

Design-Build-Finance-Own-Operate-Transfer Approaches

James Smith¹

Executive Summary

The preceding section discusses the role of Public Private Partnerships [PPP] in the delivery of water infrastructure in Texas. Given the historical applications of PPP's in infrastructure delivery around the world, there is a clear argument that this option should be available to public decision-makers as they decide how to approach desalination projects.

This section discusses the wide range of options available to decision-makers to deliver water infrastructure projects, or more properly to deliver the product produced by a water infrastructure project. The options available flow mostly from the risk tolerance of the parties—the public owner and the private provider—and their willingness to take risks with an appropriate return. Structuring the relationship between the parties is often quite complex, requiring subject matter “experts” to structure the allocation of risk in documents satisfactory to all parties.

This paper will briefly discuss the issues surrounding each of the components of the project delivery process. Local jurisdictions should have the option to deliver their desalination projects through a PPP delivery system.

Background

The Traditional Project Delivery Process. The traditional project delivery process, sometimes referred to as the “design-bid-build” process, features a dominant role by the owner. Much of the risk is held by the owner who drives the process in a series of sequential steps.

- **Project requirements.** The owner determines project requirements, using information at his disposal and perhaps employing “experts” to help with project definition. This process, known as programming, yields sufficient information for the owner to decide to proceed with the project and provides preliminary budget estimates.
- **Project financing.** Determining the source of funding is handled by the owner and in the case of public owners there are usually several options that range from direct appropriations to revenue or general obligation bonds. It is the owner’s responsibility to find and secure project funding.
- **Project design.** Once the owner is ready to proceed, he goes through a selection process to select a designer. This process is usually a credentials-based selection process with price for the designer’s services negotiated AFTER the designer has been selected. This credentials-based selection process is mandated by the Brooks Act and state-enacted “Little Brooks Acts”, as implemented in procurement regulations.

¹ Texas A&M University

- **The bid process.** Once the design is completed, the owner goes through a publicly advertised, competitive bid process where the contract is awarded to the lowest bidder, determined to be a responsive and responsible contractor.
- **The build process.** The lowest bidder executes the construction in accordance with plans and specification, produced by the designer, but provided to the builder by the owner. Upon completion, the builder transfers the facility to the owner, who assumes responsibility for the operation and maintenance of the facility.
- **Operation and maintenance.** The owner operates and maintains the facility and may use in-house staff or contract support or some combination of the two.
- **Ownership.** Typically the site belongs to the owner and title of the constructed facility vests in the owner at completion by the builder.

This traditional project delivery process became the dominant delivery process for public owners in the latter half of the last century. Legislation and implementing procurement regulations codified this process. It occurred as a result of the zeal of public officials and legislators to protect the public interest by requiring public owners to drive the process with competitive bidding as the cornerstone.

The Rise of Alternative Delivery Systems. In the 1980's there began to be growing dissatisfaction with the traditional delivery process. Litigation was often the result of the adversarial relationships between architect, engineer and builder. Owners were becoming increasingly distressed by having to act as referee between the parties, and cost overruns and schedule delays were becoming all too common. As a result alternative delivery systems began to surface in the public sector. National organizations were created to promote alternative delivery systems. For example,

- Created in 1993, the Design Build Institute of America [DBIA] has a mission “to advocate and advance single source project delivery within the design and construction community. The design-build method of project delivery embraces architecture/ engineering and construction services under a single contract, thereby re-integrating the roles of designer and constructor. DBIA members include practitioners from all project phases, plus public- and private-sector project owners.” Details are available at www.dbia.org.
- Similarly, the National Council for Public Private Partnerships [NCP3P] was created “to advocate and facilitate the formation of public-private partnerships at the federal, state and local levels, where appropriate, and to raise the awareness of governments and businesses of the means by which their cooperation can cost effectively provide the public with quality goods, services and facilities.” Details are available at www.ncppp.org.

During this same time frame, states began to enact procurement legislation to permit state agencies and other public owners to use alternative project delivery systems. In Texas in 1995, the 74th Legislative Session passed Senate Bill 1 which authorized Texas school districts to use a menu of procurement processes to include—

- The Traditional Process, design-bid-build,
- Competitive Sealed Proposals,
- Request for Proposals, and
- Design-Build.

Senate Bill was crafted by a Joint Industries Task Force with representation from architects, engineers, constructors, and attorneys.

In 1997, substantial changes were made to the provisions of Senate Bill 1 with the passage of Senate Bill 583. This Bill, which now appears in the Education Code 44, made some clarifications to the original bill, opened up additional procurement options, and added colleges and universities to the public owners who could use the procedures. This bill sets forth seven delivery options as follows:

- **Competitive Bidding.** The traditional method described above.
- **Competitive Sealed Proposals.** This method is similar to the traditional method except the owner is free to negotiate price and services with the offerors, and more important, selection can be based on a “best value” selection method which considers price and technical merit.
- **Construction Management at Risk.** In this process, the construction manager is hired early in the design process and provides consulting services during the design to influence the construction materials and methods to be used. The construction manager then builds the facility, taking construction risk and contracting directly with subcontractors. The concept of Guaranteed Maximum Price [GMP] is introduced and the Construction Manager will provide a GMP at some point early in the delivery process.
- **Construction Management Agency.** A construction agent acts as eyes and ears for the owner and can provide advice and assistance to the owner with regard to both design and construction. The construction agent does NOT hold any contracts or take any of the construction risk.
- **Design-Build.** In this method the owner contracts with a single entity to provide both design and construction services. It is intended to reduce conflict between the parties and is touted to reduce the time to deliver the finished facility.
- **Bridging.** Bridging is a form of design-build where the owner employs an architect-engineer firm to produce preliminary design which is used in the process to hire a design-builder to complete the design and construction.
- **Job Order Contracting.** This delivery process, originated by the Defense Department for application on military bases, is designed to deliver minor construction, repair, rehabilitation or alteration of facilities. It uses pre-priced work items which are applied to minor project scopes of work. Contractors are selected based on competitive proposals wherein the contractors propose a multiplier to be applied to the pre-priced work items.

Since 1997 additional legislation has opened up these alternative delivery options to cities, counties and other public owners. Still not included in these delivery options are “horizontal” infrastructure construction—highways, water and wastewater plants, etc.

Harnessing the Private Sector

In the next section of this report there is an excellent example of a public private partnership to provide water for the City of Houston. This case study by Jeff Taylor is an excellent example of how a public private partnership can work. In this section, the ingredients necessary for a successful PPP are discussed.

There is no “model” of a “standard” public private partnership. Each one is crafted as a stand alone partnership taking into account the parameters of the project, and more importantly, the risk tolerance of the partners. As the name implies, there are three components of a PPP:

- **The Owner or the Public Partner.** The Public partner may be any public owner who has a facility need. This may be a city, a county, a highway department, or the Corps of Engineers, for example. Procurement regulations which flow from legislation must allow the public owner to use alternative delivery systems. In many instances it may be desirable for a special purpose public entity to be created to act as the public partner. Sports authorities, utility districts, local government organizations [see the example of the Houston Area Water Corporation in the next section] are able to function as the public partner
- **The Private Partner.** The private partner may be a single company, but more often it is a team of companies who have come together to execute the partnership. The team is usually tailored to cover all the disciplines and expertise necessary to deliver the partnership. The team may take a number of legal forms—a special purpose corporation, a joint venture, etc.
- **The Partnership Agreement.** The agreement between the parties is often complex and involves numerous documents, particularly if there is a private financing dimension to the project. It involves much more than a design and a construction agreement. Both partners need to involve legal experts when structuring the PPP agreements.

In order for a PPP to be a viable option, there are several conditions that are necessary for a PPP to be structured:

- **A clear and sustained need for the project.** The project must have a strong public need and that need must be extant for a foreseeable future. Future need is essential to be able to justify funding for the project if funding is to be derived from the revenue provided by the product or service delivered by the project.
- **A solid project scope definition.** There must be no question as to the project scope—at least in terms of performance. Agreement on project performance requirements by the partners must be absolute.
- **The project must produce a product or a service that can be measured.** Project financing is almost always derived from the product or service produced by the project. Whether financing is provided by the public partner or the private partner it is essential that the revenue stream from the project be quantifiable so that an appropriate financing mechanism can be set up. If private financing is to be an option, the public partner must be willing to enter into a long term agreement to take the product or service provided by the project and to pay for it—a so-called “take-or-pay” agreement.

- **The partners must be able to agree on how to share the project risk.** The partners must negotiate and agree on “The Deal”. The roles and responsibilities of the partners must be clear and complete for both sides and must be reduced to writing.
- **The project must have a strong political champion willing to confront the interest groups who may be opposed.** PPP’s are different. There will be opposition from various interest groups who see the PPP as an infringement on their normal rights and responsibilities, and there must be a strong political champion willing to work with these groups to mitigate their concerns.

PPP’S and Desalination

It is interesting to note that the three pilot desalination projects selected by the Texas Water Development Board all come from industry proposals for some form of PPP. There is probably very good reason for this; desalination plants appear to be excellent candidates for delivery as public private partnerships. Globally, there are many examples of PPP’s for desalination projects which can serve as models for structuring a PPP in Texas.

Given the necessary parameters for successful PPP’s set forth in the paragraph above, a strong case can be made for this option to be available for desalination plants in Texas:

- **A clear and sustained need for the project.** There can be little argument that Texas must aggressively address its water needs for the future. With the costs of desalination becoming more competitive with traditional water supply sources, desalination must be an option to consider in regional water plans.
- **A solid project scope definition.** Defining the scope of a desalination project is relatively straight forward; the quantity and quality of water desired from the plant can be determined and supply duration can be specified. Although the desalination technology to be used could be specified, the public owner might leave that to the private partner.
- **The project must produce a product or a service that can be measured.** This is very straight forward for a desalination plant—produce a specified quantity of water at a specified level of quality and produce it for a specified period. The water produced can be costed and priced to guarantee a revenue stream, which can, in turn, provide project financing.
- **The partners must be able to agree on how to share the project risk.** In comparison to other forms of PPP’s, desalination PPP would be relatively simple to structure. The model of the Houston Northeast Water Supply project may help structure an agreement.
- **The project must have a strong political champion willing to confront the interest groups who may be opposed.** Certainly Governor Perry has stepped forth as a champion for moving ahead on desalination demonstration projects. It will be essential that political champions be found in local political jurisdictions with an interest in pursuing a PPP option for desalination.

PPP’s are not easy to structure. However, there are many examples of PPP’s that have been very successful. Texas should have them as an option for its desalination demonstration program.