5:16 (www.usmayors.org/usmayornewspaper/documents/03_28_11/032811USMayor.pdf) (accessed Apr. 15, 2011).
- JM Eagle.com, 2011. *PVC vs Ductile-Iron Pipe Cost Comparison*. www.jmeagle.com/contact2011/PVC%20vs%20Ductile%20Iron%20Pipe%20Installed%20Cost%20Comparison%20Calculator.xls. (accessed June 23, 2011).
- Mucha, M., 2011. Personal communication.
- Thomas, R., 2011. Personal communication.
- Wachs Water Services, 2011. *Field Data Capture*. www.wachsws.com/services/information-management/field-data-capture (accessed June 20, 2011).
- Water Research Foundation & USEPA, 2009. *Improving Water Utility Capital Efficiency*. Water RF, Denver.
- Wilson, C., 2011. *Sustainable Distribution System Asset Management: Risk Mitigation Through Control Point Management*. *Jour. AWWA*, 103:5:100.
- WVC (West Valley Construction), 2011. *Integrated Design Build*. www.wvcc.com/design_build.htm (accessed Mar. 1, 2011).
- Yamada, M., 2011. Personal communication.



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