ENVIRONMENTAL FINANCIAL ADVISORY BOARD

APR 29 2008

Honorable Stephen L. Johnson
Administrator
United States Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Administrator Johnson:

The Environmental Financial Advisory Board (EFAB) is pleased to submit the enclosed report, *"Public Private Partnerships in the Provision of Water and Wastewater Services: Barriers and Incentives,"* for the Agency's consideration and use. This report presents an important opportunity for the Agency to strengthen its continuing efforts to insure sustainable water and wastewater services.

The report responds to the Agency's request for an assessment of the potential of public private partnerships (PPPs) to help alleviate chronic funding problems in the water industry. In preparing for this assessment, the Board reviewed previous EFAB reports as well as earlier Agency initiatives. We describe the present role of PPPs in the water industry and analyze various barriers to wider implementation. Information on eleven existing PPPs is reviewed and tabulated. We also examined the efforts of the US Department of Transportation to remove barriers to private sector participation in that sector. The report concludes with a number of specific recommendations for action by the Agency and by Congress, all designed to remove unnecessary barriers to beneficial use of PPPs.

PPPs cannot solve all water and wastewater utility financing or management problems and are not appropriate in every situation. However, experience has shown that these partnerships can be helpful and beneficial in many cases. In fact, the private sector has at all times maintained a substantial presence in the water industry.

The Board has found that the need for wider use of PPPs is well demonstrated, the mechanisms for considering and structuring these arrangements are known, and success stories and model applications are available. In certain situations, these partnerships can reduce costs, improve the quality of service, and speed the provision of needed infrastructure. Even though PPPs may not be

appropriate in every case, the availability of this tool should be a powerful weapon in the Agency's struggle to achieve sustainable water services at a reasonable cost. Despite this experience and potential, the use of PPPs is often precluded or restricted by a number of barriers, originating in law, regulation, policy, or perception.

The report identifies disincentives and barriers to adoption of PPPs that exist in Federal law, in State law, and that are embedded in state and local subsidy and tax policy. The Board also notes barriers and misperceptions that arise from lack of information on PPP implementation. The Board recommends a strong initiative by the Agency to clear these barriers, so that water and wastewater utilities are free to choose the most effective available strategies. As detailed in the report, this initiative will require more than programs, guidance, or workshops. It requires committed and sustained leadership on a number of fronts, involving legislative recommendations, outreach to state agencies and legislatures, information dissemination, and monitoring of progress.

We hope that you find our arguments compelling and our proposals constructive and useful. The Board is always ready to discuss its findings and recommendations, and to take any follow-up actions that are consistent with its charter. If you or your staff have questions about this report, or would like to arrange a meeting, please let us know. We greatly appreciate the continuing opportunity to serve the Agency.

Sincerely,

A. James Barnes
EFAB Chair

A. Stanley Meiburg
EFAB Designated Federal Official

Enclosure

cc: Marcus Peacock, Deputy Administrator
Ben Grumbles, Assistant Administrator for Water
Lyons Gray, Chief Financial Officer

Environmental Financial Advisory Board

Public Private Partnerships in the Provision of Water and Wastewater Services: Barriers and Incentives

April 2008

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Environmental
Financial Advisory Board

PUBLIC PRIVATE PARTNERSHIPS IN THE PROVISION OF WATER AND WASTEWATER SERVICES: BARRIERS AND INCENTIVES

April 2008

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EXECUTIVE SUMMARY

Various sources, including EPA's 2002 “Gap Analysis,” have pointed to a large and growing investment shortfall in the water industry. In the case of clean water, symptoms include continued reliance on combined sewer systems, problems with combined sewer overflows, and frequent sewage spills--not to mention a long series of consent decrees addressing the worst of these problems. Infrastructure problems in the drinking water industry are less frequently publicized, but probably not less serious. Aging treatment plants, century-plus-old water mains, crumbling structures all add up to a need for major investments to rehabilitate existing facilities plus more major investments to meet future demands.

A parallel discussion has taken place with respect to utility operating revenues. While some utilities have sound rate-making and financing practices, many others fail to cover the full cost of operating and maintaining water systems, much less the cost of replacing and expanding infrastructure. Among the remedies proposed for this problem, wider use of public private partnerships (PPPs) may help enforce full cost pricing in some situations, while offering communities the opportunity to increase efficiency and maintain desired levels of service.

EFAB has been asked to consider the potential for PPPs to alleviate the chronic funding problems in the drinking water and clean water industries. This report discusses the nature of PPPs, their present role in the industry, and certain barriers or disincentives to wider use of PPPs.

PUBLIC PRIVATE PARTNERSHIPS

This report utilizes the following definition of a PPP:

> A public private partnership (PPP) is a contractual, institutional, or other relationship between government and a private sector entity that results in sharing the duties, risks, and rewards of providing a service in which the government has an interest, recognizing that the government retains ultimate responsibility for insuring that social needs and objectives are met.

Water Sector

The private sector has always had a prominent role in the provision of drinking water in the U.S. Considering only the largest systems, serving populations of 100,000 or more, about 16 percent are investor-owned utilities. This fraction has been roughly constant for many years. More recently, there is anecdotal evidence of expansion in the diversity of PPP types, other than investor-ownership. One industry source lists 15 major drinking water PPPs in effect in 2006, as well as 29 major clean water PPPs.

PPPs in the water sector take many forms. Services provided by the private sector partner may range from support functions (e.g., laboratory services) to facility-level activities (e.g., operating a wastewater treatment plant) to contract operation of all facets of the utility. Among the variants commonly employed are contracts for design-build (DB), design-build-operate (DBO),

design-build-finance-operate (DBFO). build-operate-transfer (BOT), etc. An important characteristic of many of these contracts is that they require a long-term relationship between the public and private sector. In the U.S., contract terms for PPPs may range up to 25 years; in other countries, longer-term contracts may be found.

Where PPPs are used, government retains the responsibility to regulate private sector partners so that the public goods are preserved. Regulation can take the form of drinking water quality standards, requirements for universal access, regulatory commission or local government oversight of rates and charges, environmental regulations and standards, contractual provisions, etc. Each form of partnership imposes different regulatory requirements and has advantages and disadvantages in specific applications.

Transportation Sector

An incipient crisis in infrastructure investment has been noted for the transportation sector and, similar to the water sector, PPPs have been suggested as one approach to enhancing the availability of funds and improving the capability for project execution. Unlike the water industry, the public highway component of the transportation sector has no significant history of private sector infrastructure provision, or of PPPs. Other activities within the sector--such as rail, air, river crossings, and water transportation--have had varying degrees of private sector involvement in the past.

The U.S. Department of Transportation (US DOT) has moved aggressively to clear the way for wider use of PPPs, both by working to remove legal and institutional barriers and by disseminating information on PPPs to various transportation agencies. The Federal Highway Administration (FHWA) has developed a PPP website, published a User Guidebook on implementing PPPs, and produced model legislation designed to remove unnecessary barriers in state law. Changes in federal law have exempted from state caps up to $15 billion in Private Activity Bonds for transportation projects.

The US DOT PPP website reports that, as of October 2007, 21 states and one U.S. territory have enacted statutes which enable the use of PPPs for transportation projects. Among the large-scale PPPs that have emerged recently are the 75-year leased operation of the Indiana Toll Road (valued at $3.85 billion) and the 99-year leased operation of the Chicago Skyway (valued at $1.83 billion). Additional initiatives in the transit sector have led to, among other things, contract design, construction, and operation (DBO) of the Hudson-Bergen Light Rail Line for New Jersey transit (total value $1.67 billion).

Alternative Institutional Arrangements

It is a commonplace observation that many drinking water and clean water utilities are too small to provide the kind of professional management and technical competence that is required in the present regulatory environment. It is also apparent that, because of economies of scale and other reasons, user charges are often dramatically higher for small utilities, as compared to large metropolitan systems. Still, small systems persist, usually for political, jurisdictional, or geographical reasons.

Consolidation of small systems can be accomplished within a governmental ownership structure, perhaps by means of a quasi-corporate, fiscally autonomous management structure (sometimes called "commercializing" the utility). This promotes professional management, reduces unit costs, and facilitates innovation and performance improvement. Local governments can maintain their ultimate control over commercialized utilities through appointments to the governing board and through approval of tariffs.

BARRIERS TO PUBLIC PRIVATE PARTNERSHIPS

State and Federal Subsidies

The Clean Water State Revolving Fund (CWSRF) has become an important source of debt capital to wastewater utilities. However, the CWSRF does not permit borrowings by privately-owned systems for abatement of point source pollution, except in a rare case where private point-sources are cited in the Comprehensive Conservation & Management Plan (CCMP) of a National Estuary Program. To the extent the that CWSRFs offer below-market, or even zero interest rates, this policy creates a substantial subsidy for government-owned wastewater systems.

Several states accompany their SRF programs with other programs that offer grants for specific infrastructure improvements, such as wastewater treatment upgrades. In many cases, privately-owned wastewater facilities are not eligible for subsidies. Whether conveyed through interest rates or outright grants, these subsidies amount to significant barriers to those forms of PPP which involve private ownership of treatment facilities. The Board finds that the rationale for this exclusion is flawed, since rate of return regulation causes all subsidies to flow through to ratepayers, where they are intended to reside.

Legal and Institutional Barriers

Some public sector utilities are bound by state and local statutes or regulations which constrain the contracting process in ways that are inconsistent with PPPs. In particular, there may be term limits on contracts, prohibitions on negotiated contracts, prohibitions on take-or-pay agreements, and no authorization for private parties to collect service fees. These constraints, where present, may require a change in legislation or revised regulations. Many states, in the interest of facilitating PPPs, have undertaken these changes. No survey on this issue was performed in connection with this report, but a 1988 survey performed by EPA found that 19 states had modified legislation in an attempt to eliminate certain contracting barriers. The Board has learned of recent legislative changes in two states (Texas and New Jersey) which have led directly to new PPP initiatives in both states.

Barriers Created by Past Grant Funding

Prior to 1987, many wastewater utilities received substantial grant assistance from the federal government through the Construction Grants Program. As a result, there is an existing federal interest in many wastewater facilities that may be candidates for transfer, through sale or long-term lease, to a private partner. This requires that the PPP agreement be reviewed and approved by EPA. The Board is not aware of any instance in which EPA has failed to approve a proposed

disposition of a grant-funded facility. However, the need to apply for such approval as well as the potential requirement for distributing the proceeds from a sale or lease amounts to a significant perceived barrier to PPPs involving grant-funded facilities.

Public and Political Objections

Proposals to enter into PPPs often face considerable public and political opposition. Some of this reflects unfamiliarity with the new arrangement and skepticism regarding claimed advantages. Some opponents distrust the reliability of private sector arrangements to deliver services as important as drinking water and wastewater management. Others believe that it is the duty of government to provide these services, and that private sector provision is somehow inappropriate. Another concern has to do with the utility's labor force. One effect of most PPPs involving operations and maintenance is that some employees are no longer needed. They may be terminated, or the new operator may reduce staff through attrition. Either way, there is often public and political concern about this effect.

In most cases, though, the issue is simply one of economics: some people assume that the involvement of the private sector will result in higher rates and charges. Obviously, PPPs should not be entertained if their only effect is to increase costs. But public concern remains.

Previously Identified Barriers

A 1991 EFAB report identified twelve possible barriers to PPPs, affecting contracting, financing arrangements, tax liability, and other factors. The 1991 report pointed out the need for legislative changes at federal and state levels and made a number of recommendations for EPA action on certain barriers. As noted above, the Board has not conducted a survey of state and local legislative changes, but is aware of significant changes in some states. With respect to any other EPA or government action that may have been taken subsequent to the Board's 1991 recommendations, it appears that there were some initiatives in the first ten years, mostly directed to utility outreach and to the preparation of various kinds of guidance. Recently, EFAB and EPA have gone on record as supporting an Administration proposal to exempt water projects from state-level caps on Private Activity Bonds (PABs). Overall, however, there is no indication of a comprehensive, coordinated effort at the federal level to lower barriers or to otherwise facilitate PPPs.

REVIEW OF SELECTED PARTNERSHIPS

In order to assess the current industry perception of barriers to PPPs, the Board performed a limited review of the experience of private sector firms presently active in various kinds of partnerships. Seven firms were contacted; five were able to provide substantive responses for a total of eleven variants of PPPs. The information provided by the companies is tabulated in an Appendix to this report.

Some of the noteworthy results of this review include:

- Some operators reported problems with political will or with local concern over job

security for existing employees and others noted protracted, complex negotiations. The most significant barrier mentioned was a Texas statutory prohibition on DB contracts, which required legislative action to overcome.

- Two factors in the success of these contracts were mentioned multiple times: (1) the ability to arrange for comparable jobs for existing employees who would no longer be needed and (2) the proximity of existing operations of the private sector partner. The latter factor may be most important for PPPs in relatively small communities, where the private partner can easily bring to bear technical and management expertise that would normally be unavailable in a small operation.

- Nearly all of the PPPs described by the companies are claimed to provide operational improvements, improved performance, and lower costs. Since these are existing, successful PPPs, these results would be expected, but some of the reported cost savings are surprisingly large (e.g., United Water reported a 30% cost reduction in Indianapolis). In some cases, performance improvement seemed especially noteworthy (e.g., American Water in Buffalo).

In addition to these successful PPPs, the report also takes note of the unsuccessful experience of the City of Atlanta. In that case, a long-term operating contract for the water system was dissolved after less than four years, amid evidence of failed expectations on both sides.

RECOMMENDATIONS

For Action by the U.S. Congress

- Eliminate the state-level caps on public-purpose PABs issued for construction of drinking water and clean water infrastructure.

- Modify or terminate the federal interest in clean water facilities constructed with assistance from the former EPA Construction Grant Program, so that communities are free to consider PPPs in connection with these facilities.

- Make privately-owned, public purpose clean water facilities eligible for loans and grants from the CWSRFs on the same footing as government-owned systems.

For Action by EPA

State and Federal Subsidies

- The Agency should conduct and publish a survey of state and local programs, linked to or separate from the SRFs, that offer grants or other forms of subsidy to government-owned drinking water or clean water agencies, but which deny such assistance to privately owned, public purpose systems.

State-Level Statutory Barriers

- Conduct and publish a survey of existing state statutes which restrict or prohibit various forms of PPPs, either through procurement policies and other means.

- Assist the States in identifying and correcting these restrictions, including the preparation of draft model legislation, similar to the US DOT effort.

- Monitor the results of this initiative.

- The Agency should examine the initiatives undertaken at the US DOT with respect to PPPs as a possible model for federal agency activity in this arena. The Agency should adapt/adopt those activities that would advance the use of such partnerships where beneficial for environmental utilities.

Tax Policy Barriers

- Conduct and publish a survey of existing state and local taxing policy with respect to government-owned vs. investor-owned drinking water and clean water utilities. The survey should address access to state-tax-exempt bond financing, real and personal property taxes, inventory taxes, gross receipts taxes, etc. The purpose of the survey is to identify cases where tax exemptions to government-owned utilities act as hidden subsidies.

- Assist the States in identifying and correcting tax policy distinctions which discourage consideration of some kinds of PPP.

- Monitor the results of this initiative.

Information Barriers

- Continue to disseminate information on PPPs, including case studies which document specific situations in which these arrangements were beneficial to the community. In particular, describe the process of tailoring a PPP to a community's needs, so that it:

  - Is cost-effective

  - Protects the interests of all parties

  - Avoids unacceptable impacts on customers including low income households, and

  - Maximizes gains to the community as a whole.

- Disseminate information on structural reform of government-owned utilities, as an alternative or as an adjunct to PPPs. EPA should encourage state and local initiatives to regionalize water and sewer utilities where cost reductions and operational improvements are likely to result.

Monitoring Progress

- EPA should consider funding an extra-governmental organization to track progress in eliminating barriers to PPPs, at both federal and state levels, and to monitor the results of these changes.

CONCLUSION

PPPs are not the solution to every problem afflicting the delivery of drinking water and clean water services and they are not appropriate in every community or in every situation. However, experience has shown that PPPs can be helpful and beneficial in many cases. Despite this experience, these arrangements are often precluded or restricted by a number of barriers originating in law, regulation, policy, and perception.

The Board has found that the need for wider use of PPPs is well demonstrated, the mechanisms for considering and structuring these arrangements are known, and success stories and model applications are available. What is now required is a strong initiative by EPA to clear barriers and to take other steps needed to facilitate PPPs where they are appropriate. Since many of the barriers exist in legislation and at both state and federal levels, this initiative will require more than programs, guidance, and workshops. It requires committed and sustained leadership by EPA.

I. INTRODUCTION

In 2002, EPA published the widely noted "Gap Analysis," which examined the growing disparity between infrastructure needs and investments in the drinking water and clean water industries.[1] Following a series of "needs" assessments, the Gap Analysis was the first detailed attempt to assess the likelihood of meeting current and future infrastructure needs, given existing financing practices and sources. The Gap Analysis stated, for example, that a continuation of then-current investment rates would result in an expected cumulative twenty-year investment shortfall of $122 billion for clean water, and $102 billion for drinking water (measured in 2001 dollars): $224 billion in total. Given the various sources of uncertainty, the report suggests that the true shortfall could almost double to $444 billion.

While the specific numerical results of the Gap Analysis have been controversial, there is no doubt that the water sector, as a whole, has suffered from substantial underinvestment for some time. In the case of clean water, symptoms include continued reliance on combined sewer systems, problems with combined sewer overflows, and frequent sewage spills--not to mention a long series of consent decrees addressing the worst of these problems. Infrastructure problems in the drinking water industry are less frequently publicized, but probably not less serious. Aging treatment plants, century-plus-old water mains, crumbling structures all add up to a need for major investments to rehabilitate existing facilities plus more major investments to meet future demands.

While there are public sector examples of efficiently managed utilities with adequate, well-maintained facilities, there remains widespread skepticism as to the ability of the bulk of the industry to self-finance needed improvements. This concern has led to a vigorous discussion, still continuing, of available options. Measures have been proposed, including various proposals by EFAB, to strengthen the state Revolving Funds and otherwise increase the borrowing capacity of government-owned utilities. EFAB has also addressed the availability of Private Activity Bonds for investor-owned utilities. EPA and EFAB have strongly advocated full-cost pricing by utilities. But the perception remains that government-owned utilities frequently face capital, management, and/or political constraints which make it difficult to finance needed improvements. Among the remedies proposed for this problem, wider use of PPPs may help enforce full cost pricing in some situations, while offering communities the opportunity to increase efficiency and maintain desired levels of service.

A parallel discussion has taken place with respect to the operating and maintenance costs associated with drinking water and clean water utilities. The Gap Analysis reported that rate-making and budgeting practices observed as of 2001 would, if they continued, result in an expected twenty-year shortfall of $309 billion in operating and maintenance costs. Note that this number is even larger than the capital shortfall estimated in the same report. Consistent, industry-wide application of full cost pricing, as advocated by EPA and EFAB, would erase this gap, but many utilities are very far from this goal.

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1 U.S. EPA, "The Clean Water and Drinking Water Infrastructure Gap Analysis," EPA-816-R-02-020, September 2002.

For these reasons, EFAB has been asked to consider the potential for PPPs to alleviate the chronic funding problems in the drinking water and clean water industries. This report discusses the nature of PPPs, their present role in the industry, and certain barriers or disincentives to wider use of PPPs.

II. PUBLIC PRIVATE PARTNERSHIPS

THE PROVISION OF WATER SERVICES

In every modern urban society, the economy and many aspects of the quality of life depend upon the provision of efficient and adequate infrastructure services. These essential services include transportation, communications, energy, and water-related services. In all cases, and particularly in the case of water, the way in which these services are provided has important implications for the quality of life and of the environment as well as equity and fairness. For all of these reasons, it has always been understood that government has a broad responsibility for insuring appropriate provision of infrastructure services, even if government itself is not the provider in every case.

Since the latter half of the 19th century, water and wastewater services in the U.S. have most often been provided by local government. The public is accustomed to looking to government for safe and adequate drinking water supply, for wastewater services, for insuring that these services are consistently and universally available, and that the cost of providing them is reasonable and fairly allocated. Government is also expected to insure that there is no significant damage to the environment or unnecessary exploitation of natural resources.

To understand government's responsibility, it is helpful to divide these requirements into two categories. The first category consists of water supply and wastewater services provided to individual users. These services are, in the language of economics, ordinary market goods. They can be sold for a price, non-payers can be excluded, and others are not necessarily worse off if some do not purchase the service. Water and wastewater services, as market goods, can be provided by government, as they often are, but they can also be provided just as effectively by the private sector.

The second category of services is qualitatively different. This category includes the quality and safety of drinking water, universal access to services, fair and equitable cost sharing, environmental protections, resource conservation, etc. These are public goods. The benefits extend to all, regardless of who pays for the service, or whether anyone pays. Public goods are distinguished from market goods because they do not lend themselves to private sector provision. There is no incentive for an individual to pay for such services, since they receive them whether or not they pay. Consequently, it is difficult for a for-profit firm, acting on its own, to insure a revenue stream which covers the cost of providing these public goods. The responsibility falls to government, to be exercised by itself or through a PPP.

This report utilizes the following definition of a PPP:

> A public private partnership (PPP) is a contractual, institutional, or other relationship between government and a private sector entity that results in sharing the duties, risks, and rewards of providing a service in which the government has an interest, recognizing that the government retains ultimate responsibility for insuring that social needs and objectives are met.

At the most simplistic level, it may be argued that there is an advantage to pure government provision in that it centralizes responsibility and minimizes the need for regulation, while it can also be argued that the use of the private sector improves efficiency and relieves various constraints associated with the public sector (access to capital, for example). But it is not necessary to choose one side or the other. Private sector firms can be involved in varying degrees, through a wide range of possible PPPs.

Where PPPs are used, government retains the responsibility to regulate private sector partners so that the public goods are preserved. Regulation can take the form of drinking water quality standards, requirements for universal access, regulatory commission or local government oversight of rates and charges, environmental regulations and standards, contractual provisions, etc. Each form of partnership imposes different regulatory requirements and has advantages and disadvantages in specific applications. The following sections describe some of the forms of PPPs that have proven useful in the past.

PUBLIC PRIVATE PARTNERSHIPS IN THE WATER SECTOR

Historical Perspective

The private sector has always had a prominent role in the provision of drinking water in the U.S. In 2005, EPA identified 52,837 community water systems, about half of them classified as private sector providers.[2] A large majority of these private sector providers are very small, often not-for-profit, organizations (community associations, etc.). Considering only the largest water systems, serving at least 100,000 people each, the 2005 survey found 61 private sector providers out of a total of 386 (16 percent) utilities. The private sector providers also account for approximately 16 percent of the 126 million people served by utilities in this category.[3] It is safe to assume that most of these private sector entities are for-profit firms, and that a majority of those are subject to price regulation by state-level public utility commissions.

Some historical perspective can be gained from a survey EPA commissioned in 1982. This survey found 262 utilities serving populations of 100,000 or more, of which 47, or 18 percent, were private.[4] Using the data from this survey, a later calculation concluded that, of the 91 million persons served by these 262 utilities, 14.8 million (16.3 percent) were supplied by private

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2 U.S. EPA, "Factoids: Drinking Water and Ground Water Statistics for 2005," downloaded Aug. 6, 2007; "community water systems" provide year-round service to a non-transient population of at least 25 persons, through at least 15 service connections.

3 Calculations taken from Boland, John J., "The Business of Water," *Journal of Water Resources and Management, ASCE*," vol. 133, no. 3, May/June 2007, pp. 189.

4 Temple, Barker & Sloane, Inc., "Final Descriptive Summary: Survey of Operating and Financial Characteristics of Community Water Systems," for U.S. EPA, Washington, D.C., 1982, pp. II-2 and II-3.

utilities.[5]

After allowing for the uncertainties inherent in surveys as well as the likely restructuring of many utilities during the intervening 23 years, it is still possible to conclude that there has been little change in the number or importance of the largest privately-owned and operated drinking water utilities in recent decades. There are many other kinds of PPP, where water service remains a government function but the private sector provides important services. There is no comprehensive list or survey of these arrangements, now or in the past, so it is not possible to say anything about their prevalence.

Comparable statistics could not be located for the clean water industry, but anecdotal evidence suggests that private sector provision is much less common, especially for the larger communities.

Possible Forms of PPPs

As discussed above, PPPs take many forms. Two polar cases are:

- Investor-owned utility.--A drinking water or clean water utility is wholly owned and operated by a for-profit firm; the public sector role is limited to regulation, normally by a state-level public utility commission

- Contract service provision.--A drinking water or clean water utility is wholly owned and managed by a government entity; the private sector role is limited to contract provision of specific services

In the second case, services provided by the private sector partner may range from support functions (e.g., laboratory services) to facility-level activities (e.g., operating a wastewater treatment plant) to contract operation of all facets of the utility.

A 1991 EPA document considered six kinds of participation in service provision:[6]

5 Boland, J.J., "Water/Wastewater Pricing and Financial Practices in the United States," for U.S. AID, Washington, D.C., 1983, p. 1.2.

6 U.S. EPA, "Public Private Partnerships for Environmental Facilities: A Self-Help Guide for Local Governments," 20M-2003, July 1991, p. 4.

	Function
A	Decision to provide services
B	Facility design
C	Financing
D	Construction
E	Ownership
F	Operation and maintenance

Each of these functions can be performed by a government entity or by a private sector entity. The different forms of PPPs are distinguished by different combinations of functions allocated to each partner. Some possibilities are shown on the following list.

- Investor-owned utility: functions A, B, C, D, E, F (often subject to government regulation)
- Design-build (DB): functions B, D
- Design-build-operate (DBO): functions B, D, F
- Design-build-finance-operate (DBFO): functions B, C, D, F
- Build-operate-transfer (BOT): functions C, D, E (until transfer), F (until transfer)
- Developer financing: function C
- Contract utility operation: functions B, C, D, F
- Contract service provision: function F (for part or all of utility O&M)

Other combinations of services are possible, as local needs dictate.

An important characteristic of these partnerships (with the possible exception of some kinds of contract service provision) is that they require a long-term relationship between the public and private sector. In the U.S., contract terms for PPPs may range up to 25 years; in other countries, longer-term contracts have been used.

Overview of Current Status

Public Works Financing publishes an annual summary of the major long-term water PPPs in the U.S. The 2006 summary lists 15 drinking water partnerships, totaling some 850 MGD of

capacity, and 29 clean water partnerships, involving a total of 1,363 MGD of treatment capacity.[7] In most cases, these are contract operation arrangements, with contract terms in the range of 10 to 25 years. A few are DBO or BOT contracts. The largest drinking water partnership is with Seattle, WA, where two treatment plants with a combined capacity of 300 MGD have been constructed and are being operated under DBO arrangements. The largest clean water partnership is with Milwaukee, WI, where 550 MGD of wastewater treatment capacity is under contract operation, under a 10-year contract.

Public Works Financing also reports that the total outsourcing market (defined as contract operation plus DBO fees) has remained relatively constant over the past seven years, fluctuating in the range of $1.5 to $1.9 billion per year.[8]

PUBLIC PRIVATE PARTNERSHIPS IN THE TRANSPORTATION SECTOR

A similar crisis in infrastructure investment has been noted for the transportation sector.[9] In response to this problem, the U.S. Department of Transportation (US DOT) has become an active proponent of innovative funding mechanisms, especially PPPs, to enhance the availability of funds and the capability for project execution.

Unlike the water industry, the public highway component of the transportation sector has no significant history of private sector infrastructure provision, or of PPPs. Other activities within the sector--such as rail, air, river crossings, and water transportation--have had varying degrees of private sector involvement. As concerns have arisen regarding infrastructure needs and the perceived limitations of the ability of governments to secure adequate financing, proposals for increased use of PPPs have appeared.

Highway transportation planning, funding, and construction are handled primarily by state departments of transportation. State user fees, in the form of gasoline taxes and motor vehicle registration fees, are the primary sources of funds, with additional support from the Federal-Aid Highways program of the Federal Highway Administration (FHWA). Transportation facilities for other modes such as airports and seaports have a strong history of self-support through user fees. Mass transit obtains revenue from user fees, but is substantially subsidized by state and federal grants.

PPP Initiatives by US DOT

Despite its well-established role in supporting highway and transit maintenance and improvements, the US DOT actively promotes PPPs as a source of funding and as an alternative means of project delivery. The most recent federal funding authorization, SAFETEA-LU[10], provided for, among other things, $15 billion in Private Activity Bond allocations for highway

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7 "PWF's 11th Annual Water Outsourcing Report," *Public Works Financing*, Vol. 214, March 2007, p. 10.

8 *Ibid.*, p 4.

9 Testimony of Assistant Transportation Secretary Tyler Duvall before House Committee on Transportation and Infrastructure, February 13, 2007.

10 SAFETEA-LU is the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, signed into law on August 10, 2005.

projects, as well as authority to implement tolls on some interstate highway projects. The FHWA has also developed model legislation that states may use to authorize and encourage PPP transportation projects.[11] Previously, under TIFIA,[12] FHWA established a program for providing federal loans and guarantees as a means to encourage private investment in transportation projects. Also, DOT has established a website in order to provide access to various PPP-related resources.[13]

The DOT PPP website was created "for the transportation community in response to the growing interest in capitalizing on new forms of partnerships between the public and private sectors to plan, finance, build and operate the nation's transportation infrastructure." The website provides information from a variety of sources on a broad array of transportation PPPs. The website has links to other websites, informational resources including case studies, a glossary and a calendar of events.

FHWA has created a User Guidebook on Implementing Public-Private Partnerships for Transportation Infrastructure Projects in the United States that was published July 2007 and is available from the website. In preparing model PPP legislation, FWHA included an overview of the 28 key elements for PPP enabling legislation for highway projects, together with an explanation of their importance and sample provision text for each of the elements.

FHWA has also taken action to reduce impediments to the use of PPP procurement that result from federal regulation. The first, Special Experimental Project Number 15 or SEP-15 derives from section 502 of title 23, and it allows the Secretary to waive the requirements of title 23 and the regulations under title 23 on a case-by-case basis. SEP-15 allows FHWA to experiment in four major areas of project delivery - contracting, right-of-way acquisition, project finance, and compliance with the FHWA's National Environmental Policy Act (NEPA) process and other environmental requirements. While FHWA has long encouraged increased private sector participation in federal-aid projects, SEP-15 allows FHWA to actively explore much needed changes in the way it approaches the oversight and delivery of highway projects to further the Administration's goals of reducing congestion and preserving our transportation infrastructure.

The second initiative is increased access to tax-exempt financing. Section 11143 of Title XI of SAFETEA-LU amends Section 142 of the Internal Revenue Code to add highway and freight transfer facilities to the types of privately developed and operated projects for which Private Activity Bonds may be issued. This change allows private activity on these types of projects, while maintaining the tax-exempt status of the bonds. The law limits the total amount of such bonds to $15 billion and directs the Secretary of Transportation to allocate this amount among qualified facilities. The $15 billion in exempt facility bonds is not subject to the state volume caps. Providing private developers and operators with access to tax-exempt interest rates lowers the cost of capital significantly, enhancing investment prospects.

While not technically part of its PPP initiative, the FHWA has created a federal credit program

11 See: <http://www.fhwa.dot.gov/PPP/legislation.htm>
12 The Transportation Infrastructure Finance and Innovation Act of 1998.
13 <http://www.fhwa.dot.gov/ppp>

under TIFIA whereby DOT may provide three forms of credit assistance – secured (direct) loans, loan guarantees, and standby lines of credit. The program's fundamental goal is to leverage federal funds by attracting substantial private and other non-federal co-investment in critical improvements to the nation's surface transportation system. The DOT awards credit assistance to eligible applicants, which include state departments of transportation, transit operators, special authorities, local governments, and private entities. The program has awarded over $3.66 billion in assistance to projects that had total investments of over $15 billion.

Status of PPPs in the Transportation Sector

Even as the US DOT initiatives have encouraged some projects to move forward with a PPP structure, individual states had already begun to make use of design-build (DB) arrangements with private firms. These contracts integrate design and construction functions, often in a way that sets performance standards for the private partner, but allows considerable latitude to minimize costs. The projects are turned over to the government on completion. These arrangements are sometimes labeled "turn-key" projects. Some partnerships call upon the private partner to arrange financing (DBF), and others are DBO or BOT contracts.

It is worth noting that, prior to the US DOT initiatives, many states lacked legislative authority for PPPs involving highway projects. The US DOT PPP website, as of October 2007, reports that 21 states and one U.S. territory have since enacted statutes that enable the use of PPP arrangements for transportation infrastructure.

As of the end of 2006, the largest PPPs in the highway transportation field are the 75-year leased operation of the Indiana Toll Road (valued at $3.85 billion) and the 99-year leased operation of the Chicago Skyway (valued at $1.83 billion).[14] In each of these instances, the government entered into a concession agreement for which it received an up-front payment. Over the course of the concession, the private party must operate, improve, and maintain the project. In turn, it has the right to receive the toll revenues under a regime that is generally regulated by consumer price index or gross national product deflator increases.

Partnerships have also been reported for the rail transit sector. New Jersey Transit has developed the Hudson-Bergen Light Rail line using contracted design and construction, contracted equipment supply, and contracted O&M (total value $1.67 billion).[15] Meanwhile, the U.S. Federal Transit Administration (FTA) announced a PPP Pilot Program in January 2007 with the purpose of promoting, funding and studying transit PPPs, to highlight advantages and disadvantages. The initiative contemplates the selection of up to three projects with "high demonstration value" for the pilot program. Projects selected may be eligible for "New Starts" funding and other benefits, depending on the specific scheme. It is interesting to note that the FTA program contemplates a possible need to alter state and local legislation in order to permit some projects.

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14 "U.S. and Canadian Transportation Projects Scorecard," *Public Works Financing*, Vol. 214, March 2007, p. 14.
15 *Ibid.*

ALTERNATIVE INSTITUTIONAL ARRANGEMENTS

It is a commonplace observation that many drinking water and clean water utilities are too small to provide the kind of professional management and technical competence that is required in the present regulatory environment. It is also apparent that, because of economies of scale and other reasons, user charges are often dramatically higher for small utilities, as compared to large metropolitan systems. Still, small systems persist, usually for political, jurisdictional, or geographical reasons. Consolidation of small systems can be accomplished within a governmental ownership structure, but it requires moving operating responsibility to either a higher level of government or to a special-purpose government corporation (authority, management district, commission, etc.).

The latter alternative involves creating a quasi-corporate management structure and requiring fiscal autonomy (sometimes called "commercializing" the utility). This promotes professional management and facilitates innovation and performance improvement. Local governments can maintain their ultimate control over commercialized utilities through appointments to the governing board and through approval of tariffs. Otherwise, the utility is free to operate much like a private sector firm, answering to its owners (governments) for performance and efficiency, not for day-to-day actions. A further advantage is that larger, professionally managed utilities are much better prospects for beneficial PPPs. Compared to smaller utilities embedded in local government, the high transaction costs and political interferences associated with partnerships are expected to be minimal.

III. BARRIERS TO PUBLIC PRIVATE PARTNERSHIPS

While PPPs are not advisable or beneficial in every situation, proponents often argue that these arrangements are sometimes not even considered in cases where they may be helpful. The failure to consider a PPP may be due to real or perceived barriers, leading to a belief on the part of the public agency that no effective partnership with a private entity will be possible. Some of the possible barriers are discussed in general terms in this section.

STATE AND FEDERAL SUBSIDIES

The Drinking Water and Clean Water State Revolving Funds (DWSRF and CWSRF) have become important sources of debt capital to the water industry. The DWSRF makes no distinction between government and investor ownership. However, the CWSRF does not permit borrowings by privately-owned systems for abatement of point source pollution, except in a rare case where private point-sources are cited in the Comprehensive Conservation & Management Plan (CCMP) of a National Estuary Program. To the extent the that CWSRFs offer below-market, or even zero interest rates, this policy creates a substantial subsidy for government-owned wastewater systems.

Several states accompany their SRF programs with other programs that offer grants for specific infrastructure improvements, such as wastewater treatment upgrades. In many cases, privately-owned facilities are not eligible for these programs. This may be a matter of policy, or it may

result from the use of tax-exempt bond proceeds. Whether conveyed through interest rates or outright grants, current subsidy policy creates a significant barrier to those forms of PPP which involve private ownership of treatment facilities.

It is believed that the reason for this provision in the CWSRF was a desire to avoid using public funds to subsidize private enterprises. But if the wastewater utility is subject to state-level rate regulation, this problem does not arise. Conventional rate-of-return regulation requires that grants and interest subsidies flow through directly to rate payers. The private firm is only permitted to earn a return on its own funds invested in the utility. Thus the prohibitions serve no discernable purpose, while potentially making it more difficult to achieve affordability. Current policy is particularly problematic in hardship cases, where grants intended for such cases are denied to low-income communities because of the ownership of the wastewater utility.

LEGAL AND INSTITUTIONAL BARRIERS

Contracting

Most types of PPPs require a complex, long term contractual relationship between the public and private partners. Competing bids for PPPs often differ in important ways, preventing evaluation on the basis of price alone. In many cases, especially where capital investments are required, private sector partners may require contract terms of 10, 20, or more years. The longer the contract term, the more important it is to provide a means of renegotiating specific contract provisions to reflect unexpected changes in costs or other parameters. These renegotiations cannot, in most cases, be competitively bid without doing harm to the underlying contract.

Some public sector utilities are bound by state and local statutes or regulations which constrain the contracting process in ways that are inconsistent with PPPs. In particular, there may be term limits on contracts, prohibitions on negotiated contracts, prohibitions on take-or-pay agreements, and no authorization for private parties to collect service fees. These constraints, where present, may require a change in legislation or revised regulations. Some states, in the interest of facilitating PPPs, have undertaken these changes. Many have not. No survey on this issue was performed in connection with this report, but an earlier survey performed by EPA found that 19 states had enacted "comprehensive privatization statutes" intended to eliminate many kinds of contracting barriers.[16] The Board has learned of recent legislative changes in two states (Texas and New Jersey) which have led directly to new PPP initiatives in both states.

Depending on the form of PPP contemplated, other legislative barriers may exist in the form of public utility laws, partnership laws, and tax codes. The exact situation is specific to every state and application. The Board has conducted no survey on this subject and is not aware of any survey conducted by others.

16 U.S. EPA, "Public-Private Partnerships for Environmental Services: Anatomy, Incentives, and Impediments," Office of the Comptroller, Washington, DC, 1988.

Contract Negotiation

The need to provide for the lowest cost provision of public services, and to do so while respecting the interests of both private and public partners, results in complex contracts which must usually be negotiated between the parties. Because of the nature of the services being provided, the term of the contract, and the complexity of the agreement, very few government agencies first contemplating a PPP possess in-house competence on all aspects of the contract negotiation. This is particularly true where the PPP includes a financing role for the private partner. In this case, it is necessary for the public partner to secure competent, experienced, and independent advice. Accordingly, the contract negotiation process itself may appear to be a barrier to some utilities.

Level and Size of Relevant Governments

In 2005, more than 150 million people were served by drinking water utilities in service areas with less than 100,000 population.[17] Private firms wishing to form partnerships with any utility must face the prospect of interfacing and potentially negotiating with government agencies at the federal, state, regional, and local level. In some places, government may be as much as five levels deep. A PPP may require approval at several levels, may be regulated at one or more levels, and is likely subject to often-conflicting political forces at all levels.

These facts impose significant transaction costs on the private partner, irrespective of the size of the resulting contract. For large utilities, or for utilities serving multiple jurisdictions, the potential benefit to the private firm may outweigh the transactions costs. But if the utility is small and/or is situated at the lowest level of government, there may be little incentive for any partnership more complex than simple operating or design-build contracts. Yet it is often these small utilities that can benefit the most from the financial, technical, and operating expertise of an experienced private firm.

Federal and State Tax Policy

Although there is a long history of investor ownership of water utilities, the tax treatment of these entities continues to differ markedly from the tax treatment of otherwise identical government-owned utilities. While the details differ from state to state, and sometimes from community to community, the general situation is that investor-owned utilities pay at least some taxes that do not apply to government-owned utilities. These include real- and personal-property taxes, gross receipts taxes, franchise taxes, etc. The tax treatment of bond interest is a related issue, where interest paid on government-issued bonds is exempt from federal income tax and may be exempt from state income tax. The effect of this unequal treatment has long been recognized as provided a significant hidden subsidy to government ownership.[18]

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17 U.S. EPA, "Factoids: Drinking Water and Ground Water Statistics for 2005," p.2.

18 Gardner, B. Delworth, "The Efficiency of For-Profit Water Companies Versus Public Companies," *Water Resources Update*, No. 117 (October 2000), pp.34-39.

BARRIERS CREATED BY PAST GRANT FUNDING

Prior to 1987, many wastewater utilities received substantial grant assistance from the federal government through the Construction Grants Program. As a result, there is an existing federal interest in many wastewater facilities that may be candidates for transfer, through sale or long-term lease, to a private partner. In 1992, Executive Order 12803 was issued to simplify requirements related to such disposition. However, under the terms of that Order, whenever non-operational revenues are received by the original federal grantee as a result of the transfer, the PPP agreement must be reviewed and approved by EPA. The approval, which ends the federal interest in the asset, is contingent on an approved distribution of the proceeds of the sale or lease between grantee, state or local government, and the federal government. The federal government receives any residual revenues, after other parties have recovered their costs.

The Board is not aware of any instance in which EPA has failed to approve a proposed disposition of a grant-funded facility. However, the need to apply for such approval as well as the potential requirement for distributing the proceeds from a sale or lease amounts to a significant perceived barrier to PPPs involving grant-funded facilities.

PUBLIC AND POLITICAL OBJECTIONS TO PRIVATE SECTOR PARTICIPATION

While many advantages can be claimed for properly constructed PPPs (operating economies, improved access to capital, increased technical competence, long-term sustainability, etc.), there are a number of reasons to be cautious about these arrangements.[19] In the case of full privatization (where the private sector partner acquires full operating and rate-making authority), these reasons include the loss of certain hidden subsidies to public sector operations. Examples of these subsidies are exemptions from many taxes, access to capital through tax-exempt bonds, and the use of costless retained earnings in place of equity capital. Other issues associated with full privatization have to do with the opportunity for monopoly pricing, possible loss of control over system expansion policies, and the loss of various public goods (such as providing affordable service to low income households). These latter issues can be addressed through regulation, but regulation itself is costly and results in higher tariff levels.

Other forms of PPPs present few, if any, such concerns. In these cases, the major issue is whether the private sector partner can perform its assigned function(s) effectively and at a lower cost than the former government entity. Or, in some cases, the private partner may be able to deliver a service that the public partner cannot, such as increased access to capital. The public partner remains in control of all major policies, including rate-making.

Still, proposals to enter into PPPs often face considerable public and political opposition. Some of this reflects unfamiliarity with the new arrangement and skepticism regarding claimed advantages. Some opponents distrust the reliability of private sector arrangements to deliver services as important as drinking water and wastewater management. Others believe that it is the duty of government to provide these services, and that private sector provision is somehow inappropriate. Another concern has to do with the utility's labor force. One effect of most PPPs

19 Portions of this section are based on Boland, John J., "The Business of Water."

involving operations and maintenance is that some employees are no longer needed. They may be terminated, or the new operator may reduce staff through attrition. Either way, there is often public and political concern about this effect.

In most cases, though, the issue is simply one of economics: some people assume that the involvement of the private sector will result in higher rates and charges. Obviously, PPPs should not be entertained if their only effect is to increase costs. But public concern remains.

The concern about rates and charges is particularly hard to address in circumstances where rates are rising in any case. If the PPP produces significant efficiencies and still results in higher rates in the future, it is hard to argue that rates would have been even higher in the absence of the PPP.

Regardless of the specific issues, the prospect of public and political opposition to a PPP appears to many public agencies to be a significant barrier. In fact, few agencies will risk this kind of reaction unless the cost and operational advantages are relatively large. On the other hand, some kinds of limited PPP will produce little or no public reaction. These include most kinds of simple outsourcing which have little impact on the required labor force. But the dilemma here is that it is exactly the PPP proposals which promise the greatest cost savings that have the largest impact on the labor force (cost is reduced by reducing staff).

PREVIOUSLY IDENTIFIED BARRIERS

In 1991, EFAB reviewed the status of PPPs in the water industry, identifying a number of barriers to wider application.[20] These barriers, along with EFAB's earlier recommendations, are summarized in the following table.

20 U.S. EPA, "Private Sector Participation in the Provision of Environmental Services: Barriers and Incentives," advisory report by the Environmental Financial Advisory Board, November 25, 1991.

Barriers in 1991	Perceived Obstacles to Forming PPPs	EFAB Recommendations	Changes/Activities
Federal policies and regulations	● Federal tax laws impact cost of capital for construction of facilities. Regulations on federal grant programs restrict profitability or availability of financing. ● State-level caps of Private Activity Bonds (PABs) may discourage use of private sector capital	● Demonstration programs. ● Awards programs by EPA. ● Funding such as federal appropriations, corporate funding, and non-federal source funding. ● EPA assistance such as seminars, publications, and direct consultation on projects. ● Consistent support for relaxing or lifting caps of PABs issued for environmental or water/ wastewater purposes	● 3 pilot projects 1991-1995 ● Publications, including guidance n EO 12803 on privatization ● Funding of 2 PPP seminars by National Council for Public-Private Partnerships ● EPA supports provision in President's FY08 Budget proposal which would lift PAB caps for water/wastewater projects
User fees below the cost of service	● Private investors are less likely to invest in facilities operating at a loss. Causes hesitation to commit long-term and depend on annual budget appropriation for price subsidies.	● Promote a greater public awareness of cost of services. ● EPA could endorse the practice in EPA publications and operational guidance. ● EPA could help localities implement full-cost pricing by providing assistance to set up cost-accounting procedures and establish volume discounts/rebates for commercial on-site treatment. ● EPA could provide technical support for public outreach and information programs that explain benefits of full-cost pricing. ● EPA could help guide States to review adequacy of the fees during permit process.	● "Full cost pricing" has become on of EPA's Four Pillars of Sustainable Infrastructure ● EPA endorses setting rates at the full value of service provided in all testimony, speeches, and presentations ● EPA is working with industry partners to develop tools and techniques to assist utilities recover long-term, full cost of service ● EPA plans workshops in 2008 on cost allocation and rate design

Barriers in 1991	Perceived Obstacles to Forming PPPs	EFAB Recommendations	Changes/Activities
State and local procurement practices	● Certain procurement practices can limit flexibility in design, financing, operations or providing services. ● Procurement laws may require selection of the lowest cost bidder, eliminating competition on basis of best service or innovative technology. ● Some states prohibit local government from entering into long term contracts. ● Limits flexibility of industry to seek cost-effective means of complying with environmental quality standards.	● EPA could provide guidance to states that consider revision of procurement laws to adopt ABA Model Procurement Code and Ordinance. ● EPA could provide guidance to states and localities on legislation that authorizes long-term contracts when practical. ● EPA could develop “best practice” guidance on long term service contracts.	● No significant EPA action ● Some states (e.g., NJ, TX) have passed legislation liberalizing procurement laws to facilitate PPPs ● U.S. Conference of Mayors has developed "best practice" guide to long-term service contracts

Barriers in 1991	Perceived Obstacles to Forming PPPs	EFAB Recommendations	Changes/Activities
Investment Risk	• Lenders are reluctant to invest due to potential low return for risks involved. Risks can include limited availability of adequate liability insurance, environmental liability, and lack of adequate information on the true level of risks. • Laws subjecting contracts to annual re-approval and appropriation of funds exposes contractions to early termination risk before investments are amortized.	• EPA could help lenders/investors evaluate real risks by detailing information about the different types of risk and activities from which they derive. • EPA could provide assistance to develop "risk ratings" from an independent organization. • EPA could reduce magnitude of liabilities, such as risk-pooling through insurance programs. • EPA could endorse and facilitate new programs to offer environmental liability insurance to capital lenders and provider of services. • AIG could propose privately funded alternatives to government involvement in liability insurance. • Consider having private insurers act as third-party regulators and police use of sites they insure.	• No significant EPA activity

Barriers in 1991	Perceived Obstacles to Forming PPPs	EFAB Recommendations	Changes/Activities
Federal grants	● Private firms have to consider grant repayments for grant-funded facilities which lead to potentially high rate increases. ● The definition of public ownership and SRF regulations results in preventing public entities who are seeking SRF loans from combining existing public owned portions of a facility with privately owned ones. ● Financing options under the Title II construction grants are limited by restrictions in what is used as collateral to secure refinancing.	● Evaluate case by case waivers to federal statues and grant regulations. ● EPA could permit waivers from grant regulations to redefine public ownership. ● Consider allowing the federal repayment requirement for facilities to be reinvestment in EPA approved WWT projects. ● Redefining the period of federal interest and the period for which plants are needed equivalent to the design life of facility. ● Define concept of acceptable encumbrance for the facility.	● EPA issued draft guidance on 2000 to guide utilities through encumbrance of title and grant repayment issues ● EPA currently revising the draft guidance to be less burdensome and more flexible

The table reflects one recent activity worthy of note, under the first heading, "Federal policies and regulations." This concerns Private Activity Bonds (PABs) which could conceivably provide a source of low-cost capital to the water industry. PABs were authorized by the 1986 Tax Reform Act for the purpose of creating tax exempt status for certain public purpose bonds issued by private sector firms. Unfortunately, state-level caps on the total amount of such bonds have effectively marginalized PABs as a source of capital for the water sector. The Board has consistently advocated, beginning in 1991, the liberalization or the lifting of these caps with respect to environmental or water projects.[21] Early in 2007, with the full support of the Board, EPA endorsed the President's proposal for exempting PABs intended to finance water and wastewater facilities from the unified state volume caps. As of October 2007, Congress has taken no action on this proposal.

Another prior recommendation that has received recent attention pertains to the need for full-cost pricing by local utilities. This is an issue that goes beyond the present PPP discussion, since it pertains to the fiscal sustainability of the entire industry. However, full cost pricing is often cited as a beneficial outcome of some kinds of PPPs. Since 2003, when full-cost pricing was incorporated into EPA's Four Pillars of Sustainable Infrastructure, it has figured prominently in EPA policy statements and initiatives.

State and local procurement policies have been another area of concern. The prior EFAB report pointed to state and local laws and regulations that restricted DBO and DFBO arrangements and that limited the ability of jurisdictions to enter into long-term operating contracts. The Board has not conducted a survey of the present status of state and local policies, but we are aware of significant changes in legislation in New Jersey and Texas, both of which led to new PPPs that would not have been possible before the changes.

With respect to any other EPA or government action that may have been taken subsequent to the Board's 1991 recommendations, it appears that there were some initiatives in the first ten years, mostly directed to utility outreach and to the preparation of various kinds of guidance. There is no indication of a comprehensive, coordinated effort to lower barriers or to facilitate PPPs.

IV. EFAB REVIEW OF SELECTED PARTNERSHIPS

2007 REVIEW

In order to assess the current industry perception of barriers to PPPs, the Board performed a limited review of the experience of private sector firms presently active in various kinds of partnerships. Seven firms were contacted; five were able to provide substantive responses for a total of eleven variants of PPPs. The information provided by the companies is tabulated in an

21 Environmental Financial Advisory Board, "Incentives for Environmental Investment: Changing Behavior and Building Capital," U.S. Environmental Protection Agency, Washington, D.C., August 9, 1991; Environmental Financial Advisory Board, "Recommendations and Final Report on Financing Opportunities for the Clean Water Action Plan," U.S. Environmental Protection Agency, Washington, D.C., July 1999; Environmental Financial Advisory Board, "Private Sector Initiatives to Improve Efficiencies in Providing Public-Purpose Environmental Services," U.S. Environmental Protection Agency, Washington, D.C., June 2001.

Appendix to this report.

Some of the noteworthy results of this review are summarized here:

- Of the eleven examples given, three were DBO contracts and two were long-term operating concessions. The others were various arrangements for full or partial operating services.

- Most contracting arrangements were competitive in nature, although some were simple sole source negotiations, or negotiations following a competitive qualification review.

- Some operators reported problems with political will or with local concern over job security for existing employees and others noted protracted, complex negotiations. The most significant barrier mentioned was a Texas statutory prohibition on DB contracts, which required legislative action to overcome.

- Two factors in the success of these contracts were mentioned multiple times: (1) the ability to arrange for comparable jobs for existing employees who would no longer be needed and (2) the proximity of existing operations of the private sector partner. The latter factor may be most important for PPPs in relatively small communities, where the private partner can easily bring to bear technical and management expertise that would normally be unavailable in a small operation.

- Nearly all of the PPPs described by the companies are claimed to provide operational improvements, improved performance, and lower costs. Since these are existing, successful PPPs, these results would be expected, but some of the reported cost savings are surprisingly large (e.g., United Water reported a 30% cost reduction in Indianapolis). In some cases, performance improvement seemed especially noteworthy (e.g., American Water in Buffalo).

- In terms of lessons learned, there were comments about the need to maintain momentum in the contracting process; the need to provide escalators for fuel, materials, and labor costs in long-term contracts; the need to resolve uncertainties regarding existing employees; and the need to go into the negotiation process with a clear understanding of existing work rules. However, the strongest messages in this category came from United Water and referred to their Indianapolis and Jersey City contracts. In both cases, it was noted that the contracting process had been smooth and professional, and that these partnerships could serve as a model for other similar situations.

It should be noted that EFAB's review was limited to the experience of the private sector providers of utility services; it did not solicit the opinions of the communities who used those services. But a recent study by R.W. Beck did seek the opinions of government-owned utilities serving populations 100,000 or more.[22] Of those responding (53% completed telephone interviews), 79% had used some form of private sector service delivery, such as DB and DBO

22 R.W. Beck, "Alternative Project Delivery Survey of Water and Wastewater Utilities," 2006.

contracts. Most important, 96% of those utilities that had used these forms of PPP reported that they would do so again. Among the advantages cited were time savings, fewer construction problems, innovative designs, cost savings, and increased staff competency.

CITY OF ATLANTA EXPERIENCE

In 1999, the City of Atlanta, Georgia, entered into a 20-year agreement with United Water Services for the operation of the City's water system. Less than four years later, the Company and the City agreed to dissolve the contract. A joint press release stated that the contract was not "in the best interests of either party."[23] Other press reports at the time indicated that both the City and the Company had very serious claims against each other.[24] This negative experience confirms many of the lessons learned from the positive experiences summarized in the Appendix to this report. Successful PPPs require careful planning, continuing political will, and must clearly serve the interests of both parties.

V. RECOMMENDATIONS

FOR ACTION BY THE U.S. CONGRESS

- Eliminate the state-level caps on public-purpose PABs issued for construction of drinking water and clean water infrastructure.

- Modify or terminate the federal interest in clean water facilities constructed with assistance from the former EPA Construction Grant Program, so the communities are free to consider PPPs in connection with these facilities.

- Make privately-owned, public purpose clean water facilities eligible for loans and grants from the CWSRFs on the same footing as government-owned systems. This change recognizes that utility regulation results in all subsidies flowing through to ratepayers. But it should be noted that some states may continue to limit such subsidies.

FOR ACTION BY EPA

State-Level Statutory Barriers

- Conduct and publish a survey of existing state statutes which restrict or prohibit various forms of PPPs, either through procurement policies and other means.

- Assist the States in identifying and correcting these restrictions, including the preparation of draft model legislation, similar to the US DOT effort.

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23 The joint press release can be found at <http://www.unitedwater.com/pr012403.htm>.

24 For an account of the City's case, see <http://www.bizjournals.com/atlanta/stories/2002/08/12/story1.html>. A different perspective on this dispute can be found in Geoffrey Segal, "What Can We Learn From Atlanta's Water Privatization," Georgia Public Policy Foundation, January 21, 2003 <http://www.reason.org/commentaries/segal_20030121.shtml>.

- Monitor the results of this initiative.

- The Agency should examine the initiatives undertaken at the US DOT with respect to PPPs as a possible model for federal agency activity in this arena. The Agency should adapt/adopt those activities that would advance the use of such partnerships where beneficial for environmental utilities.

State-Level Subsidies

- The Agency should conduct and publish a survey of state and local programs, linked to or separate from the SRFs, that offer grants or other forms of subsidy to government-owned drinking water or clean water agencies, but which deny such assistance to privately owned, public purpose systems.

Tax Policy Barriers

- Conduct and publish a survey of existing state and local taxing policy with respect to government-owned vs. investor-owned drinking water and clean water utilities. The survey should address access to state-tax-exempt bond financing, real and personal property taxes, inventory taxes, gross receipts taxes, etc. The purpose of the survey is to identify cases where tax exemptions to government-owned utilities act as hidden subsidies.

- Assist the States in identifying and correcting tax policy distinctions which discourage consideration of some kinds of PPP.

- Monitor the results of this initiative.

Information Barriers

- Continue to disseminate information on PPPs, including case studies which document specific situations in which these arrangements were beneficial to the community. In particular, describe the process of tailoring a PPP to a community's needs, so that it:

  - Is cost-effective

  - Protects the interests of all parties

  - Avoids unacceptable impacts on customers including low income households, and

  - Maximizes gains to the community as a whole.

- Disseminate information on structural reform of government-owned utilities, as an alternative or as an adjunct to PPPs. EPA should encourage state and local initiatives to regionalize water and sewer utilities where cost reductions and operational improvements are likely to result.

Monitoring Progress

- EPA should consider funding an extra-governmental organization to track progress in eliminating barriers to PPPs, at both federal and state levels, and to monitor the results of these changes.

VI. CONCLUSION

PPPs are not the solution to every problem afflicting the delivery of drinking water and clean water services and they are not appropriate in every community or in every situation. However, experience has shown that PPPs can be helpful and beneficial in many cases. Despite this experience, these arrangements are often precluded or restricted by a number of barriers originating in law, regulation, policy, and perception.

The Board has found that the need for wider use of PPPs is well demonstrated, the mechanisms for considering and structuring these arrangements are known, and success stories and model applications are available. What is now required is a strong initiative by EPA to clear barriers and to take other steps needed to facilitate PPPs where they are appropriate. Since many of the barriers exist in legislation and at both state and federal levels, this initiative will require more than programs, guidance, and workshops. It requires committed and sustained leadership by EPA.

APPENDIX

2007 EFAB REVIEW OF SELECTED PARTNERSHIPS

Private Sector Partner	American States Water Company
Role in PPP	All of the PPP's in which American States Water Company and its affiliates, hereinafter, collectively referred to as AWR, have engaged have resulted in AWR being the service provider or operator if you will. In each case, the PPP's have not involved operation of a WTR or WWTP but rather the provision of full service O&M of water systems or partial O&M services.
Site name, location (city, state) and type of plant (WTP, WWTP)	See response above.
Type of PPP and specific PPP role of each party	AWR, the O&M operator, provided a wide variety of services for a number of municipalities including meter reading, billing, customer service, or a combination of some or all of the previous functions; as well as total O&M functions.
Requirements for bid participation	In each case, the PPP's listed above were open competition for all qualified participants.
Major obstacles that delayed the bidding-stage process and how they were overcome	In as much as AWR's involvement in PPP's has largely resulted from bids placed by a municipality or other agency, AWR was not informed about potential or real obstacles in the bidding-stage. However, there is significant concern relating to political will and about the lack of full disclosure of information that made certain aspects of the process cumbersome or, worse, incomplete.
Major obstacles that delayed the contract-negotiations process and how they were overcome	It is fair to say that the most significant obstacle faced by AWR was the political will (described above) to consummate a transaction. In addition, AWR could list the following: (i) level of technical sophistication of parties; and (ii) hidden agendas; (iii) lack of meaningful time set aside to engage in potentially beneficial negotiations.
Factors that helped make this PPP a success	The main factor is trust by the governmental authority in the ability of the utility to perform the function(s) of the PPP for the price and terms negotiated.
Benefits to public and private sectors	It goes without saying – efficient provision of O&M services at a price acceptable to all parties.
What, if anything, would you have done differently?	Realistically, there are a number of pointed items that AWR may have done differently. The key item, however, is to keep the process continuous and not fall prey to diversions or "other things that come up."
What is the single, most compelling reason you would offer a city to consider a PPP?	The efficient provision of full or partial O&M services at a price fair to all parties.

Private Sector Partner	Connecticut Water Company - I
Role in PPP	Middlebury Water System
Site name, location (city, state) and type of plant (WTP, WWTP)	Middlebury, CT, distribution system with pump station
Type of PPP and specific PPP role of each party	The Town of Middlebury established a water system in the mid-1990's to serve an area of contaminated wells. The initial construction of the system was paid for by the polluter. The distribution system was expanded through access to various state grants to serve other areas. The source of water was an interconnection with a neighboring city. Middlebury purchased water from the city and took on a portion of the city's debt service for construction of its water treatment plant under an agreement between the two parties. Connecticut Water, through it's unregulated subsidiary New England Water Utilities Services, had been providing fulltime contract operations, customer service and billing services to Middlebury since the system's inception. The neighboring city became involved in a lawsuit over its water supply. In turn the continued availability of water to Middlebury to supply its needs became uncertain. The Connecticut Water Company (CWC) had a water system.
Requirements for bid participation	No bid. This was a unique situation brought about by the proximity of the water systems and the availability of supply.
Major obstacles that delayed the bidding-stage process and how they were overcome	This was a complicated deal that required months of study by the Town and Middlebury and negotiation with CWC
Major obstacles that delayed the contract-negotiations process and how they were overcome	See previous response.
Factors that helped make this PPP a success	The proximity of CWC's water system with available supply and the willingness of the Town and CWC to forge a mutually beneficial partnership.
Benefits to public and private sectors	The Connecticut Water Company was able to add several hundred customers in an area with substantial growth potential. Much of that growth continues to be paid for through the Town's access to grant funds. The Town of Middlebury was able to achieve its plans for growth and provide water supply to areas of contamination or deficient supply while relieving itself of its financial obligations to the neighboring city. The Town also avoided the customer service/meter reading/billing/collection costs of running its own water system.
What, if anything, would you have done differently?	Nothing.
What is the single, most compelling reason you would offer a city to consider a PPP?	In this situation the Town of Middlebury was faced with creating its own water department. Instead it was able to access the personnel, equipment and expertise of a neighboring utility without increasing the costs to the Town or ratepayers.

Private Sector Partner	Connecticut Water Company - II
Role in PPP	Operations, Management and Maintenance Agreement between The University of Connecticut and New England Water Utility Services. New England Water Utility Services operates, manages and maintains the public water systems owned by the University of Connecticut.
Site name, location (city, state) and type of plant (WTP, WWTP)	Site Name: University of Connecticut Main Campus and Depot Campus Location: Storrs, CT Type of Plant: Public Water Systems including wells, disinfection and corrosion control treatment, and distribution systems.
Type of PPP and specific PPP role of each party	Operation, maintenance and management services provided by New England Water Utility Services, Inc for water systems owner, The University of Connecticut.
Requirements for bid participation	Request for Qualifications, followed by Request for Technical Proposals, which included a price proposal, from all qualifying firms. Upon selection of a firm's Proposal, that firm negotiated a Contract with the University.
Major obstacles that delayed the bidding-stage process and how they were overcome	The bidding-stage was delayed approximately 3 months. We were not aware of any major obstacles that had to be overcome.
Major obstacles that delayed the contract-negotiations process and how they were overcome	The contract-negotiations process was somewhat slowed as five separate departments within the University system and/or the State of Connecticut were involved in review of the contract.
Factors that helped make this PPP a success	The Connecticut Water Company, which is the sister company to New England Water Utility Services, is a regulated public water utility which has operating territories close to the University campuses and has interacted with university water system personnel over the years. In addition, New England Water Utility Services has performed various services for the University in the past, including the collection and processing of water quality samples, cross connections inspections and backflow device testing. These factors have resulted in a level of trust and cooperation between the Company and the University which continues under the contract.
Benefits to public and private sectors	Under the current contract, the University has access at a very cost-effective price to the expertise and resources of a large public water utility, including a large staff specifically trained in the operation, maintenance and management of a complex public water utility system.
What, if anything, would you have done differently?	Nothing.
What is the single, most compelling reason you would offer a city to consider a PPP?	Access to the expertise and resources of a neighboring professional water utility at a cost-effective price.

Private Sector Partner	San Jose Water Company
Role in PPP	Maintenance, installation, consulting, and other service contracts with municipal utility.
Site name, location (city, state) and type of plant (WTP, WWTP)	San Jose Water Company (SJWC) is an investor-owned public water supply utility, which supplies, treats and distributes water to a population of 1 million in the Santa Clara Valley. The company also provides utility services to other agencies.
Type of PPP and specific PPP role of each party	SJWC has maintenance, installation and consulting contracts with San Jose Municipal Water System (SJMWS), which is owned and operated by the City of San Jose. These include water main and service leak repairs, water main and appurtenance installation, preventative maintenance services (such as valve exercising) and various consulting services. In addition, SJWC provides meter testing and repair service for eight regional water utility clients. We test, rebuild and certify the accuracy of water meters in sizes 1" to 10" in our state-of-the-art Meter Shop at a cost far less than replacement.
Requirements for bid participation	The requirements are: 1. Hold a corporate General contractor's License. (An employee obtained a state contractor's license and assigned it to SJWC.) 2. Look at the City's Internet site frequently for bid solicitations. 3. Obtain each of the City's RFPs and provide bids, when there is a good fit, competing against several local contractors. 4. Attach a bidder's bond and proof of insurance to our submittals. 5. Awards were made for the annual general contract and several additional large jobs based on being the lowest qualified bidder. 6. After award, submit a performance bond and sub-contractors' payment bond. 7. Also, after award, submit references to prove we are qualified (previous job of same scope and $-magnitude).
Major obstacles that delayed the bidding-stage process and how they were overcome	Obtaining the bidders bond quickly was a challenge, but our financial staff found a source. Preparing a bid is time consuming. In lieu of customer references, we described several capital improvement projects, which our staff constructed. We have to bid every large City project separately against local contractors. We have to re-bid the general installation contract annually. We may not always be price-competitive if a high percentage of the work is delegated to our sub-contractors.
Major obstacles that delayed the contract-negotiations process and how they were overcome	The City required several forms be completed to verify living-wages for field crews; since we use subcontractors for paving and backhoe, their response delayed the contract negotiations.
Factors that helped make this PPP a success	Proximity to SJMWS and familiarity with its service area; SJWC's expertise, staff and equipment available for distribution system repair, installation and preventative maintenance; A long-term working relationship with staff at SJMWS; The need by SJMWS to have a reliable contractor who could provide rapid response to leaks.
Benefits to public and private sectors	SJWC is able to maintain the staff size needed to deal with the cyclical nature of distribution system repairs; SJMWS is provided with cost effective, high quality services, with fast response; SJWC is able to leverage its economies of scale, and pass those savings onto SJMWS; As leak repair experts, SJWC crews need less oversight by SJMWS than typical construction companies performing similar work. In addition, SJWC's crew trucks and support equipment have been specifically designed for fast response to leaks of all sizes. This ultimately results in faster repairs, while minimizing service disruption to consumers.

Private Sector Partner	San Jose Water Company
What, if anything, would you have done differently?	SJWC would have crafted the contract to better allow for actual market costs for fuel, materials and labor.
What is the single, most compelling reason you would offer a city to consider a PPP?	Under the right conditions, a PPP is a way to get the high quality services needed for the lowest cost to ratepayers.

Private Sector Partner	American Water Company - I
Role in PPP	American Water is the prime contractor for DBO and plant operator.
Site name, location (city, state) and type of plant (WTP, WWTP)	Fillmore, California; New wastewater recycling plant to replace existing antiquated wastewater treatment plant.
Type of PPP and specific PPP role of each party	The procurement was structured as DBO. • City of Fillmore: client • Boyle Engineering: procurement advisor / program manager • American Water: prime contractor; facility operator • Kennedy-Jenks Consultants: design subcontractor • WM Lyles: construction subcontractor
Requirements for bid participation	Client issued RFQ setting forth financial, technical and business qualifications criteria for bidders.
Major obstacles that delayed the bidding-stage process and how they were overcome	None.
Major obstacles that delayed the contract-negotiations process and how they were overcome	None.
Factors that helped make this PPP a success	The following factors they believe will contribute to making this a successful PPP: (i) sole source responsibility; (ii) reduction of project duration; (iii) reduced E&O claims; (iv) integrated and aligned DBO team; (v) early cost and schedule certainty; and (vi) promotes innovation and creativity.
Benefits to public and private sectors	The primary benefits are the partnership's innovative open-book / contingency sharing approach on the DB side and striking a better balance of risk allocation/ sharing, particularly in the areas of bonding, repair and replacement and sludge disposal.
What, if anything, would you have done differently?	There is nothing suggested to have done differently.
What is the single, most compelling reason you would offer a city to consider a PPP?	PPPs provide cities that do not possess internal expertise and resources for one-time infrastructure and O&M procurements an alternative approach that provides, among other things, tangible, quantifiable value to the ratepayers and, specifically, access to the private sector expertise and resources at a reasonable, cost-effective price.

Private Sector Partner	American Water Company - II
Role in PPP	American Water is the private contract operator providing professional management oversight of all day-to-day operations as well as giving direction and support for more than 130 operations and administrative staff members who are City of Buffalo/Water Board employees. There are four American Water employees at this project led by James Campolong, American Water's project manager.
Site name, location (city, state) and type of plant (WTP, WWTP)	This project includes the management of the Colonel Ward Water Pump Station and Water Treatment Plant, the Massachusetts Avenue Pump Station and Exchange Street customer service and billing office located in Buffalo, NY.
Type of PPP and specific PPP role of each party	This is a full scope O&M project. The main parties and corresponding responsibilities are as follows: American Water (Contract Operator) ● Project Management--overall O&M project oversight and contract compliance, including management oversight of city employees who carry out O&M services ● Customer Service Management--responsible for the day-to-day operations of the customer service functions, including the call center, billing operations, and collections, including delinquent collections program for water and sewer charges ● Assistant Business Management--responsible for management of the project purchase order process and vendor relations, budget compliance, and staff liaison. ● Systems Administration--responsible for support of all billing system software and development support, including field meter reading equipment and staff liaison for computer hardware and network. **City of Buffalo/Water Board (Owner)** ● Water Board sets rates, rules and regulations for the system, manages capital improvements and otherwise provides full governance of the system. ● City of Buffalo is the employer of operations, maintenance and administrative staff engaged in direct operation and maintenance activities of the system. ● Commissioner of Public Works--official representative of the Water Board and acts as the primary "responsible party" representing the City of Buffalo and Water Board. Negotiates contract terms on behalf of the Board and acts as the liaison between American Water O&M group and the City's administration. ● Principal Water Engineer-oversees capital works projects funded by the Water Board, primary contact with O&M manager related to technical and operations matters for the contract. **Conestoga Rovers & Associates (CRA Engineering) (Owner's Engineer)** ● CRA is the water board's consulting engineer for the O&M contract. CRA prepared the RFP and took a lead role in evaluating respondents' proposals as well as negotiations leading up to the Operating Agreement. CRA continues to perform contract compliance oversight on behalf of the water board.
Requirements for bid participation	Bidders were required to show that they had previous experience managing projects of a similar size and scope and the financial capacity and technical resources to support the project.

Private Sector Partner	American Water Company - II
Major obstacles that delayed the bidding-stage process and how they were overcome	Since this proposal for private management of public services was the first of its kind to be suggested in western New York, the first RFP in 1997 faced initial pushback from the public sector unions as well as the members of the City's Common Council largely over job security. The Commissioner of Public Works appeased concerns by meeting with all parties and assured them that labor retention would be a key component of the project and that these efforts by the Water Board were not only an effort to avoid future significant rate increases but also an attempt to actually reduce costs through efficiencies.
Major obstacles that delayed the contract-negotiations process and how they were overcome	Contract negotiations had to be held with not just one union group but four, and, as such, concessions over work rules were required with all four public sector unions. A Memorandum of Agreement was required which detailed management and union responsibilities and guaranteed staff reductions only through attrition. Also, since there was no preexisting management model in the area, the scope of service requirements were challenging to develop, since clear roles were not well defined within the municipal management staff. As a result, the first five-year term lacked the kind of clarity that the second five-year term provided regarding delineation of responsibilities. During the second five-year term, the scope of services were spelled out in much greater detail using examples and detailed definitions of roles and responsibilities.
Factors that helped make this PPP a success	There were many standout success factors in this milestone project for western New York. In fact, this project won the NCPPP's 2005 Public/Private Partnership award in the "service" category and was featured on the cover of *Underground Infrastructure Management's* March/April 2006 edition. Some key successes are as follows: ● The willingness of both parties to approach the Agreement as a true partnership, agreeing to work cooperatively to address all management issues as they arose, and the level of trust developed which allowed both parties to work out the details related to roles and responsibilities later. ● Clear, well-defined descriptions of scope of service deliverables that were mutually agreed to and were reasonable, which resulted in a positive experience for both parties and continues to this day. ● Well-defined contract compliance oversight by a neutral third party with the technical expertise to monitor the operations contractor as well as to provide guidance to the client with respect to interpretation of contract terms and conditions. ● Full commitment and support by American Water's O&M project team towards the City's long-term goals and objectives for operational and financial improvements. ● A contract based on reasonable commercial risks and a risk profile that is predicated upon which party is best able to control certain risks. For example, The Water Board has accepted price risk, while American Water has accepted utilization risk for electric power.

Private Sector Partner	American Water Company - II
Benefits to public and private sectors	• $4-5 million savings *annually* via across-the-board operating improvements and improved financial management. These were some of the efficiencies alluded to earlier. • Initial water rate reduction of 8 percent held for five years and rate stabilization and control in subsequent years • Huge productivity gains: an innovative labor contract utilizes city employees with no involuntary staff reductions; work rule changes and improved deployment yielded a sustainable 26 percent increase in productivity. • Complete automation of customer records and general operations (90,000 customer records were previously maintained on index cards). • Collection rate increased from an 80-percent range to 97% or greater resulting in *significant positive revenue impact.* • New state-of-the-art customer service center was built, with easy access to mass transit. • Conversion to metered water from flat rate, with installation of over 63,000 water meters. • Improvement in water quality through implementation of best practices reduced turbidity by more than 80 percent. • Responsiveness and efficiency of water- line repairs increased substantially with implementation of a computerized maintenance and management system (CMMS). • Vehicle reliability improved via a new replacement and repair program. Average age of fleet reduced from 14 years to 8 years. • Community involvement and support was an integral part of American Water's mission – water education in schools, help to disadvantaged, involvement in civic improvements and redevelopment efforts.
What, if anything, would you have done differently?	Better advanced insight into work rules could have accelerated the negotiations process and have realized the multitude of successes listed above much more quickly (time to money). Although AW participated in contract discussions and championed process change and work rule revisions, the staff continues to be governed by the Civil Service and Public Sector Collective Bargaining Agreements which are very restrictive and require multiple levels of participation and agreement before change can be implemented. Perhaps an agreement which would either enlist the staff as employees of American Water or which has a provision affording more influence over the agreements governing the operations staff would result in accelerated improvements for all parties; however, the current model has proven to be workable and a success by many accounts.
What is the single, most compelling reason you would offer a city to consider a PPP?	By entering into a partnership with a company like American Water, it will benefit from **private-sector discipline coupled with a strong public-service ethic.** The discipline, in particular, translates into a positive municipal cultural shift which will have heightened awareness of best practices and which gives greater focus to efficiencies and effectiveness top to bottom. As a result, it will save money and/or thwart higher costs, be better prepared for future "curve balls," and will be more easily adaptable to change, if required. The public-service ethic translates to better access to technologies to help sustain or improve water and wastewater protection and supply, as well as provide an ongoing high-level of customer satisfaction.

Private Sector Partner	American Water Company - III
Role in PPP	Director / NJ Contracts / project manager
Site name, location (city, state) and type of plant (WTP, WWTP)	Liberty Water Company- City of Elizabeth water system
Type of PPP and specific PPP role of each party	O&M contract 40 years- Dee Gillespie- Project manager- oversees entire project- Operated by various departments within American Water's NJ American Water subsidiary.(i.e. production, network, environmental, CFS, etc..) Too many to list.
Requirements for bid participation	Not available.
Major obstacles that delayed the bidding-stage process and how they were overcome	The contract may have originally included another City but decided to drop out. No knowledge of any other obstacles
Major obstacles that delayed the contract-negotiations process and how they were overcome	Not aware of any obstacles.
Factors that helped make this PPP a success	The biggest success factors were making certain that the existing employees from the city were offered new or related job opportunities. The other key factor was having identified the project contact person for providing immediate service and response.
Benefits to public and private sectors	The upfront payment to the City as part of the concession deal enabling the City to stabilize property taxes and pay down existing debt on water and sewer obligations. Also having an experienced operator like American Water ensured the timely and cost effective implementation of key capital and operational projects.
What, if anything, would you have done differently?	Nothing in my opinion. Both parties are satisfied, and the major has strongly endorsed our partnership.
What is the single, most compelling reason you would offer a city to consider a PPP?	PPP provides innovative measures to solve multiple City problems. In this case the concession model provided dollars to the City to address tax and debt issues, through services from a skilled operator. This often reduces system costs without affection the work force.

Private Sector Partner	American Water Company - IV
Role in PPP	Director / NJ Contracts / project manager
Site name, location (city, state) and type of plant (WTP, WWTP)	Edison Water Company- Township of Edison Water system
Type of PPP and specific PPP role of each party	O&M contract 20 years- Dee Gillespie- Project manager- oversees entire project- Operated by various departments within American Water's NJ American Water subsidiary.(i.e. production, network, environmental, CFS, etc..) Too many to list. Same as Liberty
Requirements for bid participation	Bid participation required participants to verify related experience in all facets of the water industry (i.e. repairs & maintenance, meter reading, billing and collection, customer service, production, etc.) Also, it was the obligation of the successful participant to satisfy the existing employees with employment or at least pay the township the employee salaries for a specific period if they remained with the town.
Major obstacles that delayed the bidding-stage process and how they were overcome	The township council was not all in favor; however, as stated earlier, a brief township open discussion was extremely effective in getting everyone on board. Edison was the first concession contract which generated many questions from us as manager and operator of the system.
Major obstacles that delayed the contract-negotiations process and how they were overcome	Not all council members were on board regarding the privatization. After a thorough presentation of American Water's obligations from an American Water employee the votes were all in favor. The process of questions and answers were belabored due to the lack of information in the RFP (system information).
Factors that helped make this PPP a success	The biggest success factors were making certain that the existing employees from the city were offered new or related job opportunities. The other key factor was having identified the project contact person for providing immediate service and response. Additionally, providing the capital projects to eliminate major discoloration complaints was key.
Benefits to public and private sectors	The upfront payment to the City as part of the concession deal enabling the City to stabilize property taxes and pay down existing debt on water and sewer obligations. Also having an experienced operator like American Water ensured the timely and cost effective implementation of key capital and operational projects. Edison, unlike Elizabeth, had many customer water quality complaints which were addressed and taken into consideration for long term corrective measures.
What, if anything, would you have done differently?	Nothing in my opinion, each contract / municipality is unique in its own way.
What is the single, most compelling reason you would offer a city to consider a PPP?	PPP provides innovative measures to solve multiple City problems. In this case the concession model provided dollars to the City to address tax and debt issues, through services from a skilled operator. This often reduces system costs without affection the work force.

Private Sector Partner	United Water - I
Role in PPP	Long-term O&M of the City of Indianapolis' two advanced wastewater treatment facilities; 250 MGD combined capacity
Site name, location (city, state) and type of plant (WTP, WWTP)	United Water Indianapolis, Indianapolis, IN Belmont Advanced WWT Facility Southport Advanced WWT Facility Indianapolis Collection System
Type of PPP and specific PPP role of each party	The PPP is a long-term O&M of the City of Indianapolis' two advanced WWT facilities. United Water's role as O&M manager is to treat the effluent of two advanced WWT facilities with a 250 MGD combined capacity; 193 MGD combined average daily flow collection system and Eagle Creek Dam; laboratory services; industrial pretreatment monitoring and program management services.
Requirements for bid participation	Contractor must: ● have been in the business of providing full service contract O&M and management of WWT facilities for at least five years prior to 11/01/96 and must be currently licensed to do business in Indiana; ● currently provide full service contract operations to at least five or more WWT facilities with a design average flow capacity of 15 MGD; ● currently provide full service contract operation services for at least one WWTP with a design average flow of 60 MGD. Additional requirements include: specific liability and property damage insurance, an acceptable annual (renewable) Performance Bond, an acceptable annual (renewable) Payment Bond and a requirement to accept AFSCME as the bargaining agent for the same or similar classifications of employees as are covered by the current contract.
Major obstacles that delayed the bidding-stage process and how they were overcome	Other than the delays which resulted from the exhaustive study on asset sale, the process was very professionally and efficiently done. The City used some outside consultants to assist in this endeavor but it had put together a very talented and multi-disciplined in-City team which enabled it to focus on its priorities and not be diverted by outside agendas.
Major obstacles that delayed the contract-negotiations process and how they were overcome	No Answer.

Private Sector Partner	United Water - I
Factors that helped make this PPP a success	The city was one of the privatization demonstration sites identified by EPA in the early 90's and thereby benefited from the counsel. The City was helped by EPA to consider various forms of privatization ranging from selling assets to forms of delegated management. Mayor Goldsmith recognized the value of their help and encouragement when he signed the contract in 1994. United Water improved the system's operations – saving Indianapolis more than $46 million during the first four years of the contract while reducing accidents by 85 percent. The company reduced effluent quality violations by 70 percent. The National Association of Clean Water Agencies (formerly AMSA) recognized these accomplishments over the years by giving United Water multiple Platinum, Gold and Silver Awards for Peak Performance. In addition to the savings to the City, United Water improved labor relations by signing a contract with the American Federation of State, County and Municipal Employees (AFSCME) and reducing employee grievances by 98 percent.
Benefits to public and private sectors	United Water has built strong partnerships with the Supplier Diversity Program by spending an average of 32 percent of all purchases (over the past three years) with local minority and women-owned businesses totaling more than $32 million since the beginning of the contract. United Water has also made a commitment to contribute 5 percent of pre-tax profits to community, charitable and cultural organizations. More than $2 million has been invested back in the community through the Community Relations Environmental Grant. The City's annual cost of operation was over 30% less than the cost in effect at the time. Over the past 14 years, these costs have been increased by annual inflation factors but, overall, the City has saved over $250 million as a result of the PPP. The savings were used by the City to avoid the need for sewer rate increases. Additionally, some of the revenues were transferred to the City's General Fund through the enactment of a PILT. In spite of these lower operating costs, the wastewater system has produced superior environmental performance. The private sector gained valuable insight into the development of PPPs from the ground up. The Indianapolis process was one of the first of its kind and set precedents for others to follow. As a result of the benefits awarded by the involvement of the EPA and the financial considerations given at the time to assist in the development of partnerships of this type, the private sector has been able to model this contract and process throughout the industry.
What, if anything, would you have done differently?	The Indianapolis process was very professionally done and should serve as a model for other Cities.
What is the single, most compelling reason you would offer a city to consider a PPP?	Value and efficiency. A PPP typically results in annual operating cost savings of 10 to 40 percent, allowing municipalities to avoid or mitigate increases in water rates. A sample of such partnerships realized average savings of 24 percent over the period 1992–1997 as reported in a joint publication of the Association of Metropolitan Sewerage Agencies and the Association of Metropolitan Water Agencies (AMSA/AMWA). The high rate of contract renewal indicates that service levels and environmental compliance are not compromised as a result of these efficiencies and that the private sector is capable of adding value rather than simply cutting costs.

Private Sector Partner	United Water - II
Role in PPP	DB management and operation of an 11MGD ultrafiltration surface WTP
Site name, location (city, state) and type of plant (WTP, WWTP)	Bexar Metropolitan Water District (BMDC) WTP San Antonio, Texas
Type of PPP and specific PPP role of each party	The PPP is a DBO&M. Under the terms of the contract, United Water is responsible for all aspects of designing, building, managing and operating the surface water facilities. BMDC is an industrial development corporation formed by the water district. BMDC owns the facilities, provided financing for the project and constructed a five-mile pipeline and the storage facility.
Requirements for bid participation	The project was sole sourced and therefore an RFP was not issued. The project was a DBO which in Texas required special authorizing legislation since currently government entities cannot enact DB's without specific approvals.
Major obstacles that delayed the bidding-stage process and how they were overcome	The contract was sole sourced. Montgomery Watson was contracted for the design-build and saw an opportunity to bring in United Water. The biggest obstacle was financing. Special legislation, mentioned previously, took time and cost for the District to enact. The project could have been done as a BOT with private financing if sufficient Private Activity Bond financing had been available. Lifting of the PAB bond cap would have made this option one that the District could have seriously considered since it would have created comparable costs to muni-bond financing.
Major obstacles that delayed the contract-negotiations process and how they were overcome	Refer to the above discussion on Texas DBO authorization
Factors that helped make this PPP a success	The factors that made this PPP a success were its use of innovative membrane technology, the procurement methodology which reduced the total cost of the project to $1.163 per 1,000 gallons produced – an estimated 30 percent reduction over traditional approaches and the assistance in the preservation of the Edward Aquifer by saving of nearly 3.56 million gallons of water annually through the construction of a 12.5 million gallon storage facility. The technology and design-build principles employed in conjunction with its overall benefit to the environment and the community, won United Water and Bexar Met the Texas Consulting Engineering Council Engineering Excellence Award and American City and County Crown Community Award
Benefits to public and private sectors	The ultra filtration plant treats water from the Medina River, making it the first facility in the San Antonio area to treat surface water. For generations the Edwards Aquifer has been the sole source of water for the residents in San Antonio and the surrounding areas. The demand of the aquifer has steadily increased with the development of new communities and business. As a result of the surface WTP, nearly 3.56 billion gallons of water are saved each year, decreasing the demand on the aquifer. In addition, United Water has safely upgraded the plant's design capacity to 14.5 MGD in the summer and 10.8 MGD in the winter without additional capital investment.
What, if anything, would you have done differently?	The process leading up to and throughout the contract has been successful. No changes would be made in retrospect.
What is the single, most compelling reason you would offer a city to consider a PPP?	Value and efficiency. A public-private partnership typically results in annual operating cost savings of 10 to 40 percent, allowing municipalities to avoid or mitigate increases in water rates. A sample of such partnerships realized average savings of 24 percent over the period 1992–1997 as reported in a joint publication of the Association of Metropolitan Sewerage Agencies and the

Private Sector Partner	United Water - II
	Association of Metropolitan Water Agencies (AMSA/AMWA). The high rate of contract renewal indicates that service levels and environmental compliance are not compromised as a result of these efficiencies and that the private sector is capable of adding value rather than simply cutting costs.

Private Sector Partner	United Water - III
Role in PPP	O&M and management of Hoboken's water distribution system. Customer service, billing and emergency services are also included among the company's responsibilities
Site name, location (city, state) and type of plant (WTP, WWTP)	Hoboken Water Services Hackensack, NJ Jersey City WTP Boonton, New Jersey
Type of PPP and specific PPP role of each party	The PPP is OM&M. United Water is responsible for providing the city's water supply, as well as all system maintenance and repairs, customer service, billing and collections, and 24-hour emergency service.
Requirements for bid participation	The contract was sole sourced. United Water approached the City of Hoboken at a time when the Mayor and council had interest in revitalization of the city. Consideration was given to creating an Economic Development Authority with an initial investment of $5 million, which at the time the city did not have. This was the last project before legislation was introduced to legally develop public-private partnerships in New Jersey
Major obstacles that delayed the bidding-stage process and how they were overcome	The two obstacles at the time of the birth of the relationship between United Water and the City of Hoboken were the divide between the mayor and the council over whether this partnership was in the best interest of the City and the expectations of the contract's value. Ultimately the Mayor was able to convince the council members and unions who were not previously supportive of the partnership that this was the best option for the City.
Major obstacles that delayed the contract-negotiations process and how they were overcome	As referenced in question #5, economic obstacles were the cause of the delays in contract negotiations. Eventually, both the City and United Water came to an agreement that was mutually beneficial
Factors that helped make this PPP a success	In 1994, the city of Hoboken and United Water reached an agreement that set the standards for municipal asset management in New Jersey. The city was faced with an annual $800,000 loss if it continued to operate its 40-mile water distribution system. That's when they teamed up with United Water in an innovative arrangement, the first public-private partnership for water services in New Jersey. The partnership enabled the city to retain ownership of the infrastructure and retain rate-setting responsibility. United Water has made numerous capital investments (will total $15 million over the life of the contract) including the installation of new automatic meters, new mains, new valves and new fire hydrants. Among other things, these efforts have helped upgrade Hoboken's fire rating from the worst to the best.
Benefits to public and private sectors	Investments in water infrastructure have improved the reliability and quality of the water service. This has helped the city develop a thriving waterfront which now boasts new park and recreation areas, high rise housing and commercial and retail space. United Water's role in rehabilitating NJ Transit's historic Hoboken Train Station has also helped improve the life for city commuters. The benefits to the private sector are reflected in the success of the contract with the City of Hoboken as the first of its kind in New Jersey and having set the standard across the State and country. The contract has received national recognition in the Best Practices Database of the US Conference of Mayors.
What, if anything, would	

Private Sector Partner	United Water - III
you have done differently?	The process leading up to and throughout the negotiations and contract thus far has been positive and successful. There would be no changes.
What is the single, most compelling reason you would offer a city to consider a PPP?	Value and efficiency. A public-private partnership typically results in annual operating cost savings of 10 to 40 percent, allowing municipalities to avoid or mitigate increases in water rates. A sample of such partnerships realized average savings of 24 percent over the period 1992–1997 as reported in a joint publication of the Association of Metropolitan Sewerage Agencies and the Association of Metropolitan Water Agencies (AMSA/AMWA). The high rate of contract renewal indicates that service levels and environmental compliance are not compromised as a result of these efficiencies and that the private sector is capable of adding value rather than simply cutting costs.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 9 2008

OFFICE OF
WATER

Mr. A. James Barnes
Professor of Public and
Environmental Affairs and
Adjunct Professor of Law
Indiana University
1315 East 10 Street, Suite 418
Bloomington, Indiana 47406

Dear Mr. ~~Barnes~~ Jim:

Thank you for your letter to Administrator Stephen L. Johnson dated April 29, 2008, in which you transmit on behalf of the Environmental Financial Advisory Board (EFAB) the report entitled "*Public Private Partnerships in the Provision of Water and Wastewater Services: Barriers and Incentives.*" As always, I appreciate the opportunity to review and examine any input from EFAB.

The report assesses the potential of public private partnerships (PPPs) to help alleviate chronic funding problems in the water industry. The report notes that, "PPPs cannot solve all water and wastewater utility financing or management problems," though they can be helpful and beneficial in many cases. I agree with the assertion that, "these partnerships can reduce costs, improve the quality of service, and speed the provision of needed infrastructure…the availability of this tool should be a powerful weapon in the Agency's struggle to achieve sustainable water services at a reasonable cost."

The report notes and examines a number of legal and institutional barriers to PPPs in the water industry. These include prohibitions in state or local law, the continued federal interest in existing facilities funded by EPA, and public and political objections. Office of Water staff are currently in the process of addressing one of these concerns. The application process for privatizing facilities with a federal interest is being streamlined to encourage greater participation by the private sector. Additionally, as your findings suggest, my staff will examine the period of federal interest to determine potential limits, and reexamine the definition of public ownership.

The report also brings to light a number of initiatives undertaken by the Department of Transportation (DOT), including a website with various PPP-related resources, and model legislation for states to use in order to promote PPP transportation projects. I believe these types of initiatives are needed not only in the transportation sector, but in the water industry as well, and I am directing my staff to further examine these initiatives with the hope of potentially emulating DOT.

Once again, thank you for providing this valuable input. I continue to be a strong proponent of public private partnerships in the water industry. As I am sure you know, legislation that I strongly support, authorizing the creation of "Water Enterprise Bonds," has recently been introduced in Congress. I plan to continue working with Congress and the water industry to try to achieve many of the efficiencies highlighted in the report. Furthermore, I would like to continue this discussion with the Board at your earliest convenience. These efforts, and this dialogue, are much needed in a time of dwindling resources.

If you have any questions or wish to speak further about this issue, please contact James A. Hanlon, Director, Office of Wastewater Management, at (202) 564-0748.

Sincerely,

Benjamin H. Grumbles
Assistant Administrator