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Design-Build for the Water and Wastewater Industry—Part I

By Michael C. Loulakis, Samuel K. Robison, Hal J. Perloff, and Simon J. Santiago

The impact of design-build on the public sector has been profound and widespread. Design-build has been used on virtually every type of public construction project ranging from courthouses to office buildings to highways and tunnels. The broad use of this delivery system on public sector projects is even more remarkable when one looks back just a few years and recalls the negative perceptions of design-build and how it was considered to be a delivery system more suitable for the private sector.

One of the most significant areas of public sector design-build growth has been the water and wastewater industry. This highly regulated and fragmented market was initially slow to use the process, largely because: (1) municipal water authorities and their consultants were reluctant to change from the design-bid-build model; and (2) procurement statutes made it difficult to procure a design-build team based on something other than price. However, as procurement regulations changed and the need for quick delivery of new or upgraded facilities increased, design-build has been used at a fast and furious pace.

While the thought of using design-build on their water and wastewater projects is appealing to many public owners, the implementation of an effective procurement, design, construction and operation process can be challenging. Some of these issues, particularly in the area of risk allocation and management, do not have easy answers (if any); others have answers, but require the public owner to change its attitudes, policies and procedures to accommodate the design-build process. This two-part CONSTRUCTION BRIEFING will discuss these issues as they relate to design-build for the water and wastewater industries.

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It will focus on: (1) factors driving the use of design-build; (2) privatization trends, advantages, and barriers; (3) delivery decisions as they relate to defining the scope and payment structure of the design-builder selection process; and finally (4) risk allocation and key contract provisions. Part I will discuss the U.S. water and wastewater markets and the delivery systems (public, private, and public-private partnerships) for providing such services. Part II, to be published in the December issue, will focus on the specifics of using design-build in water and wastewater projects.

Overview

• *The U.S. Water and Wastewater Market*

The water and wastewater utility industry in the United States is highly segmented and very localized.[1] For example, there are over 50,000 community water systems in place, with approximately seven percent (7%) of these systems serving eighty-one percent (81%) of the U.S. population.[2] While available statistical data is less detailed for wastewater systems (given that many rural areas use septic systems), it has been reported that there are 19,000 separate sanitary sewer systems in the U.S. (these are the systems that carry only sewage in the pipes) and another 900 combined sewer systems (one pipe that carries both the sanitary sewage and the stormwater runoff).[3]

As might be expected, owners of water and wastewater systems vary tremendously. Public owners of water facilities include towns, cities, counties and publicly-formed districts, authorities and agencies. Private owners range from the very large investor-owned utilities to small, private entities like trailer parks and condominium associations. The percentage of privately owned wastewater systems is somewhat smaller than that of the water systems, largely because many of the country's wastewater systems were initially developed by political entities with general tax revenues.[4]

The annual capital and operating budgets for utilities in the U.S. are enormous. Current estimates place these budgets at over $82 billion.[5] However, with regulatory requirements, the need for new capacity, and the need to repair and replace aging infrastructure, it is forecasted that an additional $17–23 billion per year will be needed in new capital investment.[6]

Another unique facet of the water and wastewater industry is that it is highly regulated at both the federal and state level. Some of the most significant federal statutes and agencies dealing with these projects are:

The Federal Water Pollution Control Act.[7] Commonly known as the "Clean Water Act," this statute was passed in 1972 and was the first comprehensive national clean water legislation. Virtually every city in the U.S. was required to build and operate a wastewater treatment plant, with the newly formed Environmental Protection Agency (EPA) providing most of the funding and technical assistance. It also required each state to adopt water quality standards, design plans for limiting industrial and municipal discharges, and act to protect wetlands.

The 1987 Water Quality Act.[8] This act reaffirmed and strengthened the Clean Water Act,

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focusing on stricter regulations of toxic chemicals from industry, acid rain, and water pollution from diffuse sources such as agricultural runoff, sewage overflows during storms, and runoff from city streets. It also phased out EPA's Construction Grants Program, shifting the method of municipal financial assistance from grants to loans provided by state revolving funds. In effect, it required states to develop programs to deal with their individual problems.

The Safe Drinking Water Act.[9] This act was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources — rivers, lakes, reservoirs, springs, and groundwater wells. It authorizes the EPA to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water. The act applies to every public water system in the U.S.

The Environmental Protection Agency (EPA). The Environmental Protection Agency serves both as a regulatory and funding agency on water matters. The EPA enforces the Clean Water Act and the Safe Drinking Water Act, provides support for municipal wastewater treatment plants, and takes part in pollution prevention efforts aimed at protecting watersheds and sources of drinking water. The Agency carries out both regulatory and voluntary programs to fulfill its mission of protecting the nation's waters.

These federal statutes and regulations are complemented by state and local statutes that address unique local interests, as well as provide oversight of the funding process for new projects.

• The Design-Build Process

Design-build is a process that enables the owner to contract with a single entity for project design and construction.[10] By creating a single point of responsibility for design and construction, the owner removes itself from the role of intermediary between the designer and the contractor, and has the ability to derive some benefits that are not as readily obtained under projects delivered through a non-integrated process. The most commonly cited benefits of design-build are:

Singular Responsibility. With both design and construction in the hands of a single entity, there is a single point of responsibility for quality, cost, and schedule adherence. The design-builder is responsible for quality, budget and schedule, and performance of the completed facility. Conflicts between design and construction are the design-builder's responsibility, not the owner's.

Quality. The integrated responsibility inherent in design-build is a powerful quality motivator. Because the design-builder is solely responsible for the completed product, and cannot shift responsibility for defects to another party, it is motivated to achieve quality throughout the design and construction process.

Cost Savings. Design and construction personnel, working and communicating as a team, are able to evaluate alternative designs in collaboration. Value engineering and constructability reviews are more effective when the designers, contractors and vendors work together during the entire design and construction process.

Time Savings. Design-build is well suited for the application of fast track construction techniques. Materials and equipment procurement and construction work can begin before construction documents are fully completed. The resulting time saving translates into lower costs and earlier occupancy of the completed facility.

Reduced Administrative Burden. Although design-build can be resource-intensive during the early phases of a project, the owner is not required, during actual design and construction, to coordinate and arbitrate between separate design and construction contracts or resolve budget and schedule conflicts.

Early Knowledge of Firm Costs. Guaranteed construction costs are attained much earlier in design-build than is the case with other delivery systems. The entity responsible for design is simultaneously estimating construction costs and can accurately conceptualize the completed project at an early stage. Design-build can afford the owner one or more "go, no-go" decision points during the design phases, and the owner's decision to proceed with the project can be made with a firm knowledge of the final cost and scope.

Although there are significant benefits from the design-build process, there are some drawbacks and challenges as well. The merging of design and construction requires design and construction groups to operate as a team for the common good of the project, since the entire team will ultimately absorb all problems. If the team relationship is based solely on a contractual responsibility, and not on philosophical principles, many of the benefits of design-build will not be achievable.

In addition to the necessity for strong teamwork, there are other potential drawbacks to the design-build process:

Time and cost of implementing a competitive design-build process. As noted above, the time and cost to prepare the scope of work definitions for Requests for Proposals can be substantial, depending on how much design the owner wants to establish itself. Often the owner will need to retain a consultant to assist it in this process.

Owner and consultant interference. Owners and consultants who are used to having full control and oversight over each and every aspect of the design may have problems in successfully implementing a design-build program. An overly involved owner may affect the efficiency of the design-builder's progress, delaying the work and increasing the design-builder's costs. It may also impose design constraints on the design-builder, potentially damaging the single point of responsibility protection.

Incomplete design definition. The counterpoint to the benefit of early price guarantee is the fact that many owners are accustomed to having a 100% complete design package before obtaining a construction price. Depending on the procurement method used for design-build, price may be set at an early stage of design, leaving the potential for disputes over what is and is not within the contract's scope.

Reliance on the design-builder's architect/engineer. Some owners do not like the idea of having the A/E of record financially tied to the contractor.

Evolving licensing and public procurement laws. While substantial progress has been made to facilitate the use of design-build for public agencies, it still remains difficult in many jurisdictions for public agencies to use design-build effectively. Similarly, many of the licensing laws around the country are not friendly to alternative project delivery and can force parties to use creative contract arrangements to obtain the single point of responsibility.

Lack of substantial judicial precedent. Because the design-build system is relatively new and there is a substantial lack of conflict to date, few cases exist to describe to the parties their respective rights, responsibilities and liabilities. This can be unsettling to those who have been involved in other delivery systems, where these issues have been well established for many years.

Finally, many owners — and particularly those municipal owners using design-build on water and wastewater projects — suffer from unrealistic expectations as to what design-build can do. As will be discussed in more detail later in this CONSTRUCTION BRIEFING, design-build is not the cure-all for any potential risk in developing the project. One cannot shift any and all project risks onto the design-builder. Appropriate risk allocation principles — the party best capable of dealing with the risk bears the responsibility for the risk — still apply and should be used.

• *Reasons to Use Design-Build for Water-Related Projects*

Although there are many potential benefits to using design-build, owners in discrete industry sectors generally switch to the process to take advantage of certain benefits.[11] In the water and wastewater industry, there are three primary reasons an owner will consider using design-build.

One of the overriding drivers on these types of projects is the owner's need to implement an accelerated project delivery schedule caused, in part, by consent decrees, taxpayer demands, and aging systems. Design-build is inherently faster than other delivery systems, since the design does not have to be completed before a construction contract is awarded. However, there are other factors in play that are unique to water and wastewater treatment projects that make this delivery system faster.

One of the critical path items on any water and wastewater treatment project is the procurement of capital equipment. Equipment is not only vital to the plant's functionality, but it also happens to represent one of the project's most significant cost components. Under the design-bid-build process, the equipment specification will likely be known at the end of preliminary engineering (30–40% design). However, it cannot be ordered until after the entire design is completed, released for competitive bidding, and the construction contract has been executed. This linear process is problematic, as it does not afford any opportunity to compress the fabrication and delivery time of long-lead equipment.

By using design-build, an owner receives the benefits of having its design-build team phase in the design, procurement and delivery of equipment, thereby saving the owner construction time and costs. Early equipment procurement also provides several other benefits that may not be as readily understood. It eliminates the process of approving contractor submittals for equipment and shop drawings submitted after construction contract award. It also means that equipment vendor shop drawings may be directly incorporated into the construction documents when the final designs are ready for issue.

Another reason that an owner may decide to use design-build is to obtain "off-balance sheet" financing and move to the privatization of its water treatment facilities — through the ownership or operation of the water utility functions by a private entity. As discussed in detail in the following section, privatization generally involves either the sale of the utility or contract operations of treatment and/or distribution systems to a private entity. When this form of project delivery occurs in conjunction with the construction of a new or substantially upgraded facility, the common acronyms that might be seen are: DBO (Design-Build-Operate); DBOM (Design-Build-Operate-Maintain), DBOOT (Design-Build-Own-Operate-Transfer); DBOL (Design-Build-Own-Lease); and DBOT (Design-Build-Own-Transfer).

Each of these design-build variants calls for the private entity not only to design and construct the facility, but also to be involved with the facility in some capacity for a number of years (operating, maintaining, owning, etc.) under some additional forms of contract. To give the private entity maximum flexibility in developing a cost-effective facility that meets both its design needs and the design needs of others, design-build is at the heart of the design and construction process.

Finally, water and wastewater treatment facility owners like the idea of using design-build for its single point of responsibility protection and the avoidance of claims and disputes. Because most water and wastewater treatment facilities were constructed under a design-bid-build approach, conflicts were expected. Contractors were bidding in a low bid environment, and having to make judgments on what the "completed" contract documents actually meant. This caused disputes over scope, and the resulting impact on time and productivity,

all of which fell on the owners' shoulders. Design-build shifts much of this risk to the design-build team, thereby giving the owner some certainty over budgets and a single point it could look to for issues over quality.

Privatization of Water and Wastewater Projects

• *Overview of Public/Private Partnerships*

During the 1990s, public sector water and wastewater owners began exploring opportunities for increasing the private sector's role in the provision of water and wastewater services. Several factors contributed to focus on private sector involvement. Local officials faced rising public demand for services and increasingly stringent regulatory requirements for drinking water and wastewater effluent quality.[12] At the same time, many water and wastewater owners were saddled with inadequate infrastructure and limited financial and technical resources with which to increase capacity and improve performance.[13] Sensing an opportunity, commercial water entities began promoting private operation and ownership of water and wastewater facilities. Changes to federal laws and regulations made during the 1990s removed many of the impediments that had limited private sector involvement in local water and wastewater systems. The federal Government estimates that over 40% of drinking water systems nationwide are privately owned and operated, typically as a regulated utility provider.[14] By contrast, private sector activity in wastewater has been far more limited. According to some estimates, less than two percent of the wastewater industry is privatized in terms of dollars spent.[15] However, private sector participation is growing annually at a rate of 15% to 20%.[16]

• *Types of Privatization*

As used in the water industry, "privatization" is a broad term encompassing several different types and levels of private sector involvement and risk assumption. The form of privatization that involves the smallest level private sector responsibility and risk is outsourcing specific support functions such as meter reading, testing, and discrete equipment maintenance. These outsourcing arrangements are typically made through multi-year service contracts with fixed prices. Contracting out specific activities allows water and wastewater providers to obtain specialized labor not available in the local public workforce or to subject activities traditionally performed by the public workforce to competition.[17]

Full private operations and maintenance are a widely used means of privatizing water and wastewater functions. This type of privatization typically involves awarding a multi-year contract to a private entity encompassing all aspects of the operations and maintenance of an entire water or wastewater system for a fixed periodic fee. The private entity assumes the risk of compliance with applicable environmental standards and permits. In the case of wastewater systems, the private entity will typically be a co-permittee with the local government on National Pollutant Discharge Elimination System (NPDES) permits or the permit holder of record. These contracts typically contain contract-specific performance criteria that can result in financial penalties being assessed against the private contractor if the standards are not achieved. Prior to 1997, Internal Revenue Service (IRS) rules limited the duration of such contracts to no more than five years for water and wastewater facilities financed with tax-exempt municipal bonds.[18] Following a rule change in 1997, full service contracts of up to 20 years are now permitted.[19] It is not unusual for the private contractor to be required to perform necessary replacements and/or upgrades to major equipment in these arrangements, provided that such capital replacements or improvements remain the property of the public entity when completed. Large metropolitan wastewater providers such as Indianapolis and Milwaukee

have utilized long-term service contracts for their wastewater systems.[20]

Public water and wastewater systems in need of significant near-term upgrade or expansion along with comprehensive operation and maintenance have looked to DBO transactions. In DBO arrangements, the design-builder is provided with substantial control over the design and construction of new water or wastewater facilities or the expansion or upgrade of existing facilities. Following completion, the design-builder then assumes operation and maintenance responsibility for the new, expanded, or upgraded facilities. Virtually all risks associated with the facility's design, construction, operation, and maintenance are shifted to the private sector in this model. However, ownership of the underlying assets typically remains with the public entity at all times and not with the design-builder. DBO arrangements have been utilized for several small scale water and wastewater facilities around the country, including Bessemer, Alabama; Cranston, Rhode Island; Plymouth, Massachusetts; Woonsocket, Rhode Island, and the Borough of Washington, New Jersey.[21] In Seattle, Washington, a DBO arrangement was used for the delivery and long-term operation of a 120 million gallon per day water facility.

Less frequently used means of water and wastewater privatization involve either a temporary or permanent transfer of publicly-owned assets to a private entity. The outright sale or lease of public water and wastewater facilities is typically not considered to be a workable privatization option for public owners. Under Environmental Protection Agency (EPA) and Office of Management and Budget (OMB) regulations, such a transaction requires the immediate repayment of the federal Government's residual interest in any federal grant funds used for the facility's construction. Because many water and wastewater projects are funded in part with federal grant funds, grant repayment costs present a significant obstacle to such arrangements.[22] However, private ownership of water and wastewater facilities is an option for the delivery of new systems without public financing or federal grants.[23] For example, the cities of Chicago and Atlanta have used DBOOT arrangements for the delivery and operation of large wastewater bio-solids treatment and disposal projects.[24] With DBOOT, private developers organize the project, obtain necessary permits, organize financing, and control the operations and capital risk of new facilities under long-term agreements.

♦ *Advantages of Privatization*

Attention has focused on privatization as a means of providing water and wastewater services for many reasons. Many public entities are drawn towards privatization based on the perception that it will reduce costs. This perception must be tempered by a look at cost-savings advantages the public sector traditionally has over the private sector. Public entities, unlike private entities, do not need to make a profit on their activities or capital investments. Additionally, public entities have superior access to tax-exempt debt financing, which results in reduced interest costs for capital investments. Nevertheless, private firms may be capable of providing water and wastewater services to communities at a cost savings compared with public entities. Private firms can take advantage of superior management and operations techniques as well as innovative technologies to reduce costs.[25] Private entities involved in privatization arrangements may also enjoy economies of scale in terms of management, labor force structure, and equipment costs not available to individual system owners.[26] In DBO agreements, private entities may also be able to reduce project costs through the use of streamlined design, engineering, procurement and construction practices.[27]

Closely related to the cost reductions that privatization can offer are the opportunities for increased efficiency. By utilizing inventive operations and maintenance practices and superior technology, design-builders can provide

high quality water and wastewater services more efficiently than the local governments.[28] Private firms can draw on their substantial experience in operating and maintaining these facilities in private markets and take advantage of lower prices for supplies and equipment bought in large quantities. These factors may permit a private entity to stabilize user fees during the term of the privatization arrangement.

Privatization of water and wastewater services may also appeal to service providers that have difficulty complying with discharge permit limits or drinking water quality standards. The ability of many public water and wastewater systems to achieve environmental standards is adversely affected by outdated equipment, high maintenance costs, and a lack of personnel. For example, many small and medium-sized water providers have difficulty complying with increasingly stringent drinking water standards imposed by the Safe Drinking Water Act at acceptable costs.[29] Privatization offers the opportunity for these smaller public systems to take advantage of centralized scientific, technical, and business capabilities utilized by larger systems.[30] Private entities may also be able to undertake capital investment in new equipment and assign skilled personnel who enhance the system's environmental compliance.

A major potential benefit offered through privatization is access to private sector capital. Privatization arrangements that include an operations and maintenance component will frequently require the private entity to install new equipment and infrastructure or to make other capital investments in a system for no additional costs above the fixed fee. In some privatization agreements, the private firm agrees to pay an initial or periodic concession fee to the local government. Where private entities incur these types of expenses in a privatization agreement, they recover the costs, including the cost of money, from the public owner through contract payments. Rate payers ultimately will likely bear these expenses. However, access to this private capital can be an attractive feature of privatization for communities with limited access to capital markets.[31]

• *Whether to Privatize*

The decision whether to transfer operation or ownership of public water and wastewater facilities from the public to the private sector is complex. Public officials must carefully assess and balance a number of concerns, many of which can be conflicting, in determining if some form of privatization is appropriate. These issues include: (1) costs; (2) the effect on rate payers; (3) ensuring environmental compliance; (4) protecting public health; (5) preserving jobs; and (6) maintaining control. Complicating these analyses is a host of legal and regulatory factors that affect both the desirability of privatization and the types of privatization arrangements available.

As a result of a complex web of EPA, OMB, and IRS regulations, the sources of funds used to construct existing water and wastewater facilities can have significant effects on privatization efforts. Before 1987, many publicly-owned water and wastewater treatment facilities were constructed using federal grant money under the EPA's Construction Grants program. The 1987 changes to the Clean Water Act began the phase-out of the grant program and the creation of the Clean Water State Revolving Fund (SRF) program.[32] The SRF program provides communities with low-interest loans for the construction of wastewater infrastructure. In addition to EPA construction grant funds or SRF program loans, publicly owed and operated wastewater treatment plants and water systems are typically constructed using tax-exempt general obligation or revenue bonds. Because water and wastewater facilities are expensive to design and construct, having access to tax-exempt financing and grant funds is critical to many communities. Thus, as local

entities contemplate privatization, they must be conscious of how the potential arrangement may affect the status of existing debt financing and grants.

IRS rules for tax-exempt bonds used to finance public water and wastewater projects place important restrictions on operations and maintenance contracting. In the early 1980s, federal tax laws were implemented that encouraged capital investment in public infrastructure by the private sector and permitted private businesses to enter into service contracts with public entities.[33] In 1987, further changes to the tax laws significantly restricted the duration of operations and maintenance contracts for grant, bond, or SRF funded water and wastewater projects. Under these changes, operations and maintenance contracts could not exceed five years and the public entities were required to include a termination right after three years.[34] The failure to comply with these rules meant that debt used to finance the underlying project could lose its tax-preferred status. These contract length restrictions significantly restricted opportunities for private sector involvement in federal grant and tax-exempt bond funded projects.

In 1997, the IRS revised its regulations to permit longer-term service contracts for grant and tax-exempt bond funded projects. Under the new IRS procedure, operation and maintenance contracts of up to twenty years are permitted.[35] However, the IRS requires that certain limitations be included in these long-term arrangements. First, a privatization arrangement cannot be characterized as a lease to a private entity. The IRS considers the lease of a public asset to private contractors to be a prohibited private use of public bond or grant funds. The IRS procedures prohibit a contractor's compensation from being based on net profits and require that a minimum of 80% of the annual compensation paid to a private entity be in the form of a periodic fixed fee. The remaining twenty percent of the private contractor's compensation is permitted to fluctuate based upon factors such as gross expenses or gross revenues. Pass-through type expenses, such as facility utility expenditures, are excluded from the 80%/20% calculations.[36] These restrictions must be carefully analyzed and addressed in full service and DBO privatization agreements.

Similar to the tax law and regulations discussed above, EPA and OMB regulations also affect privatization. In accordance with OMB guidance, public water and wastewater entities that accept federal grant funds must not dispose of or encumber their title or other interest in a facility during the period of federal interest or while the federal Government holds bonds for the system.[37] This restriction, designed to ensure that the federal funds are used for their intended purpose, limits a federal grantee's ability to draw on the federal equity invested in a project to raise additional capital.[38] EPA's interpretation of activities that dispose of or encumber a public entity's title or interest in an asset is quite broad. In addition to arrangements involving the sale or lease of water or wastewater facilities, EPA guidance includes the payment of concession fees by a private contractor to a public owner as part of an operations and maintenance agreement to be a "disposition" of the water or wastewater facility.[39] According to the EPA, capital investments, such as concession fees, made by a private contractor to a public entity represent a loan that potentially gives the private contractor an interest in the facility in the event the public entity terminates the contract early and fails to repay the loan in full. Not all payments from a private contractor to public entities specified in a privatization agreement are considered by EPA to be a disposition. Initial or periodic payments by a contractor that do not exceed either the documented, auditable contract transaction costs or one percent of the contract's net present value are not considered a disposition.[40] As discussed in detail below, privatization arrangements that contain a disposition element under the EPA's guidance require EPA review and approval be-

fore finalization of the contract and may require the repayment of some portion of EPA grant funds.

In the case of water and wastewater treatment projects, privatization arrangements can affect the federal permit requirements. In many privatization agreements, particularly those in which the private entity assumes management, operation and maintenance functions, the design-builder will assume responsibility for maintaining compliance with the facility's NPDES permit. In some situations, the permit may need to be modified and the design-builder may be added as a co-permittee or substituted as the permit holder of record.[41] If a privatization arrangement involves the sale of a publicly owned treatment work (POTW) to a private entity, the private owner must apply for a new NPDES permit. Additionally, since the facility is no longer publicly owned, it may become subject to the Resource Conservation and Recovery Act requirements. In such a situation, treatment requirements may become more stringent and costs may escalate accordingly.[42]

Beyond the financial, economic and regulatory aspects of water and wastewater privatization agreements, public entities considering privatization should also analyze how privatization fits in with community values and concerns and the local political environment. Privatization arrangements can have wide-ranging effects beyond merely providing water and wastewater services. Inherent to all forms of privatization is the shifting of control and responsibility for vital public services from the public to the private sector. The level of control retained by the public entity varies depending on the vehicle used to implement privatization and the details of the arrangement. A common concern voiced when privatization is contemplated is a fear that a private contract, motivated by an interest in maximizing profits, will not be as accountable as a public operator.[43] This concern can be addressed in several ways during the privatization process. Mechanisms for public oversight of the design-builder's performance are typically incorporated into the privatization agreement. For example, on-site public supervision, level of performance reporting, and oversight boards may be utilized individually or in combination in the privatization agreement to address accountability concerns. Closely related to public oversight are contractual provisions requiring the design-builder to achieve detailed specific performance levels.[44] Financial penalties can be imposed for a design-builder's failure to achieve contractually mandated performance levels, and rewards can be offered for exceeding standards in order to create additional incentives for satisfactory performance. As an additional security and accountability measure, public owners may also require the design-builder to furnish a performance guarantee bond.

Public owners contemplating privatization should also analyze the effect privatization will have on the existing public workforce that is providing water or wastewater services. Anticipated cost savings from privatization often result from staff reductions.[45] In some communities, the public workforce potentially affected by privatization is unionized. Privatization arrangements can directly address concerns regarding the displacement of existing personnel in number of ways. For instance, the design-builder can agree to hire all or most of the existing workforce and to gradually streamline staffing levels through normal attrition and retirement.[46] Displaced labor issues can also be dealt with through re-assignments to other public services or retraining. Public owners have found it important to involve potentially affected workers and unions early in the privatization process by formulating strategies addressing displacement in concert with these groups.[47]

• *The EPA Review and Approval Process*

Privatization arrangements that involve a transfer of ownership in a water or wastewater

facility constructed with federal grants from a public owner to the private sector must be reviewed and approved by the EPA. As discussed above, concession payments from a design-builder to an owner that exceed auditable contract transaction costs or one percent of the contract's net present value are considered to be a disposition-type privatization agreement that is subject to EPA review and approval. Privatization arrangements where the underlying facilities were not built with federal grant funds or where a facility's disposition is not involved are not subject to EPA review and approval.[48] The purpose of the EPA review and approval process is to facilitate a local government's decision to privatize a federal grant-funded wastewater facility.[49]

The EPA review and approval process implements Executive Order (EO) 12803. This order facilitates the repayment of federal grant funds for privatization transactions. Under EO 12803, state and local governments are the first to receive proceeds from a disposition-type privatization arrangement.[50] If the sale proceeds, lease revenues, or concession fees paid by a private entity exceed the state and local investment in the facility, then the federal grants must be repaid at a depreciated value up to the amount received from the design-builder. Federal grants are depreciated using the IRS's fifteen-year accelerated depreciation schedule.[51]

The first step of the EPA review and approval process involves the submission to the EPA of a grant deviation request, an executive summary of the privatization arrangement, and a copy of the proposed privatization agreement. This documentation covers a broad range of topics, including discussions of: (1) the facility's environmental permitting arrangements; (2) operational guarantees; (3) public participation undertaken to obtain support for the project; (4) the debt structure for the proposed transaction; (5) the amount and intended use of funds received as a result of the privatization agreement; (6) projected cost data and depreciation calculations; (7) the owner's oversight responsibilities; (8) employee status for the existing workforce; and (9) anticipated impacts on user fees.[52]

EPA reviews proposed privatization arrangements to ensure that the proposed transaction is consistent with statutory requirements for the protection of the environment and of water and wastewater system users.[53] In the case of wastewater treatment facilities, this process involves the review of privatization arrangements for compliance with the Clean Water Act as well as NPDES and Resource Conservation and Recovery Act (RCRA) permits (if required). In particular, EPA reviews performance guarantees and compliance mechanisms in the proposed privatization arrangement.[54] EPA also reviews the anticipated impacts of privatization on user fees during the course of the arrangement and compares these to established benchmarks. Similarly, EPA evaluates whether the procedures used by the public owner to identify the design-builder were competitive.[55] EPA approval of the privatization agreement permits the public owner to make any required repayment of federal grant funds in accordance with EO 12803. Failure to obtain EPA approval will require the public owner to make necessary repayments of federal grant funds in accordance with less favorable EPA grant regulations.[56]

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13. David M. Lick, "Water and Waste Water Primer for Public-Private Partnerships," in Privatizing Governmental Functions 7-4 (Deborah Ballati, ed., 2002).
14. United States Environmental Protection Agency, Guidance on the Privatization of Federally Funded Wastewater Treatment Works 7 (2000).
15. Id.
16. Id.
17. Id. at 9.
18. See Lick, supra N.13 at 7-7.
19. See IRS Rev. Proc. 97-13.
20. See Comm. on Privatization, supra N.12 at 21.
21. Id at 22.
22. See Lick, supra N.13 at 7-14.
23. Id. at 7-15.
24. See Comm. on Privatization, supra N.12 at 21.
25. See EPA, supra N.14 at 16.
26. Id.
27. Id. at 8.
28. Id.
29. See Comm. on Privatization, supra N.12 at 3.
30. Id. at 4.
31. See Lick, supra N.13 at 7-16.
32. See 33 U.S.C. §§ 1381–1387.
33. See Lick, supra N.13 at 7-7.
34. Id.
35. See IRS Rev. Proc. 97-13.
36. See Lick, supra N.13 at 7-9.
37. Id. at 7-11.
38. See EPA, supra N.14 at 13.
39. Id.
40. Id. at 10.
41. Id.
42. Id. at 19.
43. See Comm. on Privatization, supra N.12 at 25.
44. See EPA, supra N.14 at 20.
45. Id.
46. See Comm. on Privatization, supra N.12 at 101.
47. See EPA, supra N.14 at 20.
48. Id. at 5.
49. Id. at 25.
50. Exec. Order No. 12,803, 57 Fed. Reg. 19,063 (May 4, 1992).
51. Id.
52. See EPA, supra N.14 at 25–28.
53. Id. at 29.
54. Id.
55. Id. at 32.
56. Id. at 34.