

Privatizing Infrastructure

A Guide for Local Governments

Water Infrastructure Capacity Building Team | Capacity Building for Sustainable Communities | August 2012

Background

This document was developed by Environmental Finance Center Network (EFCN) through the Capacity Building for Sustainable Communities program funded by the US Department of Housing and Urban Development and the US Environmental Protection Agency. Through a cooperative agreement with HUD, EFCN is one of six teams providing capacity building and technical assistance to recipients of grants from the federal [Partnership for Sustainable Communities](#), an interagency collaboration that aims to help towns, cities, and regions develop in more economically, environmentally, and socially sustainable ways. This report was prepared by request of an individual Sustainable Communities grantee but may be of interest to other local governments considering privatizing the delivery or management of water infrastructure.

Contents

Introduction.....	2
1. How it Works	2
2. The Case for Privatization	5
3. Drawbacks.....	6
4. Words to the Wise	7
5. Case Studies	9
Bibliography and Recommended Resources	10



Introduction

Deteriorating infrastructure and constrained public budgets are increasingly prompting local governments to consider privatizing the delivery of infrastructure goods and services. Partnering with for-profit firms to design, finance, build, and / or operate public infrastructure offers the opportunity to save money, improve service delivery, and realize infrastructure goals that would not otherwise be attainable. “Whether repairing, upgrading, or augmenting an existing asset or building new, the intent is to leverage private sector financial resources and expertise, improve project delivery and to better share responsibilities and costs between the public and private sector” (Istrate & Puentes 2001, 1).

Privatization’s appeal lies in its potential to close the gap between available local funding and ever-mounting infrastructure needs. The American Society of Civil Engineers recently assigned a grade of “D” to the nation’s infrastructure, estimating that investments of \$1.6 trillion will be needed over the coming five years (Eggers & Dovey 2006, 4). Investments are needed in every sector, from healthcare to criminal justice, but topping the list of infrastructure concerns are transportation, drinking water, and wastewater (Eggers & Dovey 2006). US EPA recently estimate that \$300 - \$500 billion in investments will be needed over the next 20 years for local water and sewer infrastructure improvements alone (Eggers & Dovey 2006, 25). Local and state governments are unlikely to afford this bill on their own.

While infrastructure privatization is uncharted territory for many local governments, it is not an untested concept. As early as the 1970s, local governments across the US began privatizing wastewater treatment and drinking water systems in whole or in part (EPA 2008). Other countries, especially the UK and Australia, are considerably further ahead than the US in developing sophisticated public-private partnerships for infrastructure delivery and management. The foreign experience indicates that these partnerships, “if designed and implemented correctly, do have the potential to improve on infrastructure delivery” (Istrate & Puentes 2011, 1). Section 2 discusses the benefits that can be achieved through privatization.

Despite the promise of infrastructure privatization, however, there are challenges that local governments should consider before entering into such arrangements. Public-private partnerships usually involve complicated contracts, and many states and local governments “lack the technical capacity and expertise to consider such deals and fully protect the public interest” (Istrate & Puentes 2011, 2). Privatization necessarily involves giving up a degree of control over service delivery, and it can result in the loss of jobs for public employees, among other possible drawbacks; see section 3.

Prepared for recipients of federal Sustainable Communities grants, this report is intended to help local governments begin the process of evaluating whether infrastructure privatization is the right option for their communities. It summarizes the advantages and disadvantages of partnering with private firms to design, build, finance, operate, and manage public water infrastructure, especially wastewater treatment and drinking water systems. It begins by describing how privatization works and listing the major techniques for achieving public-private partnerships. Next it reviews the advantages of such partnerships, as well as the potential drawbacks and challenges. The report concludes by offering best practices for local governments to consider when entering into private partnerships.

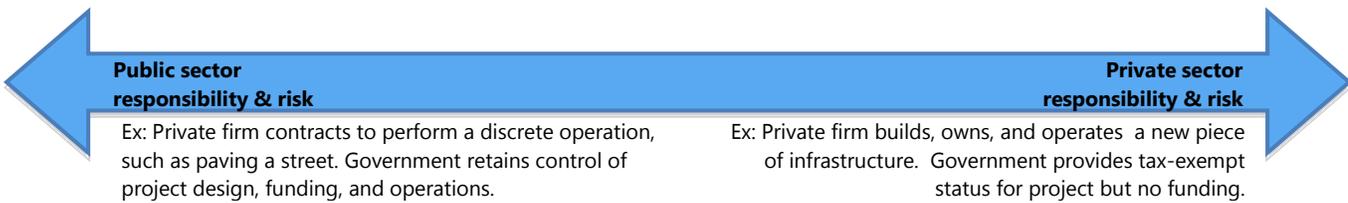
1. How it Works

Infrastructure privatization involves transferring some degree of responsibility for the design, financing, construction, operation, and / or management of public infrastructure goods and services to the private sector (Segal & Moore 2003, 1). A great range of public infrastructure goods and services can be privatized, including transportation, solid waste management, drinking water supply and delivery, wastewater treatment, and facilities such as schools, prisons, and hospitals. In exchange for providing the good or service, the private company recoups its investment and realizes a profit through fees, tolls, leasing, financing, and other methods.

While public infrastructure can be completely privatized (managed entirely by the private firm with no government funding and only minimal oversight), it is more common for responsibility to be shared between the government and private company. Such an arrangement is called a public-private partnership (PPP), a “contractual agreement between a public agency and a private sector entity resulting in greater private sector participation in the delivery and/or financing of infrastructure projects” (Istrate & Puentes 2011, 2). Compared with traditional infrastructure procurement methods, PPPs allow the private sector to assume “a greater role in the planning, financing, design, construction, operation and maintenance of public facilities” (Eggers & Dovey 2006, 8).

Public-private partnerships take many forms and can differ considerably from project to project and from sector to sector. There are numerous ways to classify PPPs, “but the most important form a public policy perspective is based on the sharing of responsibilities and risks” (Istrate & Puentes 2011, 2), as the following figure illustrates.

Figure 1. PPP Responsibility and Risk Continuum. Source: Concept from Istrate & Puentes 2011.



PPPs can fall anywhere along the above continuum, with the private sector involved to varying degrees in any number of the steps in the process, from design and construction to operations and maintenance. One on end of the spectrum, local or state government may sell an asset it has already built, as Indiana did in 2006 under Governor Mitch Daniels when it leased its 157-mile Indiana East-West Toll Road (Plumer 2012). On the other end of the spectrum, the private firm may be given control of the project from the outset, taking charge of designing, building, operating, and maintaining the infrastructure. While there is almost an infinite variety of arrangements for structuring a PPP, the following table identifies some of the most common techniques for building such partnerships.

Table 1. Tools for Achieving PPPs. Sources: Segal & Moore 2003; EPA 2008.

Tool	Description	Common Uses
Service shedding	Government ceases to deliver services and leaves them to the market.	Most commercial solid waste collection in the US
Asset sales or leases*	Government sells or leases facilities to the private sector, often in order to provide public services. Lease-purchase agreements allows a private company to build the facility, lease it to the public agency, and then provide the public agency with the option to purchase it at the end of the lease term.	Hospitals, landfills, a few water and wastewater facilities in the US
Merchant projects	Government authorizes private firms to build and own facilities with which to provide public services.	Privately owned treatment plants, landfills, hospitals, prisons, toll roads, solid waste collection services
Contract operations or outsourcing	Government hires a private firm to provide services in place of government agencies and/or operate government-owned facilities. Under an operations and management contract, the public partner retains ownership and overall management of public facility or system, but the private partner may invest its own capital and recoup its investment through fees.	Lab testing, auditing, fine collecting, recycling, many other municipal services. Most common method of privatization used in water and wastewater services in the US
Turnkey	Government contracts with private investor to design and build a facility in accordance with specified criteria for a	Wastewater treatment plants, solid waste disposal facilities

	fixed price. Fast-track construction techniques such as design-build allow private partner to complete project in less time and at a lower cost.	
Developer financing (AKA capacity credits, sewer access rights, impact fees, exactions)	Private developer finances the construction and/or expansion of public infrastructure in exchange for the right to build residential housing, commercial stores, and/or industrial facilities served by that public infrastructure. Typically under local control, so arrangements can be negotiated on a project-specific basis or mandated through an ordinance.	Construction of infrastructure such as sewer lines, biological nutrient removal technology, or whole sewage treatment plants
Build-Develop-Operate (BDO)	Private firm leases or buys a facility from a public agency, invests its own capital to modernize or expand it, and then operates it under a contract with the public agency.	Roads, bridges, transit facilities, wastewater treatment plants, recycling centers
Build-Operate-Transfer	Private partner builds a facility to specifications, operates facility for specified time period, and then transfers facility to public agency. Private partner usually provides some or all financing.	Transportation and solid waste management related projects, as well as wastewater treatment facilities

* Executive Order 12803, issued in 1992, directs all US federal departments and agencies to approve state and local governments' requests to privatize infrastructure assets financed in whole or part by the federal government to the extent permitted by law and consistent with originally authorized purposes (EPA 2008, 4A-2).

In addition to these basic PPP arrangements, a number of new PPP models have emerged in recent years to address particular situations and overcome challenges unique to certain sectors. Table 2 summarizes these new models.

Table 2. Innovative PPP Models. Source: Eggers & Dovey 2006.

Model	Description
Alliancing	Public and private partners jointly design, develop and finance the project – and sometimes also build, maintain, and operate the facility.
Bundling	Public agency contracts with one partner to provide several small-scale PPP projects in order to reduce the length of the procurement process as well as transaction costs.
Competitive partnerships	Public partner selects several private partners who, in competition with each other, deliver different aspects of a project.
Incremental partnerships	Public sector contracts with a private partner and reserves right to cancel certain elements of the project or use alternate partners if deemed appropriate. Public partner can also commission work incrementally.
Public integrator	Public sector appoints a private sector partner to manage the project development and delivery. Private partner is rewarded according to overall project outcomes with penalties for lateness, cost overruns, poor quality, etc.
Joint venture	A joint venture company is set up, a majority of which is owned by a private sector partner which has been selected competitively to complete the first phase of work. Subsequent phases are commissioned by the public sector partner but carried out by the private partner, using the first phase as a benchmark to determine the appropriateness of future costs.

How common are public-private partnerships for infrastructure delivery? Globally, PPPs are extensively used to provide a wide range of infrastructure facilities, including roads, bridges, dams, ports, schools, hospitals, prisons, and water and wastewater facilities. While the US is behind other countries in both the adoption and sophistication of PPPs, more than half the states now have passed PPP enabling legislation, and PPP projects are increasingly common (Eggers & Dovey 2006, 7). Privatization is especially prevalent in the US water and wastewater sectors. As of 2003, more than 25,000 drinking water systems—40 percent of systems nationwide—were managed by the private sector, and nearly 1,300 local governments had privatized the operation of wastewater system (Segal & Moore 2003; Eggers & Dovey 2006). This is a fast-growing area for PPPs: “private operation of water and wastewater systems rose 84 percent during the 1990s and 13

percent in 2001 alone” (Eggers & Dovey 2006, 25). Outside the water sector, states are increasingly using PPPs to fund large-scale infrastructure projects, especially transportation-related ones, through PPPs, a practice that has been widely used in Europe and Australia for decades (Plumer 2012).

2. The Case for Privatization

Close budget gaps and provide services sooner. There are compelling arguments for local governments to partner with the private sector for infrastructure delivery. Chief among these is that public-private partnerships offer private financing to fill the gap when public budgets are insufficient to meet pressing infrastructure needs. This alleviates short-term budget crunches and reduces the burden on public debt capacity (EPA 2008, 4-1). A survey of public officials of privatized water and wastewater systems found that the primary reason for privatization was to attract private capital investment (Segal & Moore 2003, 3-4). Privately-funded projects have the added benefit of being delivered sooner, in that they allow up-front costs to be spread over the lifetime of the asset, compared to the “pay-as-you-go” approach of traditional infrastructure financing (Eggers & Dovey 2006, 1).

Reduce overall project costs. Evidence indicates that PPPs can provide public infrastructure goods and services at a lower cost than through traditional methods (Istrate & Puentes 2011, 3). These savings materialize through reduced construction costs, reduced long-term maintenance costs, and reduced costs of associated risks (Eggers & Dovey 2006); see sidebar. According to one estimate, the worldwide experience with PPPs demonstrates a 15 percent to 30 percent life cycle cost savings, with three-quarters of that savings occurring the design/ build phase and a quarter in the operations phase of an infrastructure asset (Page et al 2008, 7). In the United States, a 2011 study found that private ownership of drinking water utilities increases operating revenue and decreases facility staffing levels, reducing overall operations expenditures (Gordon 2011).

Complete projects on time and on budget. Global experience with PPPs indicates that they have a “solid track record of on-time, on-budget delivery” (Eggers & Dovey 2006, 1). A 2009 study in the UK shows that 65 percent of PPP construction projects were completed on budget, compared to 54 percent of public construction projects (Istrate & Puentes 2011, 3). Similarly, a 2007 Australian study of 54 large infrastructure projects in that country found that “the privately financed ones had smaller cost overruns and were more likely to be finished on schedule than those financed through traditional public-sector methods” (Plumer 2012).

Provide expertise and improve performance. In addition to financial benefits, PPPs can provide access to private sector resources that are not otherwise available to local government, including specialized expertise and sophisticated technologies. There is also some evidence that PPPs improve water and wastewater facilities’ compliance with environmental regulations¹ (Segal & Moore 2003, 4).

Share risks and rewards. A more fundamental argument for engaging in public-private partnerships is that they allow for the sharing of financial risks and responsibilities of public infrastructure provision (EPA 2008, 4-1). Ideally, a PPP project achieves “asset maximization,” the optimal distribution of risks and value between the public and the private sector

PPP Cost Savings

Construction Phase

Due to design innovation and better-defined asset requirements, PPPs can save construction costs. An example is the innovative design-build-finance contract for the Pocahontas Parkway (Route 895) in Virginia, which resulted in this project costing \$10 million below the original \$324 million estimate.

Life-Cycle Maintenance

In traditional contracting where the private sector’s role is limited to construction, there can be “a perverse incentive to economize on elements of construction today even though maintenance costs might be higher in the long run” (Eggers & Dovey 2006, 11). Under a PPP that allocates responsibility for long-term maintenance to the same company completing construction, there is a stronger incentive to use long-last materials and design (Eggers & Dovey 2006, 11).

Source: Eggers & Dovey 2006.

¹ According to a 1999 survey of privatized water and wastewater facilities, 41 percent of the facilities surveyed were not in full compliance with the federal Safe Drinking Water Act prior to privatization. One year after entering into a PPP, all were in full compliance (Segal & Moore 2003, 4).

for a specific project (Istrate & Puentes 2011, 3).

3. Drawbacks and Challenges

Lack of know-how. Perhaps the greatest challenge for local governments considering PPPs for infrastructure provision is the complexity of these arrangements, which typically involve detailed financial contracts that can span decades. Many local governments lack the expertise and time to assess the implications of these contracts in order to secure the best public outcome. Failure to adequately vet potential contractors or to fully understand the risks and rewards of a partnership can “cripple a privatization’s success” (Segal & Moore 2003, 9). It is important that local governments invest sufficient resources to train staff, bring in expert consultants when needed, and structure the contract carefully to avoid unintended consequences.² One policy solution for local governments’ lack of capacity is for the state to establish a dedicated PPP unit, “a mechanism to build capacity to develop and implement PPPs” (Istrate & Puentes 2011, 18). These units provide expert advice, technical assistance, policy guidance, quality control, and PPP promotion, in order to ensure that PPPs are fully maximized in the state and that they serve the public interest. As of 2011, seven states had such units established³ (Istrate & Puentes 2011).

Loss of oversight. Local governments may be hesitant to enter into a partnership because of concerns about the potential for lost oversight, especially since they will continue to be accountable to the public for delivery of the service. To mitigate this concern, the partnership agreement should be carefully structured to allow continued oversight and ensure that performance standards are achieved. Effective project government and monitoring models should be established for both the construction phase and the concession or maintenance phase (Eggers & Dovey 2006). Freed from managing the asset themselves, public officials may find that they in fact have more time to provide oversight and ensure that desired customer service levels are met.

Conflicts between partners. Good planning and clear contracts can mitigate the worry that disagreements will develop between partners. Clearly delineating expectations from the outset helps all parties understand desired outcomes as well as risks and benefits. “The more that the expectations of the contract are based on measurable outcomes and outputs (like costs, quality, reliability, etc.), rather than inputs (like work levels, hours, personnel, etc.) the less subjective everyone’s assessment will be and the less likely it is that conflicts will arise” (Segal & Moore 2003, 9). In addition to defining expectations up front, the partnership should establish protocols for addressing any issues that arise during the contract. For example, “when the Netherlands initiated its first highway PPP [...], the government and the private partner held ‘alignment meetings’ when they faced cooperation problems. These informal meetings, attended by the key team members of both sides, were aimed at de-escalating problems” (Eggers & Dovey 2006, 16).

Failure to deliver outcomes. Similarly, fears that the private partner will fail to deliver on its promises can be offset by careful upfront planning, especially the creation of performance measures as part of the partnership agreement. Performance measures should be established not only for overall project objectives, but also for asset management goals as well as day-to-day operations and service delivery expectations (Eggers & Dovey 2006). Such performance bonds ensure that the contractor will achieve desired outcomes and pay for transition to public management if these outcomes are not met (Segal & Moore 2003, 9). One reason a private partner might cancel the partnership is fiscal insolvency due to lower-than-expected revenue, which can happen if partners fail to accurately predict future demand. The contract should stipulate that the facility revert to public sector ownership in such a case (Eggers & Dovey 2006).

Cost overruns. While the evidence indicates that privately managed infrastructure projects are more likely to stay within budget, local governments may still be concerned about the potential for cost overruns “caused by low-ball bids or by failure to accurately assess the existing conditions and limitations of facilities” (Segal & Moore 2003, 9). To assuage this worry, the partners may choose a fixed-price contract, in which the private partner agrees to provide the given service(s) at a set cost (Segal & Moore 2003).

² For example, Maryland’s pending privatization bill has been criticized for opening the door for government to circumvent the competitive bidding process (Plumer 2012).

³ California, Colorado, Georgia, Michigan, Oregon, Virginia, and Washington

Fee increases. Consumers may be worried that the private operator of the infrastructure facility will raise service fees, which they will have no choice but to pay if the facility is a monopoly. Such consumer resistance to fee increases may be partly to blame for the current situation in which fees for services like water and roads fail to reflect the true cost of providing and maintaining the infrastructure. Indeed, some governments are attracted to PPPs because they “move the issue of fee increases away from the political realm so that market, rather than political, considerations can guide fee increases” (Eggers & Dovey 2006, 33). However, governments do have options for limiting fee increases if desired, including:

- Tying fee increases to a predetermined rate, such as the rate of inflation
- Paying an “availability fee” or other subsidy to the private contractor, to account for the gap between user fees and the cost of servicing project debt
- Offsetting the burden to low-income residents through vouchers, discounts, or other subsidies
- Buying back the facility after it is completed and leasing it to the private company, which agrees to operate the facility and sell the good at a fixed price. This benefits the public sector, which acquires a new facility with no upfront investment, and it benefits the private sector, which enjoys more certainty about future revenue (Eggers & Dovey 2006, 33-34)

Equity implications. While government is charged with safeguarding the public interest, private companies have no such mandate. This fact engenders the concern that the private partner may not distribute goods and services equitably, but rather provide them according to ability to pay. The government agency will need to retain sufficient oversight or control of the project in order to ensure that all members of society receive the infrastructure they need at a cost they can afford.

Job losses. Public employees and labor unions may object to PPPs because of concerns over possible job losses, a real possibility if private management results in more efficient operations (EPA 2008). No-layoff guarantees can be written into the PPP contract if appropriate.

Uncertainty about future needs. It may be difficult for government to accurately predict future infrastructure needs because of a host of factors, including altered consumer preferences and behavior, policy changes, technological advances, and infrastructure deficits that don’t emerge until the project has begun. Without accurate predictions of future needs and demand, it will be difficult to establish performance expectations and achieve a fair contract price. “For projects that are especially vulnerable to these uncertainties, models with increased flexibility and shorter contract periods can improve the likelihood of achieving public policy objectives for infrastructure development” (Eggers & Dovey 2006, 17).

Won’t work everywhere. It is important to note that privatization is not appropriate for every infrastructure project. Private companies will only enter into a partnership if it is potentially profitable, shying away from projects like roads in states with little traffic. Ways around this include offering subsidies to private firms, who then still bear the risk of a shortfall in demand (Plumer 2012).

4. Words to the Wise

Shifting some of the risks and rewards of public infrastructure provision to the private sector has potential to benefit both the public agency and the private company. With good planning and careful attention to the contract’s provisions, PPPs can enable local governments to provide public goods more efficiently and cost-effectively than otherwise would be possible. The following tips can help local governments enter into a public-private partnership with eyes wide open and get the most out of the arrangement.

Recognize that PPPs aren't a silver bullet for budget woes. While it may be tempting to view PPPs as “free money” or a quick solution to funding gaps, “it is important to note that PPPs are a financing tool, not a new source of funding” (Istrate & Puentes 2011, 3). The public will ultimately fund the project, either through payments from local government or fees from consumers. Governments should also recognize that they may be giving up a source of long-term revenue in exchange for a lump payment up front (Plumer 2012). For these reasons, PPPs should be seen not merely as a way to fill revenue gaps but as a tool for better risk and cost allocation and as a new way of operating (Istrate & Puentes 2011).

Understand that public employees will fill new roles. While private infrastructure provision may reduce the need for government staff to design and engineer a project and to operate the service, it nevertheless places additional and different responsibilities on current workers. Staff will be expected to provide long-term project management and oversight, and they will need a new set of skills including “negotiation, contract management and risk management” (Eggers & Dovey 2006, 16). Local governments will need to train staff to perform these roles or hire new staff with the appropriate skills.

Don't rush in. The appeal of a PPP may prompt local governments to enter into a deal without fully evaluating costs and benefits. Especially for governments that are new to the PPP process, it may be worth hiring outside expertise to evaluate or prepare the contract, assess best value for money, and train government staff in how to manage the PPP relationship.

Seek a supportive legislative framework. At a minimum, states must pass legislation enabling localities to engage in PPPs; as of 2006, more than half of the states had such legislation on the books (Eggers & Dovey 2006). But they can go further to support the PPP process, including establishing PPP units, as described in section 2, to provide the technical expertise that local governments need. Table 3 shows which states have PPP units in place, and features of a legislative framework conducive to PPPs can be found in the sidebar.

Adopt a life-cycle perspective. There is a strong temptation to focus too narrowly on the transaction phase of a PPP, when in reality all stages are important to the project's long-term success. Since the local government retains ultimate responsibility for infrastructure maintenance and delivery, it must give due attention not just to the transaction, but also to the policy and planning phase and the operations and management phase. Helpful guidance on the three major phases of an infrastructure project, and the activities that need to be completed during each, can be found in Eggers & Dovey 2006.

Tailor it to the sector. Challenges and opportunities vary significantly from one infrastructure sector to another. The public partner should ensure that its PPP policies and strategies are appropriate for the sector it is considering. What works for transportation won't necessarily work for drinking water.

Features of a State Legislative Framework Supportive of PPPs

- Afford public entities flexibility in the types of agreements they enter into
- Allow contracts to be awarded according to best value, not just low price
- Allow mix of public and private dollars
- Allow “mixed concessions” (the reconstruction or expansion and long-term operation of existing facilities)
- Allow long-term leases of existing government assets
- Authorize procedures to receive and consider unsolicited proposals
- Avoid provisions that would require any further legislative act for a project to be authorized or financed, franchise agreement executed, or toll rates charged

Source: Eggers & Dovey 2006.

Table 3. States with PPP Offices. Source: Recreated from Istrate & Puentes 2011, 14.

State	Name of PPP Office	Location in the State Government	Dedicated PPP Unit	Type	Year Created
Virginia	Office of Transportation Public-Private Partnerships	Department of Transportation	Yes	Public agency	2010
California	Public Infrastructure Advisory Commission	Business, Transportation, and Housing	Yes	Commission / Advisory Board	2010
Michigan	Office for Public-Private	Treasury Department	Yes	Public agency	2008

Partnerships					
Oregon	Office of Innovative Partnerships and Alternative Funding	Department of Transportation	No	Public agency	2003
Colorado	Colorado High-Performance Transportation Enterprise	Department of Transportation	No	Government-owned business	2009
Georgia	P3 Program	Department of Transportation	No	Public agency	2009
Washington	Transportation Partnerships Office	Department of Transportation	No	Public agency	2005

5. Case Studies

Cranston, RI – Wastewater Treatment System⁴

Beginning in 1997, Cranston leased its entire wastewater treatment, collection, and pumping system to a private contractor for 25 years. This contract was the first in the US to give the private contractor full financial responsibility for a wastewater system (EPA 2008, 4B-6), although the contract allows Cranston to regain control of the facility at the end of the agreement. As part of the contract, Cranston received an up-front payment from the contractor, which is being used to retire debt, upgrade the City’s wastewater system, and enhance its sewer enterprise fund.

- PPP arrangement: asset lease
- Year entered: 1997
- Achievements: Expected to save the City \$74 million over the 25-year contract and to create stable rates for consumers over the lease term. Generating equity for the private contractor through leasing and financing.

Milwaukee, WI – Municipal Wastewater System

Milwaukee’s sewer district has a 10-year contract with United Water Services for operations, maintenance, and management of the city’s municipal wastewater system. The largest wastewater PPP agreement in the US (as of 2008), this contract won a 1999 National Council for Public-Private Partnerships project award.

- PPP arrangement: contract services
- Year entered: 1999
- Achievements: Enabled user charges to be reduced by an average of 16.5 percent. Includes a pension agreement that allows UWS employees to remain in Milwaukee’s public employee pension fund. Also includes a “no layoff guarantee from UWS for the entire term of the contract, the first of its kind to be included in a competitive contract” (EPA 2008, 4B-3).

Buffalo, NY – Water System

Buffalo’s Water Board entered into a contract with American Water Services to upgrade, operate, and maintain its water system. The original contract had a five year term with a one year extension, and the contract was renewed for another five years in 2003. This partnership won a 2005 National Council for Public-Private Partnerships award.

- PPP arrangement: contract operations
- Year entered: 1997
- Achievements: Saved the city \$21 million through operations and financial management improvements and reduced water rates by 8 percent for five years. An “innovative labor contract utilizes city employees with no involuntary staff reductions” (EPA 2008, 4B-4). This project has resulted in significant improvements to the city’s water system, including:
 - automation of customer records

⁴ All case studies except the legislative profile are from EPA 2008.

- design and construction of a new state-of-the-art customer service center with easy access to mass transit
- increase in collection rate from 80 percent to 97 percent
- conversion of system from flat rate to metered water
- improvements in water quality through best practices
- new vehicle replacement and repair program reduced average age of vehicles from 14 to 8 years

Upper Merion Municipal Authority, PA

Upper Merion Municipal Utility Authority uses developer financing through a program requiring customers to pay Sewer Access Rights fees as part of their building, zoning, and mechanical division permit fees.

Hawthorne, CA – Municipal Water System

In 1996, the City of Hawthorne awarded a 15-year lease to the California Water Service Company for the management of its municipal water system. This is an example of a long-term lease approved under the authority of Executive Order 12803.

Bibliography and Recommended Resources

Anderson, J. August 26, 2008. "Cities Debate Privatizing Public Infrastructure. *The New York Times*. Available: <http://www.nytimes.com/2008/08/27/business/27fund.html?pagewanted=all>

Davis, A. Mary 25, 2012. "Bill Would Let Maryland Seek Out Private Partners for Public Projects." *Washington Post*. Available: http://www.washingtonpost.com/local/md-politics/maryland-riding-wave-of-privatization/2012/03/24/gIqALZ0WaS_story.html

Eggers, W. and T. Dovey. 2006. *Closing the Infrastructure Gap: The Role of Public-Private Partnerships*. Deloitte Research, Deloitte Services LP. Available: [http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us_ps_PPPUS_final\(1\).pdf](http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us_ps_PPPUS_final(1).pdf)

Gordon, D. May 2011. *An Analysis of the Privatization of Drinking Water Facilities in the United States*. Masters project, Nicholas School of the Environment, Duke University. Available: http://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/3708/Gordon_David_Final_MP.pdf?sequence=1

Irwin, T. and I. Alexander. October 1996. "Privatizing Infrastructure – Capital Market Pressures and Market Incentives." *The World Bank Group Viewpoint Note*, 93.

Istrate, E. and R. Puente. 2011. *Moving Forward on Public Private Partnerships: US and International Experience with PPP Units*. Brookings-Rockefeller Project on State and Metropolitan Innovation. Available: http://www.brookings.edu/~media/research/files/papers/2011/12/08%20transportation%20istrate%20puentes/1208_transportation_istrate_puentes.pdf

Mansour, A. and H. Nadji. September 2006. *US Infrastructure Privatization and Public Policy Issues*. RREEF Research.

National Association of Water Companies. 1999. *NAWC Privatization Study: A Survey of the Use of Public-Private Partnerships in the Drinking Water Utility Sector*. Washington, DC: National Association of Water Companies.

Page, S. et al. March 27, 2008. *The Risks and Rewards of Private Equity in Infrastructure*. Presentation, Keston Institute for Public Finance and Infrastructure Policy, University of Southern California. Available:

<http://www.usc.edu/schools/price/keston/documents/PAGERisksandRewards.pdf>

Page, S. et al. 2008. "The Risks and Rewards of Private Equity in Infrastructure." *Public Works Management & Policy*, 13 (2): 100-113.

Plumer, B. April 1, 2012. "More States Privatizing Their Infrastructure: Are They Making a Mistake?" *Washington Post*. Available:

http://www.washingtonpost.com/blogs/ezra-klein/post/more-states-privatizing-their-infrastructure-are-they-making-a-mistake/2012/03/31/gIQARtAhnS_blog.html

Public Works Financing. 2011. "2011 Survey of Public-Private Partnerships Worldwide." *Public Works Financing* 264: 1-24.

Reinhardt, W. 2011. "The Case for Public-Private Partnerships in the U.S." *Public Works Financing*, 265.

Segal, G. 2003. *Issue Analysis: The Atlanta Water Privatization: What Can We Learn?* Georgia Public Policy Foundation. Available:

http://www.gppf.org/article.asp?RT=20&p=pub/Water/atlanta_water.htm

Segal, G. and A. Moore. 2003. *Frequently Asked Questions About Water / Wastewater Privatization*. Reason Public Policy Institute, Policy Brief 26. Available: <http://reason.org/files/db5c3e3e5365eb334855d7d818ef53d9.pdf>

U.S. Environmental Protection Agency Environmental Finance Program. 2008. *A Guidebook of Financial Tools*. Available: www.epa.gov/efinpage/guidbk98/gbk4b.htm.

United States Government Accountability Office. May 2005. *Defense Infrastructure: Management Issues Requiring Attention in Utility Privatization*. Washington DC: GAO-05-433.