

## **CONTRACTING WATER AND WASTEWATER UTILITY OPERATIONS**

by  
Roger Hartman, Ph.D., P.E.

### **EXECUTIVE SUMMARY**

**Mounting regulatory pressure, scarcity of competent personnel, and significant budgetary problems are leading more and more communities to consider private-sector contract operations and maintenance (O&M) of water and wastewater facilities. At present, there are about 400 O&M contracts in the United States for municipal water and wastewater facilities with rated capacities over 1 million gallons per day. This represents about 5 percent of all facilities.**

**When properly implemented, contract O&M can provide greater accountability for operations, allow community leaders to shift the risk of meeting environmental standards to the private sector, and bring added expertise to the increasingly complex operating environment of water and wastewater systems. Contract O&M also offers a more predictable operations budgeting process, and an opportunity for local governments to realize operational savings that can be shifted to investments in capital facilities.**

**While cost savings is often cited as the primary reason municipal officials consider contract O&M, price alone should not determine contractor selection. In addition to a guaranteed price, the contractor is providing professional management, technical expertise, and financial controls for water and wastewater operations. Hence, a contractor with a record of successful operations is the key to achieving maximum benefit from private contract O&M.**

**Equally necessary is a relationship of mutual trust between the contractor and the municipality. An objective and unbiased procurement process is important in early development of this relationship. Since contract O&M is a professional service that provides management, financial, and human resources capabilities, a procurement process similar to that used in securing other professional services should be used. Professional operation, efficiency, and performance are the keys.**

**For many municipal officials contracting out raises concern over loss of daily operating control. The owner is placing millions of dollars of assets in the hands of a contractor for operation and maintenance, yet the owner will continue to be the permit holder and be ultimately responsible for overall performance. It is important for the owner and contractor to develop an agreement that affords the owner a level of accountability, as well as liability and fine protection, that can substitute for the owner's direct control. If this is accomplished, private operation of municipal water and wastewater facilities is a valuable option for community leaders.**

## **I. WATER AND WASTEWATER UTILITY OPERATIONS: WHY CONTRACT?**

Contract operations and maintenance services are performed by a private firm under an agreement with a municipality or district. The contractor takes full responsibility for specific utility functions, generally the complete operation and maintenance of water and wastewater treatment facilities. Operating under a fixed budget and guaranteeing plant performance and product quality, the contractor is responsible for payment of all normal and routine costs associated with the operation of specific facilities. Major capital expenditures for expansion and upgrade of facilities, however, remain the responsibility of the municipality.

Ever-tightening environmental regulations and increasing capital costs for expansion and upgrade of facilities are presenting major challenges for local officials. The 1986 Safe Drinking Water Act (SDWA) amendments are a significant source of increasing costs for water supply systems. These amendments require establishment of specific limits on a wide range of drinking water contaminants, disinfection of public water supplies, and rules for the treatment of surface waters. Cost estimates for compliance with the 1986 amendments range as high as \$49 billion.<sup>1</sup> The subsequent impact of these added costs on water service rates generally vary with system size. Small systems, lacking economies-of-scale, tend to be hardest hit by new regulations. The EPA estimates that systems serving populations less than 10,000 will require annual rate increases of over 35 percent. This compares with an estimated 25 percent annual rate increase for systems serving more than 250,000 people.<sup>2</sup>

The Clean Water Act (CWA) is of particular interest to the wastewater services community. Under its predecessor, the Federal Water Pollution Control Act of 1972, provisions were made for federal matching grants of up to 75 percent of capital construction costs. Between 1973 and 1988, over \$50 billion were granted to municipalities and districts for construction of wastewater treatment facilities. The Construction Grants Program was never intended to be permanent, however, and in 1987 the EPA began to phase-out the program, replacing it with state revolving loan programs. Unless modified by an economic stimulus package, all federal assistance to local governments for wastewater treatment facility construction will end by 1994.<sup>3</sup> Therefore, in the future, local government will be responsible for the full cost of wastewater treatment capital improvement.

In addition to the costs of upgrading to meet ever-tightening regulation, communities also will be faced with renewal and replacement of capital facilities that have reached the end of their design lives, or that have been used more heavily or have deteriorated more rapidly than anticipated.<sup>4</sup> Local expenditures for operation and maintenance of wastewater facilities increased by 50 percent from 1980 to 1987. Many smaller communities anticipate an additional 100 percent increase in household user charges in order to comply with likely future requirements.<sup>5</sup> A 1992 survey by the Association of Metropolitan Sewerage Agencies projects that household user fees will double over the 10-year period ending in 2000 and could increase tenfold by 2010.<sup>6</sup> The full cost of capital improvements, renewal and

replacement programs, upgrades in response to stricter regulation, and application of new technology, will increase costs to the ratepayer.

Many municipalities have invested heavily in advanced water and wastewater treatment facilities. Despite the application of sometimes complex technology, most modern water and wastewater treatment facilities can and will perform to design capabilities provided they are staffed by experienced operations and management personnel. But, competent staff who have successfully operated less complex facilities may fail when faced with upgraded or more complex equipment and processes.<sup>9</sup> Inadequate training, often a result of insufficient operating funds, can lead to improper operation and poorly administered maintenance programs. Contract O&M provides an opportunity to bring added operational expertise to the increasingly complex operating environment of water and wastewater systems. It also can provide greater accountability for operations, and can allow community leaders to shift the risk of meeting environmental standards to the private sector. Further, contract O&M offers a more predictable operations budgeting process, and an opportunity for local governments to realize operational savings that could be shifted to investments in capital facilities.

## II. SERVICE DELIVERY OPTIONS

A spectrum of public-private arrangements can be developed for delivery of water and wastewater services. When characterized as arrangements varying from the highest to lowest degree of private-sector involvement, four arrangements can be delineated. In a **merchant facility**, not only does the private sector own and operate the water or wastewater facility, it also makes the decision to provide the environmental service to the community at large. It is in effect a franchise that involves water or wastewater services. If the private sector owns, builds, and operates the environmental facility, it can be termed **privatization**. The distinguishing difference is that, in the latter case, the municipality is charged with providing the environmental service and chooses to do so through private means. For a **turnkey** facility, the private sector designs, constructs, and operates facilities owned by the public sector. The public sector assumes the financing risk while the private sector assumes risk for performance and compliance with regulatory requirements.

Under a **contract services** arrangement, the facility is owned by the municipality. The private sector is contracted to maintain and operate some or all of the system components including treatment plants, collection and/or distribution system, laboratory services, billing and collection. While the profit motive provides the contractor with an incentive to reduce costs within the constraints of the contract, the contract for O&M services can include other incentives to perform in the most efficient manner. Contractor penalties or termination of the contract for unsatisfactory performance, for example, act to induce proper contractor behavior.

### **III. THE CONTRACT O&M INDUSTRY**

More and more communities are exploring contract operation of their water and wastewater facilities. There are about 400 contracts in place nationwide. This represents less than 5 percent of the municipal water and wastewater facilities in the United States with rated capacities greater than 1 million gallons per day. The majority of these O&M contracts, 85 to 90 percent, are for wastewater treatment facilities. This breakdown is likely the result of the elimination of the federal construction grants program, the major funding source for wastewater treatment facilities, and the view of many communities that close control of their potable water systems is an issue of public trust and necessity. However, the realities of utility-system economics, needed capital investment to upgrade treatment, and tighter standards stemming from the SDWA are causing community leaders to reassess that traditional position of water-system control.

The water and wastewater contract O&M market is highly competitive. A number of firms are operating subsidiaries or business units of engineering firms who traditionally provide design services to the municipal water and wastewater industry. Others are stand-alone companies whose sole business is contract services. There are five leading national firms, plus over a dozen companies operating on a regional basis. The balance of the water and wastewater contract operations market is handled by up to 50 smaller, more localized firms.<sup>7</sup>

The five leading national firms are:

- Professional Services Group (PSG)
- Wheelabrator EOS
- Metcalf & Eddy Services (M&E)
- Operations Management International (OMI,  
an operating subsidiary of CH2M  
HILL)
- JMM Operational Services Incorporated  
(JMM-OSI, an operating subsidiary of  
Montgomery-Watson Engineering  
Consultants)

A few of the leading regional firms include:

- McCullough
- WW Operations
- OBG Services
- Environmental Management Corporation  
(EMC)
- CFM Environmental

### **IV. BENEFITS AND BARRIERS OF CONTRACT OPERATIONS**

Communities considering contract operation often cite cost savings as the prime motivation. Other problems and circumstances, such as, a shortage of trained personnel, startup of a new facility, ongoing

regulatory violations, personnel problems, or volatile operating costs, also can motivate municipalities to examine the contract O&M option.<sup>8</sup>

Cost savings may be accomplished in a variety of ways. Chief among these are reduced staffing levels, backup expertise, energy efficiency, training maintenance programming process control, and capital improvements. While there are numerous documented cases of cost savings as high as 30 percent, there also are cases where operating costs increased under the private contractor. Savings are a function of a variety of factors, including the nature of the facility and its specific problems. Often, the contractor must shift savings into other deficient areas to improve overall performance. The primary goal of the contractor is *improved, consistent operating performance* thereby giving the owner the greatest value for the money spent. In many cases, however, meaningful cost savings are also achieved.<sup>9</sup>

Cost control by the contractor also tends to stabilize operating budgets by guaranteeing operating costs. This can assist in minimizing overall cost increases and, hence, user charges. In addition, the contractor often improves the quality of operation through enhanced process control, maintenance management systems, staff training, and technical expertise frequently unavailable to publicly operated facilities. Finally, by shifting programs and staff to a private contractor, the municipality can recognize reduced administrative burden. This releases resources for other priorities and allows public managers to plan for the future rather than have to focus on day-to-day utility operations.

Pressing capital needs and associated utility rate increases often provide the impetus for consideration of contract services. Clearly, O&M cost savings can be reapplied to capital needs; but, carefully crafted contract O&M can produce other sources of capital. A contract in Glencove (N.Y.) allowed that city to defer half of its annual contract payments (\$1.5 million) for wastewater treatment for the first three years. The city also deferred operating costs for its trash incinerators, which were part of the contract as well, for one year. These contract provisions provided immediate capital for the community. Further, the contractor agreed to finance and implement more than \$12 million in other utility-related capital improvements. In return, the contractor received a 20-year operating contract.

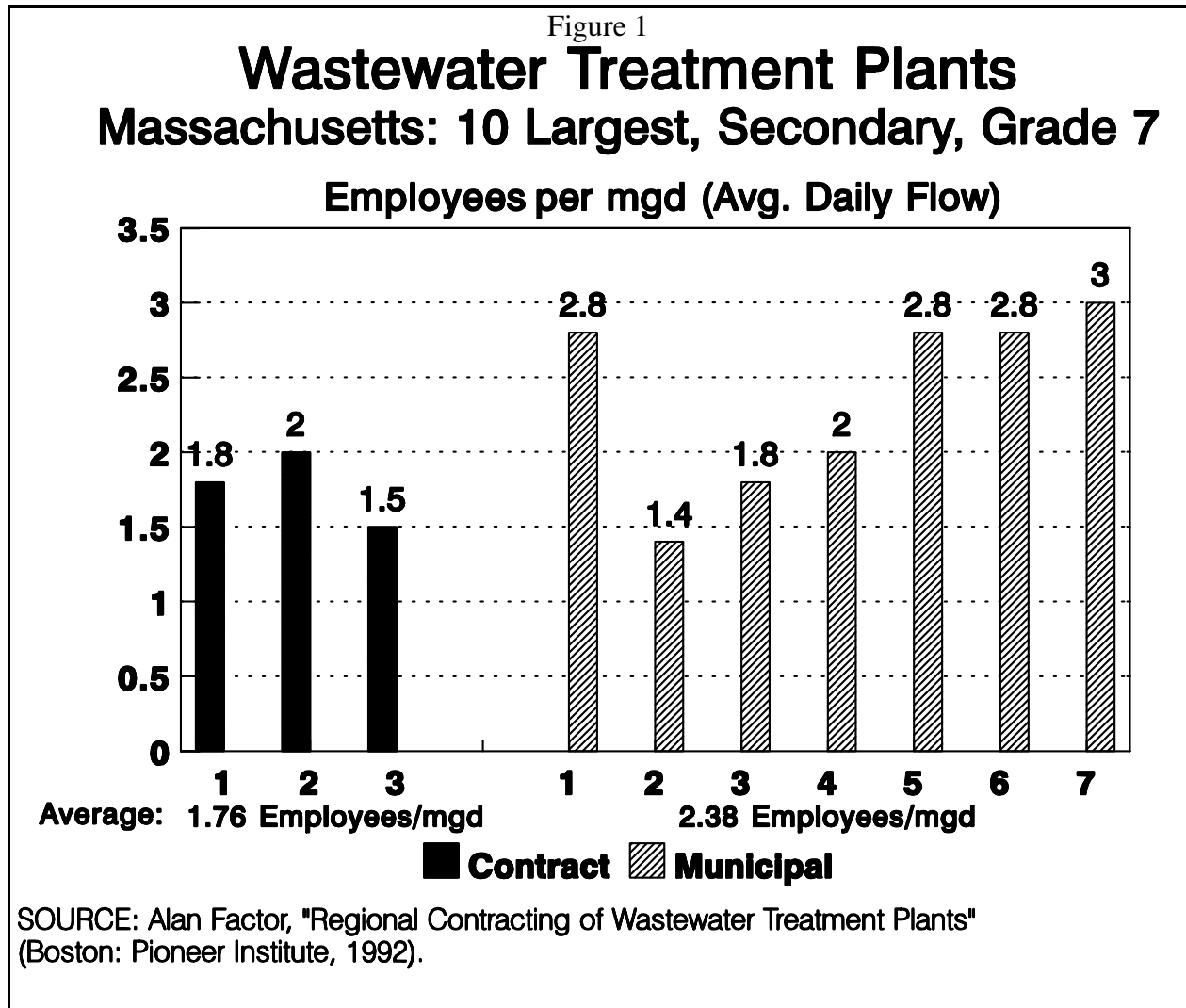
Similarly, Farmington (N. Mex.) secured more than \$300,000 in refurbishments to one of its water treatment facilities, and an additional \$315,000 in cash through sale of utility department vehicles and rolling equipment to the O&M contractor. Further, changes and adjustments in system operations allowed deferral of other planned capital improvements. The net result was stabilization of water rates and a net 20 percent reduction in wastewater rates. In both examples, the contractor was able to offer tangible immediate relief to capital shortage problems.

Barriers to contract operations of municipal water and wastewater facilities can take several forms. More often than not, opposition by public employee bargaining groups is cited as a major obstacle. More than 80 percent of the respondents to a recent survey by the Reason Foundation indicated that public employee opposition was a major concern. The same survey cited opposition by elected officials as the second most-significant hurdle to contracting of services.<sup>10</sup>

Utility management and employee-bargaining groups have generally opposed contracting programs even when present employees were protected or significant cost savings identified. While these groups often sway political opinion against contracting, opposition tends to decline in response to other pressures such as the potential for significant rate increases, or when the public becomes aware of deficient management of water and wastewater operations.

Public employee groups often raise issues about the elimination of well-paying public jobs, contractor accountability, and fraud in awarding contracts. These are issues that can be overcome in the contracting process or in development of the contract itself. Most communities that opt for contract O&M require that public employees be the first employees hired by the new contractor, and the contractor may be required to maintain or increase salary levels for employees who move from the public to private sector. Generally, contract O&M firms recognize the value of the hands-on knowledge that current employees possess. Offering employment to qualified, knowledgeable, and motivated employees is in the economic interest of the contractor.

Contractors generally do not achieve cost savings by cutting back on employee wages, but rather through reduced administrative and overhead costs, and through making better application of personnel, technology and equipment. As shown in Figure 1, recent review of the 10 largest secondary wastewater treatment facilities in Massachusetts indicated that staffing for three private-sector-operated plants was approximately 25 percent lower than that of 7 comparable municipal operations.<sup>11</sup> Even when staff reductions do occur, they generally happen over an extended period of time and result from attrition in the workforce.<sup>12</sup>



## V. REQUESTING QUALIFICATIONS AND PROPOSALS

While cost savings may be the principal reason municipal officials consider contract O&M, price alone should not be the sole determinant in selecting a contractor. In addition to a guaranteed price, the contractor is providing professional management, technical expertise, and financial controls for water and wastewater operations. A contractor with a proven track record of successful operations is the key to achieving maximum benefit from private contract O&M.<sup>13</sup> Therefore, the selection process for professional O&M services should be similar to that used to procure other professional services such as engineering, financial or legal consultation. The “best” contractor is the one that meets the specific operating needs of the community. Because of the range of technical and management skills required

for success, and the possibility of access to needed capital, the “low” bidder may not be the most-responsible contractor to deliver O&M services.

A qualified contractor should have a proven successful record of operations similar to those that are being contemplated by the municipality. This means that the contractor should have operated facilities that are similar in size, technical and process complexity, and operating budget size. The contractor also should have demonstrated financial stability, ability to post a performance bond, technical and management experience, and, especially in today's work place environment, on-staff human resources and access to human and labor relations capabilities. The ability to offer creative financial arrangements also can enhance the credentials of prospective contractors. By using a prequalified list of potential contractors with these types of credentials, the likelihood of successful contract operations should be substantially increased.

The *request for proposal* should contain sufficient information such that potential contractors can prepare comparable bids. The request should include:

- A description of the facilities for which the contractor will be responsible;
- The scope of services to be provided by the contractor;
- Services to be provided by the owner;
- Criteria for contractor selection;
- A provision for inspection of the facilities and access to certain operating and budget data and information (facility design data, process flow schematics, regulatory requirements and permits, current operations plan and performance reports, current maintenance program, current operating budget, current employee salary schedule, labor agreement (if applicable), description of significant maintenance and/or operational problems, and planned capital additions or improvements);
- A copy of the proposed (draft) contract; and
- A detailed cost proposal form to be completed and submitted by the contractor as part of the proposal.

Because of the nature of the relationship between the contractor and the municipality, it is important that the contractor and municipal staff have confidence in each other. An objective and unbiased procurement process provides the foundation for such a relationship.

In comparing proposed contractor pricing with the cost of continued public-employee operation, a valid and defensible assessment of the actual government cost is necessary. The fully allocated cost of



continued government delivery must include both direct and indirect costs. Direct costs include employee salaries and benefits, operational costs, supplies, maintenance contracts, annual capital costs for equipment, and insurance premiums. Indirect costs include allocated management and administrative support services, and allocated overhead of other executives and staff agencies. From these, costs that are truly avoidable through the contract option are determined. This is the cost to be avoided by contracting, and can be compared with the contractor price.

To the proposed contractor price, however, the annual costs of contract procurement and administration must be added. The procurement costs (for example, contract and proposal development, bid processing, severance pay and benefit buyouts) are amortized over the life of the proposed contract. Administrative costs, on the other hand, vary according to the size and complexity of the contract, and include personnel salaries, services and supplies, and equipment. It is these adjusted costs that should be used in making the decision to contract.<sup>14</sup>

## **VI. ELEMENTS OF THE O&M CONTRACT<sup>15</sup>**

Concern regarding loss of control of daily operations is a key issue. The owner is placing millions of dollars of assets in the hands of a contractor for operation and maintenance, yet the owner will continue to be the permit holder and be ultimately responsible for overall performance. Whether this loss of control is real or merely perceived is immaterial. What is important is whether the owner and contractor can craft an agreement that affords the owner a level of contractor accountability, as well as liability and fine protection, that can substitute for the owner's direct control.

The contract defines the standards of performance for the contractor. It may specify that the contractor must meet NPDES permit discharge or SDWA drinking water standards for wastewater and water-treatment operations, respectively. The contract may require that the contractor meet these standards while operating the facilities in a cost-effective and professional manner, or that only a specified amount of energy be used in operating the facilities. On the maintenance side, the contract may state that equipment shall be maintained in accordance with the manufacturers' recommended maintenance schedules, or that corrective maintenance work orders be completed within a specific time period depending on priority or criticality. The contract also can assist the owner in maintaining a necessary degree of control over the contractor. Within the contract, the owner can specify routine reporting requirements, financial reconciliation reports, performance summaries from the contractor's maintenance management system, an annual report to the council or board, and an annual audited financial statement.

Every major contract O&M company has a standard contract. These are the result of numerous negotiating sessions with clients, as well as requirements from insurance carriers, internal and external legal opinions, or terms that may be offered by contract O&M competitors. But, an examination of various standard contracts reveals that there are few significant differences in these contracts. The contract form and language, however, must reflect the owner's preference with regard to a variety of

issues including control, monitoring, reporting, liability, and employee transition. From this view, it may be preferable for the owner to draft the contract for consideration by the contractor. The owner may wish to incorporate some of the contractor's standard language if such language is acceptable.

### **A.Contract Term and Contract Renewal**

In the United States, O&M contracts typically are for five-year periods. There are some contracts with ten-year terms, but generally state or local procurement codes limit contracts to five years or less. Further, interpretation of the 1986 Tax Reform Act by some municipal bond counsels suggests that contracts should be limited to a three-year period if tax-exempt revenue bonds were used in constructing the facilities. Hence, term conditions can vary widely from location to location.

### **B.Definition of Facilities**

The Definition of Facilities to be operated provides a physical description of the facilities including location, major features and appurtenances, function, design parameters, and size.

### **C.Scope of Services**

The scope of services describes the services to be provided. Certainly, the facilities are to be operated and maintained, but the scope helps define *how* they are to be operated and maintained. For example:

- In a professional and cost-effective manner while meeting applicable regulations;
- Within design limitations;
- While guaranteeing effluent or product water quality. If influent quality is outside of the control of the contractor, the owner may be at risk, however;
- By establishing certain programs. Examples include a computer-supported maintenance-management system, a process control system, an effective safety program, a laboratory quality assurance and quality control (QA/QC) program, or a public-relations program;
- With certain staffing requirements. Specifying staffing can tend to tie the hands of the contract operator, but some regulatory agencies do in fact set minimum staffing requirements;
- While maintaining an appropriate inventory of spare parts, the appearance of the building and grounds; and
- Using local vendors and services when possible and appropriate.

The scope may also specify certain contractor reporting to the client. These might include monthly operating reports, quarterly maintenance account reconciliations, and an annual report and audit to the city council or board of directors. The scope also may include language regarding the submittal of an annual operating budget, capital acquisition requests and a maintenance plan by the contractor.

The scope can also spell out requirements for transition into the first year of the contract or at contract termination. There likely will be requirements for an equipment and facilities inventory including vehicles and spare parts, and a corresponding inventory of consumables (for example, small hand tools and chemicals). Ownership of certain inventory may also be passed from the owner to the contractor.

#### **D.Compensation**

Compensation can be addressed in a variety of ways. *Basic compensation* is the monthly or quarterly payment to the contractor for carrying out the scope of services. This basic payment can be based on a lump-sum bid, an incentive-related pricing structure or a cost-plus arrangement. Generally, there is language that allows adjustment to compensation for cost increases to the contractor (tied to various indices), and for significant changes in flows and loadings. The language should contemplate reductions in cost as well as increases. This section can also include language on changes in scope, maintenance expenditures and contractor incentives. Finally, the compensation section outlines requirements for the submittal of invoices by the contractor and subsequent payment by the owner.

#### **E.Employee Transition**

Employee transition language is common in first-time contracts. The section can cover issues such as job offers to existing employees, retirement arrangements, restrictions on transfers during some specified period, and initial wage-increase guarantees. These same issues sometimes are handled in a separate side agreement between the owner and contractor.

#### **F.Liability and Insurance**

Liability and insurance are important issues. The contract specifies the types and amounts of insurance coverages that the contractor must provide, and requiring the contractor to submit proof of coverage to the owner. In some instances, the contractor also may require the owner to carry certain insurance policies as well. Typically, the contractor is obliged to secure workers' compensation, property, and general liability insurance. Some communities have expressed interest in environmental impairment insurance, but when evaluated, it has generally been found to be relatively expensive and not readily available. A performance bond posted by the contractor may also be required, generally in the amount of one years' O&M price. While providing additional "comfort," insurance and performance bonds add to the overall costs to the project.

#### **G.Termination**

Termination outlines the conditions under which the contract may be terminated. Generally there is language for termination with cause, and for emergency take-over by the owner. The chief differences are the time frames for notice and the opportunity for remedy from termination with cause. In some cases, language to terminate the contract without cause by either party is negotiated by both parties.

## **H.Maintenance**

Communities often have tens of millions of dollars invested in their water and wastewater treatment facilities and systems. Proper corrective, preventive and predictive maintenance is the first line of defense in protecting that investment, and in assuring that facilities and equipment are available and in operating condition when required. Maintenance is an area where the owner also perceives significant potential for loss of control. By including proper monitoring and control features in the contract, and possibly by establishing some contractor incentives, a great deal of control can be exercised.

## **I.Normal Maintenance**

Normal maintenance includes all preventive, repair, and corrective procedures for an equipment unit up to an agreed-upon amount, for example \$2,000. By definition, anything in excess of this amount is termed *major maintenance*. The owner pays for maintenance procedures that are in excess of normal, for example, major maintenance and capital replacements. Assigning this responsibility to the owner, and the concept of a “deductible,” are reasonable and necessary accommodations since the contractor has no intimate knowledge as to past maintenance practices performed by the owner or others. Because maintenance expense in excess of the “deductible” is often paid by the owner, the owner may want to budget some funds for such occasions.

The contract also can specify an upper-limit budget, or *maintenance ceiling* for repair and corrective maintenance. The owner should require the submittal of an annual repair/replacement plan with quarterly (monthly in the final quarter) updates of the plan. The owner should also request quarterly and annual reconciliations of the maintenance-ceiling account as part of routine accounting from the contractor. Taken together, these routine reports should allow the owner to monitor the contractor's maintenance function.

Under most O&M contracts, major maintenance (or abnormal repair) is a risk for the owner. Conversely, the contract should also state that any unexpended maintenance funds are returned 100 percent to the owner. This is to discourage any tendency an unscrupulous contractor may have to reduce maintenance in an effort to gain additional profit. The owner should also be on the lookout for contractor-caused repairs and/or replacements or ones covered under any equipment warranty. Always ask for copies of analyses, tests, or diagnostic information.

A third category of maintenance expenditure, **capital replacement**, is also generally the responsibility of the owner. These are planned replacements of an entire equipment unit based on a repair/replace evaluation, or cost-effectiveness analysis. The owner needs to be aware of these potential added expenses and include them in the annual budget process. The planned list should be presented as part of an annual budget plan submitted by the contractor to the owner. Consequently, the contractor must be aware of the owner's budget process so that adequate time is available for evaluation and capital-replacement plan development.

## **J.Incentives**

Following labor expenses, **energy costs** may be the second largest cost category, sometimes representing as much as 25 percent of O&M expenditures. Utility expenses also present an area that can generate substantial savings with careful monitoring and control. The key to realizing these savings is to craft a contract that provides incentive to the contractor to control and reduce energy costs, but also recognizes the uncertainties related to changing plant loadings, process requirements, or pumping.

The volatility of unit-energy prices typically can be handled in one of two ways. The easiest is to assign payment of energy bills to the owner. This is least risky for the contractor, eliminating any exposure to rapidly changing unit prices. The theory is that had the owner elected to retain operations, the same changing of unit prices would have been experienced by the owner. A second method for handling unit-energy prices places the problem entirely in the hands of the contractor. It allows for periodic adjustment of the energy budget within the contract year based on changes to the tariff schedule of the supplying energy utility. Under this arrangement, the contractor has exposure for increases in unit prices that might occur after an adjustment is made.

Generally, the contractor also agrees to a defined energy budget (or “baseline”)—kilowatt-hours (kWh) and demand (kW) for electricity, and hundred cubic feet (ccf) for natural gas. The baseline is established from analysis of several years of energy data, including adjustment for abnormally wet or dry years and changes in flows and loadings. In order to provide incentive for the contractor to reduce energy use, dollar savings resulting from energy use below the baseline are shared between the client and the contractor. The sharing arrangement may be 75/25 or 50/50, depending on the negotiated contract. In subsequent years, the baseline is adjusted downward, reflecting the savings achieved the preceding year. The greatest opportunity for energy savings and incentive sharing is in the first year of contract operations. Subsequent downward adjustment of the baseline reduces the potential for incentive payments in latter years.

To restrain the contractor from unbridled energy use beyond the baseline, the contractor can be made responsible for any and all use above the energy baseline. While this may be simple, it does not recognize abnormal years (dry years or wet years) or changes in flows and loadings. The latter is especially important in rapidly growing communities. A more equitable arrangement may be to limit the contractor's exposure, to say 105 or 110 percent of the baseline after adjustment for increased

growth-related loadings. Energy usage beyond that amount presumably would be due to abnormal conditions and could be assigned to the owner, or possibly split 50/50 between the contractor and the owner.

The contractor is obligated to produce water quality meeting all permitted standards. There are instances, however, when merely meeting permit requirements is not enough. The owner may want the best quality achievable using the available facilities. Or, from a maintenance perspective, the owner may want minimum downtime of critical equipment and rapid turnarounds on all maintenance work orders. Under either of these circumstances, a *performance incentive* can be made part of the contract. A portion of the contractor's management fee (or overhead and profit) can be set aside with payment conditioned on exemplary performance of certain tasks. The key is in setting the objective standards against which the contractor is to be measured.

The contract contains not only the scope of services and the method of compensation, but also presents the standards of contractor performance and owner-control requirements. The goal is "comfort" and accountability that can substitute for the owner's direct control.

**Summary: Elements of a Contract**

- Contract Term and Contract Renewal
- Definition of Facilities
- Scope of Services
- Compensation
- Employee Transition
- Liability and Insurance
- Termination
- Maintenance
- Normal Maintenance
- Incentives

## **VII.PUBLIC AGENCY PROPOSALS**

There may be instances when the municipality's operating department may also submit a proposal for continued operation of the facilities. To preserve the objectivity and fairness of the procurement process, it is imperative that the operating department be held to the same proposal procedures and requirements as any potential contractor. The public-agency department should submit its sealed proposal subject to the request for proposal

deadline. The cost proposal should also reflect the true cost of continued public-agency operation including adjustments for internal costs such as avoidable allocated overhead. Further, the public-agency proposal should also present proposed cost, process and maintenance controls, training and safety programs. In other words, the agency proposal must be responsive to the request for proposal, and should express willingness to be held to the same contract terms and performance requirements that would apply to a private contractor. Similarly, the governing board must be willing to terminate the "contract" if the public-sector agency violates the contract terms and conditions.

Again, to maintain the objectivity and fairness of the procurement process, individuals involved in preparing the agency proposal, or having management responsibility for the operating department, should not take part in the evaluation of the proposals. It may be advisable to retain an outside consultant or other third party to evaluate proposals and bids. To do otherwise is to expose the procurement process to questions of fairness.

## **VIII. CONCLUSIONS**

Water and wastewater service delivery costs are increasing. In part, this is a result of added regulation, but escalating capital and renewal and replacement costs are adding to the increases as well. In addition, the application of more complex technology to water and wastewater treatment is leading to the need for more skilled and experienced operations personnel. In an effort to deal with these issues, more communities are examining contract O&M of water and wastewater facilities. The current market for these services is in excess of \$400 million annually, representing about 5 percent of the municipal facilities in the United States.

Contract O&M is a professional service that provides management, financial, and human resources capabilities. As such, a competitive procurement process similar to that used in securing other professional services should be used. It is important that “low bid” not be the only criterion used in contractor selection. Technical expertise, program management, and demonstrated success under similar circumstances is equally, if not more important than bottom-line price. Professional operation, efficiency, and performance are the keys.

The contract sets the standards of performance for the contractor requiring cost-effective and professional operation. The contract may state that equipment be maintained in accordance with the manufacturers' recommended maintenance schedules, or that corrective maintenance work orders be completed within a specific time period depending on priority or criticality. Since loss of control of daily operations is a key issue in contract O&M, it is also important that the owner and contractor develop a contract that affords the owner a level of contractor accountability that can substitute for direct control. If this is accomplished, private operation of municipal water and wastewater facilities is a valuable option for community leaders.

## **ABOUT THE AUTHOR**

Roger Hartman, Ph.D., P.E., is an independent consultant with 20 years of experience in the municipal water and wastewater utility industry. He has both public- and private-sector

management experience, and has completed utility management, planning and operations projects throughout the United States. He is based in Boulder, Colorado.

## **ACKNOWLEDGEMENTS**

Comments on earlier drafts of this paper were provided by David Haarmeyer, senior policy analyst at the Reason Foundation.



## ENDNOTES

1. U.S. Environmental Protection Agency, Administration and Resource Management, *A Preliminary Analysis of the Public Costs of Environmental Protection: 1981–2000*, May 1990.
2. U.S. Environmental Protection Agency (May 1990).
3. Office of Technology Assessment, *Rebuilding the Foundations - A Special Report on State and Local Public Works Financing and Management*, OTA-SET-447, March 1990.
4. Office of Technology Assessment (March 1990).
5. Office of Technology Assessment (March 1990).
6. Water Environment Federation, *Washington Bulletin* (August 1992)
7. Lorenz & Company, *Update—Water Pollution Control Industry Outlook (1992)*.
- Gary Miller, Vice President for Marketing, JMM Operations Services Incorporated, in a telephone interview (November 1992).
- William Wardwell, Western Regional Vice President for Marketing, Professional Services Group, in a telephone interview (December 1992).
- Jerry King, President, Environmental Management Corporation, in a telephone interview (December 1992).
- Jim Russell, Vice President Marketing, McCullough Environmental Services. Telephone interview (January 1993).
- Keith Oldewurtel, Vice President for Marketing, WW Operations. Telephone interview (February 1993).
- Richard Gillette, Manager of Business Development, ST Environmental Services. Telephone interview (January 1993).
8. John A. Sedwick, “Contract Services for Wastewater Treatment,” in *This Way Up: The Local Officials Handbook for Privatization and Contracting Out*, edited by Raymond Q. Armington and William D. Ellis (1984).

9. John A. Sedwick (1984).

U.S. Environmental Protection Agency, *Contract Operation and Maintenance: The Answer for Your Town?* (January 1987).

*Privatization 1992: Sixth Annual Report on Privatization*, (Los Angeles: Reason Foundation, 1992).

10. *Privatization 1992* (Reason Foundation, 1992).

11. Alan Factor, "Regional Contracting of Wastewater Treatment Plants" (Boston: Pioneer Institute, 1992).

12. Linda Lampkin, Director of Research for AFSCME, Labor Relations and Public-Private Partnerships, *Proceedings of the Privatization Council's Third National Conference* (Fall 1991).

13. John A. Sedwick (1984).

*Privatization 1992* (Reason Foundation, 1992).

14. Lawrence L. Martin, "A Proposed Methodology for Comparing the Costs of Government versus Contract Service Delivery," *ICMA Municipal Yearbook 1992* (1992).

Colorado State Auditor's Office, *Privatization Assessment Workbook* (1989).

15. Roger Hartman, "Contracting Out O&M," *American City & County* (September 1992).

Roger Hartman, "The Contract in Contract O&M," *Client Information Bulletin* (January 1992).