

Memorandum

To George Meservey, Director of Planning & Community Development
Michael Domenica, PE, Program Manager

CC Betsy Shreve, AICP, AECOM Project Director
Mark Abrahams, The Abrahams Group
Matt Abrahams, The Abrahams Group
Paula Winchell, AECOM

Subject **Town of Orleans, MA**
Water Quality and Wastewater Planning
Task Number 5 – Financial Evaluation
Deliverable 5.d.5 - Technical Memorandum Public Private Partnership Options

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From Thomas Parece, P.E., AECOM Project Manager

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1. Purpose

This memorandum defines Public Private Partnerships (P3), identifies some of their key advantages and disadvantages, and provides a discussion of potential use of P3 in support of Orleans Water Quality and Wastewater Management program. P3 has the potential to save the Town substantial amounts of money through the opportunity to partner with a private entity to construct, operate, maintain, and/or finance wastewater treatment and effluent disposal, and septage management. The opportunities for P3 in Orleans are primarily focused on potential sewerage of the Downtown Area.

2. Introduction

A. Definition of Public Private Partnerships (P3), Key Participants and Respective Roles

Numerous sources define the term P3 as "a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance" (PPP Knowledge Lab). A P3 may be desirable because of the potential to reduce costs through private developer efficiencies and use of alternative procurement strategies to reduce contracting and labor resource requirements. There are several key participants in a P3. These include the public entity (Town of Orleans) as the owner; the private developer or the equity partner; a financial advisor to develop financial model and/or possible payment structure; a legal advisor to develop the legal agreement; and a technical advisor to provide technical review and guidance on compliance requirements. Depending on the desires of the Town, the key participants may also include a separate facility contract operator.

B. Overview of Use/Function of P3 in Water Quality and Wastewater Planning; Reducing Cost and Increasing Affordability

The primary use of P3 in water quality and wastewater planning is to introduce private equity and management structure into the construction and operation of the wastewater infrastructure, potentially reducing overall construction and operations costs, and thus the outlay of public dollars and associated financial burden to ratepayers. Private equity in water quality and wastewater programs has been demonstrated in many cases to reduce overall project costs due to lower labor costs (i.e. avoiding need to comply with Davis Bacon Act), to reduce costs due to more aggressive, professional management techniques (e.g. equipment inventory sharing) and to produce an expedited overall implementation schedule.

In addition to cost reduction, P3 has the potential benefit of reducing risk to the public entity by shifting some of the performance, construction, operation and compliance risks to the private entity. All risks must be evaluated closely when considering a P3 to confirm suitability for a particular application. The evaluation of risk is often done through having the key participants complete a risk assessment to evaluate all aspects of the project, from pre-development through construction and operations and monitoring. Allocation of final risk is then documented in a contractual agreement between the owner and private entity.

C. Design Build or Design Build Operate as Possible Procurement Option.

Design-Build (DB) is a form of project implementation in a P3. However, DB has been successfully utilized on many water and wastewater projects in New England and nationally even when these projects are not P3. In a DB, the Town would select and execute a single contract with a single entity to both design and construct the desired facility. There are two types of design-build project implementation being commonly used in water and wastewater projects. These are progressive design build and fixed price design build.

In a progressive design build the procurement is conducted in two phases. In Phase 1 the Owner develops a request for proposals and conducts a qualifications based selection (QBS) selection of a design build firm based on qualifications, experience, and in some cases preliminary engineering services. In Phase 2 the selected DB firm conducts engineering to approximately the 60% design level and provides the Owner with a Guaranteed Maximum Price (GMP) to complete the design and construct the project. If the GMP is accepted by the Owner, the DB firm completes the design and construction of the project. The Owner also has the option of not accepting the GMP and completing the project on a traditional basis if it deems this approach to be in its best interest. Advantages of a progressive DB approach include all the typical advantages of a design build project such as quicker implementation, single source responsibility, and shifting of risks from the Owner to the design builder. Other advantages can include reduced up front procurement costs for the Owner because significant bridging documents such as an indicative design need not be produced by the Owner to implement a progressive design build.

In a fixed price design build procurement the Owner typically completes, with the services of a technical advisor, a basis of design report and/or 25 to 30 percent preliminary design documents of the facilities to be constructed, to provide a basis for soliciting DB proposals. The Town may also go through a pre-qualification process to request and review bidder qualifications and generate a short list of three but no more than five potential DB teams. The Owner's technical advisor may also serve as the Owner's Representative for the procurement of the contractor, and provide oversight during the remaining design and construction phases of the project.

Design-build represents a complete integration of engineering design, procurement and construction, and often results in expedited schedules due to the elimination of separate bidding step and the ability to fast track the project, fewer change orders and claims, collaboration between all the project parties, shifting of risk to the DB contractor, and provides early price certainty for the Owner. A design build project can also contain an operations component. In a design-build-operate (DBO) project, the DBO contractor would also operate the facility.

Because of the advantages described above design build is becoming a popular project implementation method nationwide. AECOM's experience with DB or DBO projects are they can reduce capital costs by an average of 21 percent over traditional project delivery and may reduce O&M costs by an average of 5 percent. DB also has potential to reduce the overall time for project implementation by 6 to 12 months due to reduced procurement time and the ability to fast track. Depending on the size of the project, the design build phase (engineering, permitting, and construction) can take between 24-30 months. When operations are included the typical length for the operations contracts are between 10 and 20 years with potential for renewal at the Owner's discretion.

In Massachusetts alternative delivery projects are authorized in accordance with M.G.L. c 149A. An application (see Appendix A) must be submitted to the Office of the Inspector General for approval and issuance of a Notice to Proceed Letter before a community can proceed with implementation of an alternative delivery project. For building construction contracts estimated to cost \$5MM or more, awarding authorities have the option of using Construction Management at Risk (CM at risk) delivery method. For public works construction contracts estimated at \$5MM or more, awarding authorities have the option of using the design-build method (Designing and Constructing Public Facilities, Office of Inspector General, 2014). According to the Inspector General's office, a design-build procurement method can only be used for horizontal public works projects, and if a building containing a laboratory or restroom facilities is included, the CM at risk method must be employed (Kolesar, Office of Inspector General, May 13, 2016). Thus for wastewater management projects that include treatment facilities with laboratories and restroom facilities, communities have obtained separate legislative approval to employ design-build or design-build operate.

A Bill is currently before the House and Senate to allow the DB/ DBO procurement method for buildings and facilities and associated collection and other infrastructure used for stormwater or wastewater treatment and disposal (Massachusetts Bill No 1722, 1/6/15).

It is estimated that the time frame to obtain legislative approval, prepare a DB or DBO procurement package and solicit for a DB contractor is between 12 to 18 months. To save time on the overall effort, communities often proceed with development of the DB procurement package concurrently with the legislative approval effort.

3. Advantages and Disadvantages of P3

- A. P3s have the potential to be advantageous to the Town, but there are also potential disadvantages that the Town should be aware of. All the potential advantages and disadvantages need to be fully vetted with the Town and its technical, legal and financial representatives before any commitments are made. Table 3-1 provides a partial list of some of the anticipated advantages and disadvantages as they relate to potential P3 for the Downtown Water Quality and Wastewater Planning program. Specific advantages and disadvantages depend on the form the P3 would take and the specific terms and conditions of the contractual arrangement. The goal of the Town would be to eliminate or minimize risk through negotiated contract terms and conditions.

Table 3-1 – Summary of Key P3 Potential Advantage and Disadvantages

Potential Advantages	Potential Disadvantages
<ul style="list-style-type: none"> • Shared capital cost with private equity partner • Reduced program capital and/or operating cost due to privatization incentives such as bonus payments for expedited completion of construction or increased performance (measured against regulatory compliance standards) • Identifying long-term value for money through appropriate risk transfer to private sector over life of project • Introduces private sector innovation to provide better and potentially more efficient public services • Expedited schedule • Ownership retention 	<ul style="list-style-type: none"> • Risk of developer default • Operations risk (equipment not maintained; performance standards not met, etc.) • Less control of project design after DB contract (if DB is used as procurement method) is executed • Uncontrolled change orders, to extent they are not controlled via the negotiated contract • Unanticipated regulatory changes imposing additional compliance responsibilities • Potential risk of rate increases due to insurance premium hikes

4. Identification of Potential P3 Opportunities in Orleans

A. Exploration of Possible P3 and DB Opportunities

The Consensus Plan calls for the provision of wastewater collection, treatment and disposal facilities to serve the approximately 350 properties in the Downtown Area. The currently proposed plan is for a collection system of gravity and low pressure sewers, a 250,000 gpd treatment facility at Overland Way (the former Tri-Town Septage Treatment Facility) , and groundwater discharge of treated effluent at a site to be confirmed. The estimated cost of that program is \$42MM. A DB or P3 to construct and operate the wastewater collection, treatment and disposal facilities could take several different forms. For example, the Town could select a DB contractor to design, construct and operate any or all of the collection, central treatment, effluent disposal, and septage management facilities. Alternatively, the Town could encourage the development of multiple cluster systems developed by one or more private developers to provide wastewater service to individual developments.

Because of interest by the Town in P3, AECOM conducted an initial workshop for the Orleans Board of Selectmen in February 2016 to provide an overview of P3 and also to discuss Design-Build as a procurement method (refer to Appendix B). The workshop generated substantial discussion, particularly because of interest on the part of a private developer owning property in the Downtown area to possibly develop a wastewater treatment and disposal system to serve his own development, and make excess capacity available to the Town.

The private developer has approximately 15 acres of property in the Downtown area. The Developer has proposed to construct a wastewater treatment and effluent disposal facility to serve his own development, and has indicated that some additional capacity may be available for additional wastewater flow from other Downtown properties. The Developer has indicated that his development would need approximately 55,000 gpd (ADF) of wastewater treatment and

disposal capacity. Initial hydrogeological study indicates that his property may have capacity to accommodate 135,000 gallons of groundwater discharge of treated effluent. The estimated capacity to serve all properties in the Downtown area is 250,000 mgd including 16,000 gpd of septage. The additional capacity provided by the private developer to treat other Downtown flow thus would not be sufficient to handle the anticipated total flow required within the planning period. The Town would need to provide additional treatment capacity of approximately 195,000 gpd, and disposal capacity of 115,000 gpd to handle flow expected to be generated in the Downtown over the course of the planning period. Thus the Town plans to continue to explore opportunities with the private developer, while still investigating options for a P3 to provide wastewater treatment and effluent disposal facility to serve a portion or all of the Downtown area.

Because there are a number of factors that need to be considered prior to proceeding with a P3, the Town is proposing to convene a Working group composed of stakeholders from different facets of the Town government, the business community and downtown residents to participate in the discussion. The Town plans to hold another workshop with a P3 Working Group in early summer to further discuss the forms a P3 may take in Orleans, the steps that are needed to pursue a P3 in Massachusetts, and potential options for the Town. A number of issues will be discussed with the Working Group including the following:

- Confirmation of components included in the P3 proposal-collection, treatment, disposal and/or septage;
- Ownership of the collection and/or treatment/disposal/septage management infrastructure;
- Capital financing plan;
- New, non-resident revenue generating sources;
- Rate-payer base and user rates;
- Engagement of all private sector entities;
- Establishing a wastewater management district;
- Defining compatible and town-acceptable rezoning plan;
- D/B, D/B/O or conventional design with contract operations including: procurement plan, key terms and conditions (T&Cs);
- Establishing a “phased” build-out of downtown with respect to D/B/O contract provisions;
- Regulatory acceptance;
- Monitoring and Regulatory compliance- who is responsible and who pays; and
- Operation and maintenance requirements for the Town.

The list of questions and topics to be discussed will be further developed in advance of the workshop so that the workshop will provide a solid basis for the Town to decide whether there is sufficient basis to pursue a P3 as a cornerstone of the Water Quality and Wastewater Management Program.

B. Risk Assessment

As noted above, before proceeding with a P3, the Town should fully understand the potential risks and potential benefits. An initial risk assessment is proposed to be held with the P3 Working Group as part of the FY 17 work effort, because understanding some of the key risks will help the Town determine what form of P3 may be most advantageous considering cost, schedule, performance and other factors. It is expected that an initial risk assessment discussion will be incorporated into one of the workshops the Town will hold with the P3 working group prior to a Fall 2016 Town Meeting.

The risk factors fall generally into nine categories, as noted below:

- Performance Risk;
- Permitting Risk;
- Construction Risk;
- Operations and Maintenance Risk;
- Change in Service Patterns;
- Financing Risks; and
- Changes in Laws/Regulations.

Identifying the risks and minimizing the unknowns is important as it will help reduce contingencies that add to costs, and result in greater impact to the rate payers.

5. DB and/or P3 Can Results in Reduction in Total Program Cost to the Town

Specific details of possible P3 and DB scenarios will be developed in conjunction with the P3 Working Group. As a representative case to demonstrate the financial benefit of a DB to the Town, a DB scenario was developed and run in which savings of up to 21 percent of the capital cost of the collection, treatment, effluent disposal and septage management facilities for the Downtown and up to an additional 7 percent of operating costs are realized. These percentage reductions are based on the average cost reductions in over ten different DB/DBO projects that AECOM has direct experience working on. This savings translates to reduced cost to the Town and greater affordability of the program to ratepayers.

6. Next Steps

As noted above the Town plans to convene a P3/DB Working Group to further investigate and discuss the potential for P3/DB as part of the Water Quality and Wastewater Management program. The Working Group will consist of representatives from the Planning Board and Finance Committee, Board of Selectman, DPW, downtown businesses, and downtown residents. The Working Group will be led by a team of experienced legal, financial and engineering consultants assisting the Town. The goal of the Working Group will be to recommend whether the Town should continue to consider P3/DB as a viable alternative for the Town, and if so, what form it should take.

Appendix A

Massachusetts Alternative Delivery Application per M.G.L. c 149A

Appendix B

Board of Selectmen Workshop P3 and Design-Build Presentation February 2016