

To P3 or not to P3

A water industry view on the
relevance of public-private
partnership delivery models

Foreword

EY

As states, municipalities and water utilities each address their own specific set of challenges, common themes emerge. These include: how best to manage infrastructure development and asset replacement; where best to access capital; how to build and reinforce operational and managerial capacity; and how to improve organizational effectiveness – all with the objective of continued safe and uninterrupted supply of water and wastewater services.

Public-private partnerships (P3), while no means a panacea for infrastructure delivery, offer distinct advantages to municipal water utilities in a range of circumstances. To date, P3s have been relatively limited in water, but the rationale for this is not always clear when it could be appropriately deployed to the public benefit.

To understand this better, we decided to conduct a survey with AWWA to gain insight into the perceptions of those directly involved in water service provision across the US.

Using the results of this survey, supplemented by our own experience of advising clients in the US water sector and commentary from key industry stakeholders, this report seeks to answer three key questions:

1. What are the main drivers of interest in P3 as a delivery model?
2. What are the key barriers to successfully pursuing P3 in water and how can these be overcome?
3. Where is P3 likely to be most appropriately deployed in the US water sector going forward?

We hope that the results are of interest and provide some valuable market perspectives for those making key strategic decisions on how to deliver the next generation of water infrastructure.



Stephen Auton-Smith
Managing Director
Ernst & Young Infrastructure Advisors, LLC

AWWA

Water infrastructure in the US is going through an unprecedented period of change, a trend that looks set to accelerate over the coming years as municipal utilities try to manage systems in the face of multiple challenges. These include capital budget and affordability pressures, deferred maintenance backlogs, evolving environmental regulation and demographic changes, as well as intensifying short- and long-term resilience issues that extreme weather events and evolving climatic trends bring.

These challenges face the US water sector at large, but municipal water utility experiences vary considerably based on scale, population demographics and location.

The American Water Works Association (AWWA) membership, totaling more than 52,000 members, represents the full spectrum of the water community: public water and wastewater systems, environmental advocates, scientists, academics and others who hold a genuine interest in reliable and affordable water.

Critical to advancing thinking and action in the water sector is knowledge, insight and the sharing of best practice. As such, we are excited to work with EY on this survey, given its experience in US infrastructure more broadly and water specifically, combined with its genuinely global view of water utility experiences and infrastructure delivery, making it an ideal partner for AWWA.

This paper is one part of a growing effort by AWWA and other key stakeholders in the US water sector to add clarity and objectivity to the debate on the role of alternative delivery models in meeting the infrastructure investment challenge. We look forward to furthering the debate.

If you have any feedback on this report, or aspects you'd like us to look at in more depth, please do get in touch.



Tracy Mehan
Executive Director of Government
Affairs, AWWA



Snapshot: Current status of Water P3s

Private investors have been cautiously optimistic about the potential for the US municipal water sector to become a source of meaningful public-private partnership (P3) projects for a number of years, but to date, deal flow has yet to materialize, and the market remains largely one of potential. However, progress is being made and an increasing number of projects are in development.

Any embryonic market needs success to breed success in order to create real momentum. For municipal utilities tempted to try something new, it is important to be able to point to comparable success stories that show proof of concept.

In the case of the US municipal water market, which has a relatively limited number of design, build, finance, operate and maintain (DBFOM) P3 deals under its belt, this is quite difficult to do. Many municipal utilities have had to look to Canada, or back in time several years, for examples of projects in the region that have successfully reached financial close:

- ▶ The last major water P3 deal to reach financial close was the San Antonio water supply pipeline P3 in November 2016.
- ▶ The Prince George's County community-based stormwater P3 was signed in 2014 but has yet to be effectively replicated more widely as a P3.
- ▶ Rialto, Middletown, Allentown and Bayonne P3s were system concession projects (rather than single discrete asset P3s) that closed between 2012 and 2014.
- ▶ The Carlsbad Desalination Project reached financial close in December 2012.

Further, recent history has seen a number of large, high-profile water P3 projects being delayed or cancelled (albeit for reasons unconnected to the P3 transaction structure), which has dented both public and private confidence.

Evolved contracting and financing models are gaining traction.

The municipal water infrastructure market continues to be primarily (though by no means exclusively) characterized by asset improvements and replacements financed by State Revolving Fund (SRF) loans and tax-exempt bond issuance, procured and contracted using traditional models. However, there are drivers of change, including:

- ▶ Use of design-build (DB) and progressive DB construction contracting models are becoming more common, and may be part of a move toward more overt performance-based contracting models.
- ▶ The financial close in 2018 of the first wave of Water Infrastructure Finance and Innovation Act (WIFIA) projects included loans for San Diego (\$614m) and San Francisco (\$699m). Congress has since provided a further \$55m in budget authority and the U.S. Environmental Protection Agency (EPA) estimates that this may provide a further \$5.5b in credit assistance, which in turn has the potential to finance \$11b in water infrastructure investment. The EPA shortlisted 39 projects across 16 states in round two, and 2019 should see these projects move toward financial close. It remains to be seen how many of these will be P3s.
- ▶ Also in 2019, the EPA's Water Infrastructure and Resiliency Finance Center is expected to publish guidance on the use of P3 in the municipal water market, which should help to address current knowledge gaps.

Trade press announcements point to forthcoming water P3 projects contemplated by municipal authorities in Oregon, Massachusetts, California, Pennsylvania, Nebraska, Rhode Island and Puerto Rico, among others. These cover wastewater, reuse, desalination and system concessions.



Overview: The EY/AWWA Survey

In this report, we present results and insights from a joint EY/AWWA study on the perceived relevance and outlook for P3 as an alternative delivery model for US municipal water and wastewater infrastructure projects.

Why we undertook this study

The American Water Works Association is an international, nonprofit, scientific and educational society dedicated to providing total water solutions assuring the effective management of water. It is the largest organization of water professionals in the world, and its 52,000-plus membership includes over 4,200 utilities that supply roughly 80% of US drinking water and treat almost 50% of the nation's wastewater.

AWWA members therefore offer valuable insight on current perspectives of the US water sector. This is informed by their direct experiences developing infrastructure and managing systems, both in the context of today's economic, policy and regulatory environment, and the anticipated challenges to come.

Similarly, EY's experiences and commitment to infrastructure, both in the US and globally, makes it an ideal partner for US public and private utilities contemplating the planning, financing and procurement of new models of performance-based infrastructure in the water sector.

What we wanted to achieve with this study

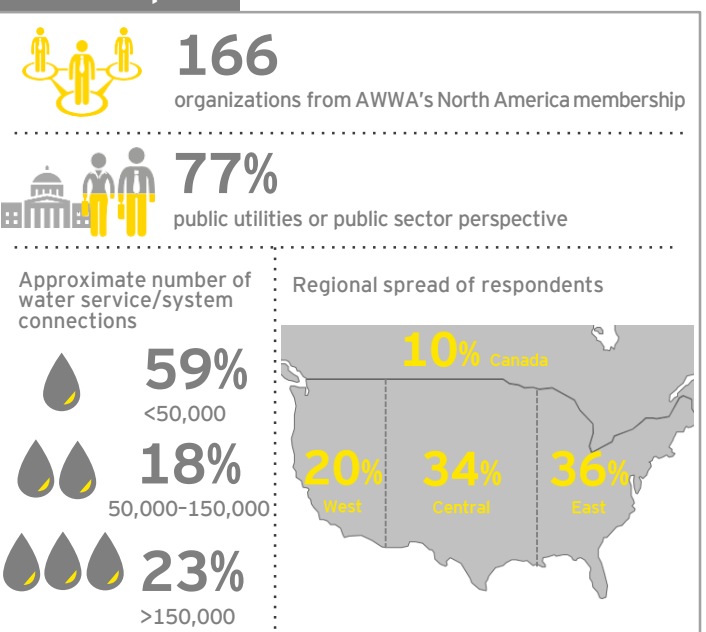
While much discussion on the relative merits of P3s in the US has already been published, this is often focused on the transportation sector and does not account for diversity of experience in the water sector.

In the context of water, relatively little has been heard from those practitioners directly involved in planning and running municipal utility systems. Our aim was therefore to explore the perceived attractiveness of P3 as an alternative delivery model from the perspective of those directly responsible for the nation's water infrastructure. We also wanted to better understand decision makers' reasons for advancing or not advancing P3 projects.

Overview of our approach

We conducted an online survey of AWWA's North America membership during 2018. The questions covered the extent of respondents' understanding and interest in P3s, perceived benefits and barriers, views of private financing and the types of projects deemed most suitable for P3 delivery. The focus of the study was primarily on municipal water and wastewater systems, and did not seek to address federal water assets.

Who took part



Note: The term "respondents" refers to those organization representatives responding to the survey questions. The number of respondents per question may vary



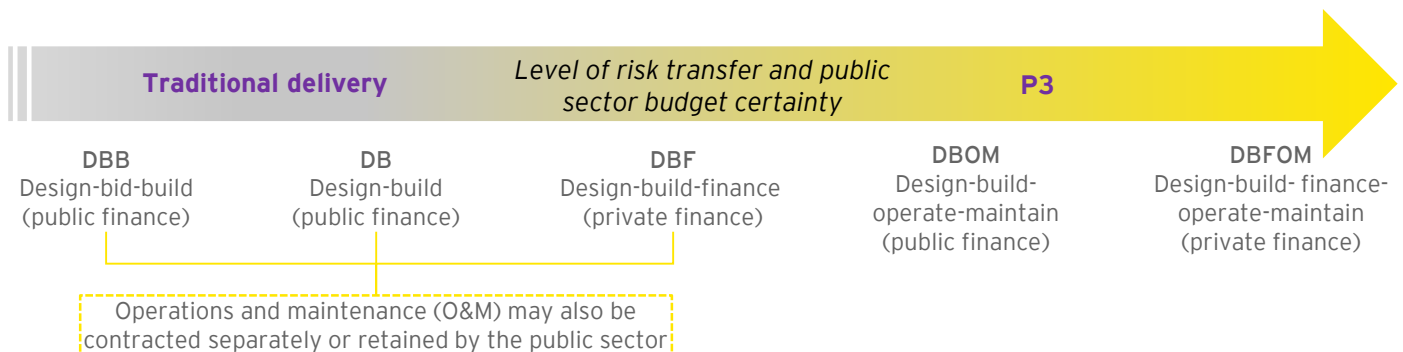
Defining P3 in the context of this survey

We provided survey respondents with the following P3 definition and overview to establish a common understanding and basis for answering and comparing responses.

Traditional delivery	Often referred to as “design-bid-build,” it typically involves the sequential and discrete procurement of services to develop and construct an asset, with the majority of risks associated with the delivery and operation of the asset retained by the public sector.
Public-private partnership (P3)	As a form of alternative delivery, P3s are “ performance-based ” contracts that allocate risks to the party best suited to manage them and link public-sector payments to contractual performance obligations of the private-sector partner.

- P3s are **not a form of privatization** – the public sector maintains ownership of the land and retains the residual interest in the asset.
- P3s are **not appropriate for every project** – suitability will depend on factors such as project scale, capital intensity, technological complexity and revenue risk.
- Water P3s do **not represent new sources of revenue** – any element of private financing must be repaid via credible revenue source(s).
- P3s typically **transfer a substantial degree of risk** associated with the design, construction, operation and performance of the asset, reinforced by an element of private capital.
- P3s can involve **hybrid structures** comprising both public and private sources of financing.
- Credit considerations** for traditional public financing remain relevant for P3 financing.

There is a spectrum of options that may be used to deliver water infrastructure projects, and these sit on a continuum whereby responsibility and risk for delivery and operation are progressively passed from the public sector to the private sector. Key points in this continuum are illustrated in the diagram below. Full private ownership (an investor-owned utility model) is not considered within the definition of a P3, though system concession P3s share many similar characteristics.





1 study, 2 organizations, 3 key questions

Question	Key outcomes
<p>1</p> <p>What are the main drivers of interest in P3 delivery models?</p>	<p>Risk transfer, innovation and a way of reducing deferred maintenance are the most valued P3 benefits.</p> <p>Access to new sources of capital as a means of accelerating project delivery and enforcing performance risk transfer also emerge as key drivers for P3.</p>
<p>2</p> <p>What are the key barriers to successfully pursuing P3s in water and how can these be overcome?</p>	<p>Stakeholder skepticism over the costs and benefits of P3s, and a lack of internal executive-level champions, are key barriers. A limited understanding of financial, legal and procurement issues is likely to compound this.</p> <p>While the technical aspects of P3 are generally understood, concern over ceding asset control is a key barrier.</p>
<p>3</p> <p>Where are P3s likely to be most appropriately deployed in the US water sector going forward?</p>	<p>Approximately 60% of respondents expressed an active interest in pursuing P3 for a discrete subset of the infrastructure projects in their capital plans.</p> <p>New-build water, wastewater, energy recovery and reuse infrastructure is believed by respondents to be most suitable for P3 delivery.</p>

The EY/AWWA view

These findings are consistent with our transaction experiences and reflective of our conversations with key industry stakeholders over the last 18 months.

There is recognition of the value of P3 as a performance-based infrastructure delivery model from a technical delivery perspective.

However, the costs and complexities of P3, combined with cautiousness about the consequences of ceding day-to-day control of existing municipal infrastructure to the private sector, limit its applicability to a subset of water infrastructure projects.

Consequently, P3 is more likely to be deployed in infrastructure areas where municipal utilities don't have the experience, capacity or confidence to deliver and maintain these assets using their existing staff and resources under traditional delivery models.

Larger, next-generation and technically complex infrastructure and networks, such as water reuse and wastewater with energy recovery, are good (but far from the only) examples of such projects.

Notwithstanding, even where municipal utilities recognize the potential technical benefits of a P3 model to deliver infrastructure, critical preconditions for success may be lacking.

Stakeholder skepticism over the cost-benefit value of P3 is not unreasonable. However, for the right strategic decision to be made by a municipal utility, such skepticism needs to be addressed by a senior champion and a utility team with appropriate financial, legal and procurement knowledge, and the ability to robustly test the case for P3 in the context of a specific project – and then successfully deliver the project.



What our study said



What are the main drivers of interest in P3 delivery models?

Risk transfer, innovation and a way of reducing deferred maintenance are the most valued P3 benefits.

Access to new sources of capital as a means of accelerating project delivery and enforcing performance risk transfer also emerge as key drivers for P3.

Top P3 delivery benefits

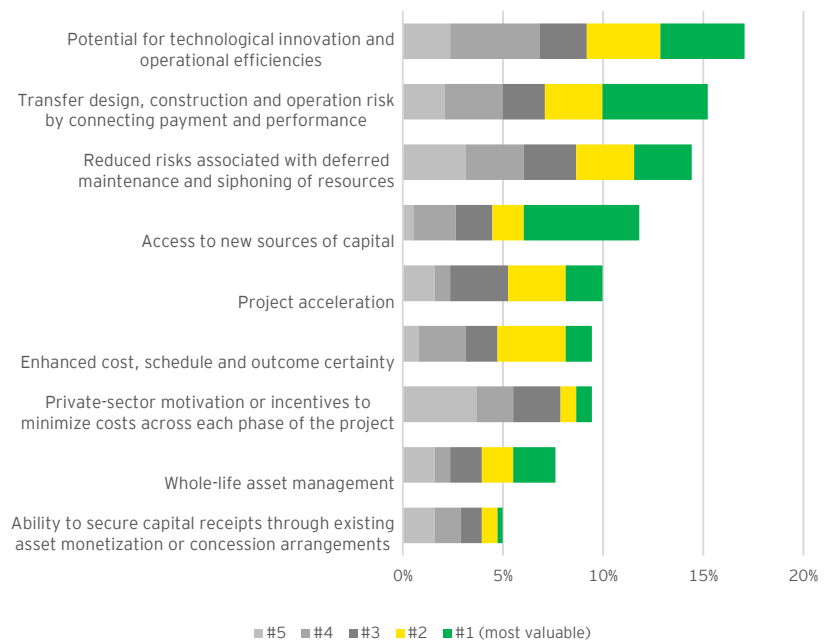
In order to establish a view on what is driving potential interest in P3s, respondents were asked which of the typically cited P3 benefits they consider most relevant or appealing, viewed from the perspective of their own system(s).

Respondents were able to select up to five answers from the list of benefits provided and asked to rank these in order of importance. Figure 1 shows the aggregate number of selections against each benefit, and also shows the ranking of those selections to indicate the level of priority respondents put on each.

Technological innovation, risk transfer, and reduced risk associated with deferred maintenance or siphoning of resources for other needs ranked highest overall as the most significant perceived benefits.

- **Technical innovation and operational efficiency:** This was the most significant perceived benefit overall, with respondents seeming to value private-sector participation as a means of bringing forward more technically or operationally sophisticated projects.

Figure 1: Typically cited P3 benefits deemed most relevant or appealing



Source: Survey results



What our study said

1 What are the main drivers of interest in P3 delivery models?

- ▶ **Risk transfer:** The results show that the use of performance-based contracts to transfer design, construction and operating risk by connecting public-sector payment and private-sector performance is considered a key P3 benefit. The ability to identify and quantify meaningful risk transfer is typically a critical part of determining and comparing the relative merits of alternative delivery models based on risk-adjusted costs.
- ▶ **Reduced deferred maintenance risk:** Respondents feel that P3 delivery can play an important role in helping to avoid the siphoning of resources for other needs and the buildup of deferred maintenance now plaguing many aging water infrastructure assets. P3 facilitates this through the contractualization of private sector performance obligations and asset management on a whole-life basis. This in turn typically requires revenue sources to be identified and formally assigned to pay for such performance.

Project acceleration, often cited as a key P3 benefit, scored fifth overall, though it was ranked the second and third most-valued benefit by a reasonable number of respondents, largely from smaller utilities. Interestingly, project acceleration was also cited (see figure 4) as a key benefit of using private financing within a performance-based contracting structure. This seems to suggest a significant number of respondents do not see private finance as a necessary precondition of P3 but as a potential enhancer.

Similarly, enhanced cost and schedule certainty, which is often a key factor when calculating and comparing risk-adjusted costs and benefits across different delivery models, ranked sixth overall but was a strong second choice selection, with the larger utilities (>150k connections) in particular representing a higher proportion of responses.

"It makes a lot of sense to pursue P3 delivery of projects as we are completely lacking in the technical skills and leadership capabilities needed to manage a utility effectively."

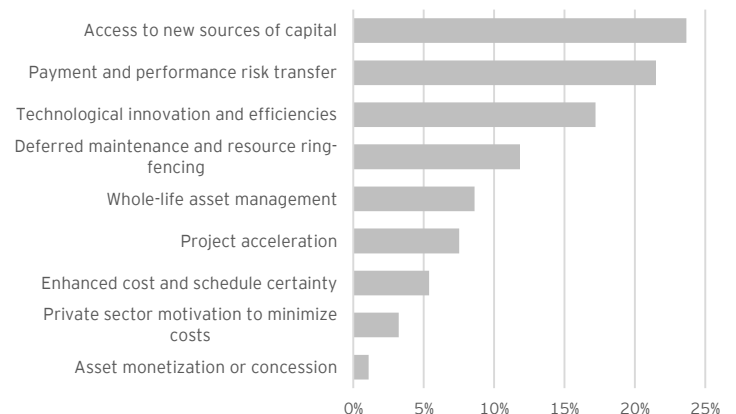
– Study respondent

Access to capital highly prioritized among smaller utilities

In aggregating the five most highly ranked benefits across respondents, P3 as a means of accessing new sources of capital ranked fourth overall but emerged as respondents' most-valued benefit. Capital access ranked particularly highly for smaller utilities, while larger utilities prioritized risk transfer and reduced deferred maintenance risk.

In interpreting these results, it is possible that smaller municipal utilities find themselves capital-constrained for reasons beyond matters connected to their rate base. However, given that smaller utilities identified themselves as having a weaker level of understanding of financial, legal and procurement aspects of P3 (see Question 3 later in this report), it is possible that a number of respondents view P3 as less constrained by rate base and utility credit quality.

Figure 2: Allocation of #1-ranked benefits



Source: Survey results



What our study said

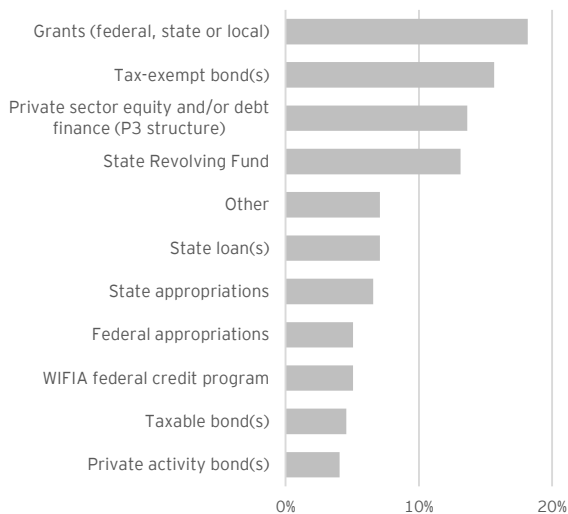
1 What are the main drivers of interest in P3 delivery models?

In identifying the principal sources of financing that would be sought by respondents when exploring potential P3s, respondents could make up to three selections.

As illustrated in figure 3, private sector equity and/or debt finance was ranked third most popular as a source of capital respondents would seek under for P3 projects, behind grants and traditional tax-exempt financing. It is interesting that private finance ranks ahead of SRF sources, potentially reflecting the lack of association of SRF loans with alternative delivery, and the perceived potential negative associations of the introduction of federal constraints into the project. Equally, despite its early successes and high volume of round 1 and 2 applications, WIFIA does not rank highly among respondents as a source of P3 financing.

It is perhaps unsurprising that project owners will still seek in the first instance to maximize the use of no- or low-cost capital sources, such as grants and tax-exempt bonds.

Figure 3: Principle sources of financing that would be sought when exploring potential P3s



Source: Survey results

The value of private sector financing

The overall survey results themselves suggest that an increasing number of utilities are recognizing the value of some element of private finance.

In seeking to understand the reason for this, the survey also asked what benefits are most relevant or appealing in a P3 structure that includes some element of private finance, with respondents able to select up to two answers.

As illustrated in figure 4, most respondents seem to value private finance as a means of accelerating project delivery. It can achieve this by more readily aligning liquidity with a project's capital needs, where funds may otherwise be unavailable to accommodate an efficient and affordable development schedule.

This has likely become more important as project owners increasingly move away from reliance on federal funding, as indicated by its lower ranking as a principal financing source in figure 3.

Figure 4: Principle benefits of some element of private finance in P3 structures



Source: Survey results



What our study said

1 What are the main drivers of interest in P3 delivery models?

Although the use of some element of private finance is not necessarily an essential characteristic of performance-based contracting, its perceived value as a mechanism by which meaningful risk transfer can be enhanced by giving investors and developers more “skin in the game” (i.e., by connecting financial return with effective contract performance) seems to be recognized by many respondents, although the results and comments still show a range of divergent views.

“P3s without financing have value. Current capital markets provide adequate capital at relatively low cost. Therefore, financing as part of a P3 is difficult to justify.”

– Study respondent

“[Private financing] is the future of municipal project financing and implementation.”

– Study respondent

Equally, many respondents recognize the trade-off between a potentially higher cost of capital and the level of risk transfer that it can help to secure.

Given the range of capital sources available to municipal utilities, including access to the tax-exempt market, it is likely that P3s will need to balance multiple sources of finance to secure the appropriate balance of cost of debt and value of transferred risk on a project-by-project basis.





What our study said

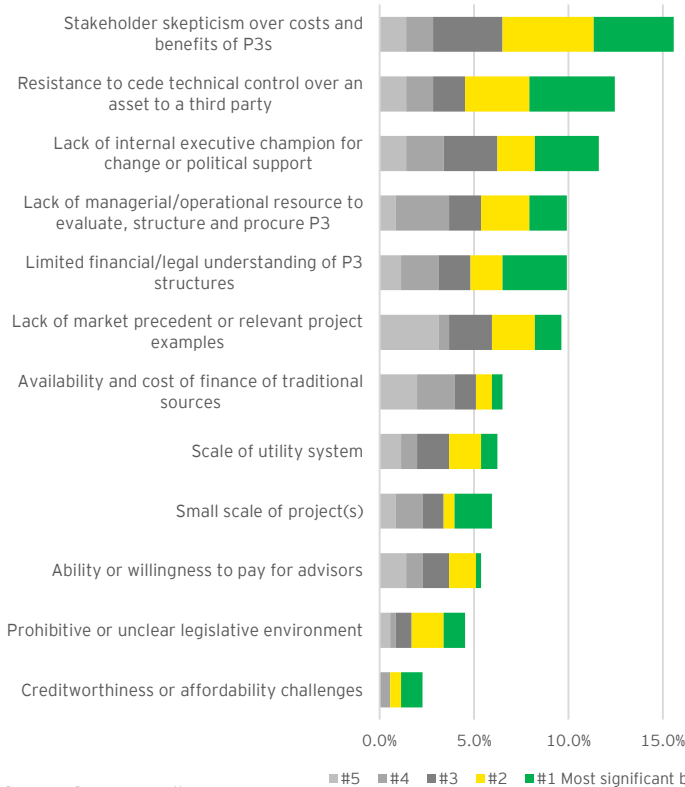


What are the key barriers to successfully pursuing P3s in water and how can these be overcome?

Stakeholder skepticism over the costs and benefits of P3s, and lack of internal executive-level champions are key barriers. A limited understanding of financial, legal and procurement issues is likely to compound this.

While the technical aspects of P3s are generally understood, concern over ceding asset control is a key barrier to the use of P3.

Figure 5: Main barriers respondents do or might face in advancing P3s



Key barriers to P3s

With the number of P3s in the water sector still relatively low compared to other infrastructure sectors, a key focus of the survey was to seek insight from municipal utilities and key industry stakeholders as to what is hindering the use of P3s to bring forward critical water infrastructure.

Respondents were therefore asked to identify the biggest barriers they do or might anticipate facing in advancing P3s in those asset classes believed to be most appropriate for such delivery models.

The results in figure 5 indicate the top five barriers as:

- ▶ Stakeholder skepticism or concerns over the costs and benefits of P3s
- ▶ Resistance to ceding technical control over an asset to a third party
- ▶ Absence of internal executive and/or political support
- ▶ Lack of managerial resources and experience to evaluate, structure, procure or negotiate P3 projects
- ▶ Limited financial/legal understanding of P3 structures

Source: Survey results



What our study said

2 What are the key barriers to successfully pursuing P3s in water and how can these be overcome?

The indicated barriers relating to stakeholder concerns and real or perceived challenges to ceding control of public water assets to the private sector were further reinforced by a number of respondents' comments:

"If we are ever to pursue a DBOM we will, no doubt, get resistance from our employee association/union"

– Study respondent

"P3s can lead to the municipality or other owner becoming 'ignorant' to the actual process of producing water/cleaning wastewater, and becoming nothing more than an administration identifying who they are paying for the production of the items being sold – potentially and eventually leading to the privatization of all utilities, which may lead to big problems when truly considered."

– Study respondent

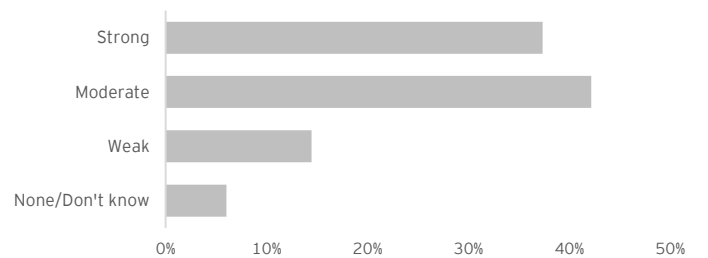
"Current political climate of deregulation and pro-business climate is incongruent with public trust and public health."

– Study respondent

Level of P3 understanding

In further exploring the level of understanding respondents have of P3 characteristics and the potential risks and rewards, the survey results reveal that around 80% of respondents believe they have a moderate or strong understanding.

Figure 6: Level of understanding of P3 model characteristics and potential risks/rewards



Source: Survey results

Of the roughly 60% of respondents from smaller utilities (<50k connections), a disproportionately low percentage (38%) indicated strong understanding, while 58% self-identified a weak level of understanding.

In disaggregating the prioritized rankings of the various barriers, respondents' first choice selections were largely in the same order and proportion to the overall aggregate ranking of each category of barrier, as the green shading in figure 5 indicates.

One notable exception is that limited financial/legal understanding of P3 structures emerged as a more highly prioritized barrier based on respondents' first-choice selections.



What our study said



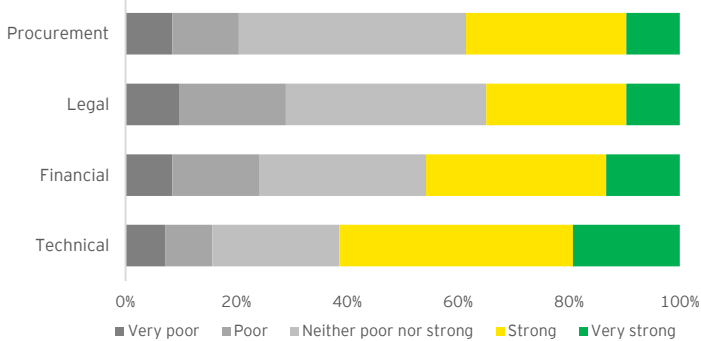
What are the key barriers to successfully pursuing P3s in water and how can these be overcome?

Financial, legal and procurement knowledge gaps

This gap was further reinforced when respondents were asked to assess the extent of their knowledge and resources across specific areas.

The results set out in figure 7 indicate that knowledge and resources were considered reasonably strong on technical issues, but that more than 50% of respondents felt these were lacking across financial, legal and procurement considerations.

Figure 7: Rating of knowledge and resources (or access to these) to assess and implement potential P3s



Source: Survey results

Perhaps unsurprisingly, smaller utility-based respondents in particular made fewer “strong” or “very strong” selections, with the majority of responses in the middle or poor categories.

The ability or willingness to pay for advisors was not noted as a significant barrier overall, and as such the engagement of external support is likely to be a key way to address knowledge and resource deficiencies.

Equally, a number of respondents cited their lack of experience and managerial capacity as a reason for pursuing a P3 approach, in order to secure skills and resources through outsourcing that could not otherwise be secured internally.

“There needs to be much better education of utility managers about what a P3 is and is not. It is not privatization. Our company has delivered P3s to other communities in Canada with great success, but there are still many hurdles to overcome.”

– Study respondent

Additional comments indicate that resources and tools to help agencies assess the relevance and relative merits of P3 in particular would help to address some barriers.

“Better cost/benefit analysis tools would help.”

– Study respondent

Based on additional respondent comments, other potential barriers noted include: poor performance on past projects; lack of inspectors; uncertainty over the long-term viability of the private-sector partner; perception of privatization; and aligning with the best interests of end users and the rates paid.



What our study said



Where are P3s likely to be most appropriately deployed in the US water sector going forward?

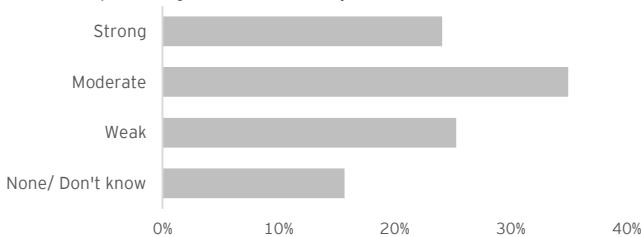
Approximately 60% of respondents expressed an active interest in pursuing P3 for a discrete subset of their infrastructure projects in their capital plans.

New-build water, wastewater, energy recovery and reuse infrastructure is believed by respondents to be most suitable for P3 delivery.

Current outlook

In taking the combination of the identified benefits and barriers and assessing the outlook for P3s, almost 60% of respondents indicated a moderate or strong level of current interest in pursuing P3s for the delivery of water infrastructure, as indicated in figure 8.

Figure 8: Characterization of current interest in pursuing P3s for delivery of water infrastructure

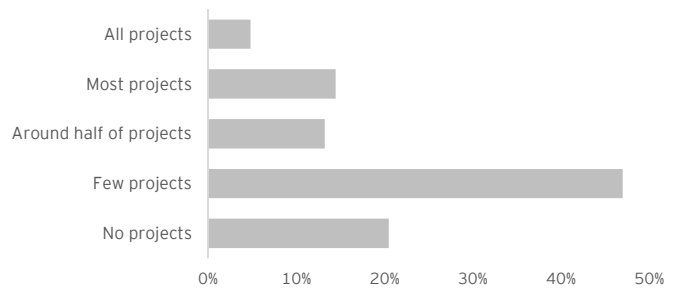


Source: Survey results

However, a significant number of respondents either feel the barriers to P3s are too significant to overcome, or that P3 as an alternative delivery model is less relevant for their specific projects than more traditional delivery models.

While both factors are relevant to stakeholder decision-making, analysis of the data – taking account of respondents' views as to the perceived benefits of P3, where greater technological innovation and the ability to transfer risk were identified as the most valuable benefits overall – suggests that the latter reason may be more significant in determining current interest levels. Figure 9 shows that almost 70% of respondents answered "Few" or "No" projects when asked what proportion of current or prospective water infrastructure projects could be suitable as potential P3s.

Figure 9: Proportion of current or prospective water projects that could be suitable as potential P3s



Source: Survey results



What our study said

3 Where are P3s likely to be most appropriately deployed in the US water sector going forward?

Our interpretation is that respondents believe that only a relatively small proportion of water projects are sufficiently technically or operationally complex to benefit from innovation or meaningful risk transfer.

This is reinforced by comments received as part of the survey:

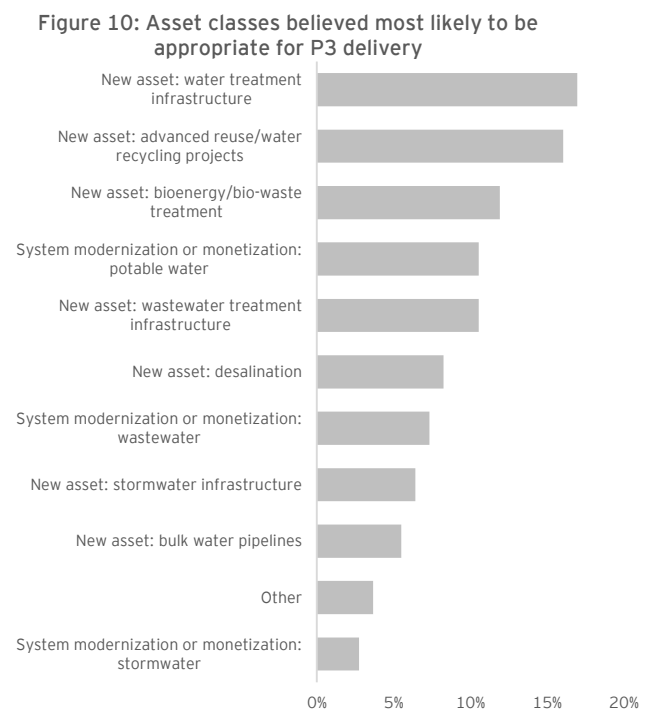
“P3s need to offer unique benefits that traditional project delivery cannot achieve. Projects need to have adequate scale, opportunities for technology or other risk transfer, offer cost certainty, and focus on operational areas that are not the core competency of the utility for consideration. The number of these projects in the water sector are limited, and P3s do not seem to be applicable for wider adoption in the water sector.”

– Study respondent

Most suitable water asset classes

In recognizing respondent views that only certain types of water projects may be suitable for P3, the survey sought to determine the extent of respondent consensus on whether certain types of water projects were deemed more likely to be appropriate for P3s than others. Respondents were able to make up to three selections.

New-build assets related to water treatment infrastructure, advanced reuse/water recycling and bioenergy/biosolids treatment were indicated as being most suitable, as illustrated in figure 10.



Source: Survey results



What our study said

3 Where are P3s likely to be most appropriately deployed in the US water sector going forward?

This is consistent with the fact that the capital intensity, technical sophistication and degree of operating risk is typically higher for such projects, thereby benefiting from the construction and performance risk transfer that typically characterizes a P3, as well as the potential for greater technical innovation.

Greenfield and brownfield wastewater infrastructure and desalination projects ranked lower, despite such projects also typically being more technically and operationally complex. This may be due to respondent representation, (e.g., a higher proportion of utilities providing drinking water services and relatively few where desalination infrastructure may be contemplated).

Understanding bias impacting outlook?

The results show a reasonably strong correlation between self-identified level of understanding of P3 and extent of interest in exploring its use in infrastructure delivery.

Of the 20% of respondents indicating limited or no understanding of P3 characteristics or risks-rewards in the earlier figure 6, none indicated “strong” current interest in pursuing P3s, while of the 35% indicating moderate interest, only 2% of respondents were in this low understanding category. Similarly respondents indicating weak or limited understanding of P3s largely responded that few or no projects would be suitable as P3s.

While care should be taken not to confuse correlation and causation, the results do indicate that interest levels could shift (while acknowledging those asset classes considered most appropriate for P3) if respondents felt they had a better understanding of P3 delivery models.



What our study said

3 Where are P3s likely to be most appropriately deployed in the US water sector going forward?

Overall thinking on potential relevance of P3s

In asking respondents to conclude on how advanced their thinking or assessment is of the potential relevance of P3s to deliver current or future water infrastructure projects, the highest ranking responses (figure 11) indicated a polarized split between respondents that have already implemented one or more P3s, and those that have not considered the potential relevance of P3s to date and state that they are unlikely to do so going forward. Each of these represented just over 20% of respondents.

"[We] believe a properly implemented design-bid-build process is best for the public sector."

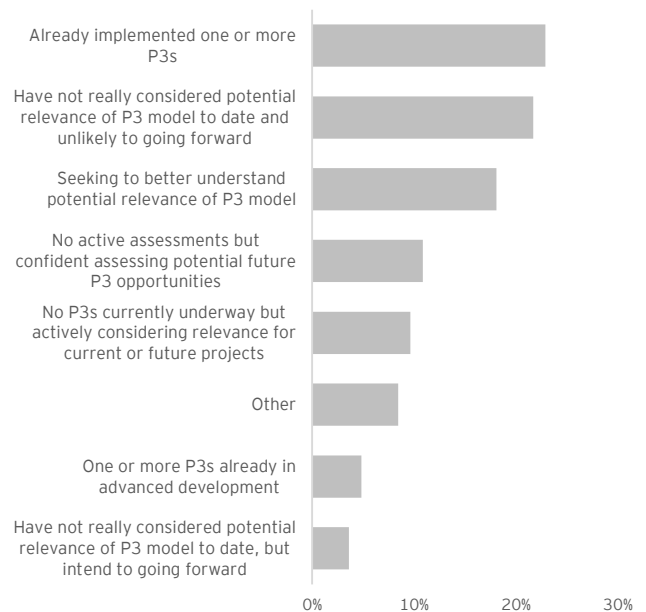
– Study respondent

Around 18% of respondents noted they were seeking to better understand the relevance of the P3 model (largely smaller utility respondents), and the remaining 28% indicated respondents were actively considering the relevance of P3s or intending to going forward.

Meanwhile, the majority of "other" responses (~10%) indicated a lack of interest in the P3 model based on the comments provided.

As such, while noting the not insignificant number of participants were candid about not considering P3s further, almost 70% of respondents indicated either relatively advanced thinking or intent to consider P3s as a potentially relevant delivery model.

Figure 11: Advancement of thinking on potential relevance of P3s to deliver water projects

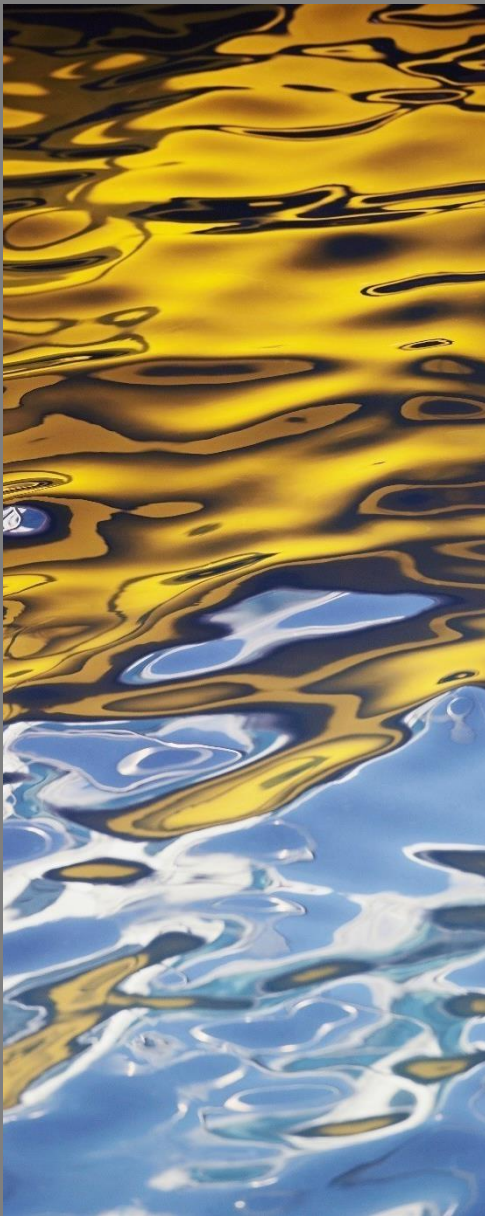


Source: Survey results

"P3/DB does work if you can find a contractor that is willing to take on the scale and scope of your project. We have had great results, and would do it again in a heartbeat if the right project came along."

– Study respondent

What we've learned



The results of the survey highlight the following key points:

- 1 Municipal utility stakeholders believe they are generally well-informed as to the delivery models available to them. The survey results suggest that P3s are considered more favorably the better they are understood.
- 2 Respondents reported that they understand the risk-transfer value proposition of P3, but rightly need to test this through the lens of specific projects within their capital program. Stakeholders are skeptical over the general applicability of a P3 delivery model, and are of the view that only a subset of projects will have the scale, technical or operational complexity and risk profile to make the risk-transfer value case for P3.
- 3 Respondents need an objective and well-considered justification for trying something new, but they lack practical guidance and visibility as to what other municipal entities are considering. Equally, the survey also suggests that many respondents may not have the consistent political or senior leadership support, or the financial, legal or procurement experience to take their thinking to the next level to robustly develop and successfully procure P3 contracts. This is naturally discouraging to the use of P3.
- 4 Respondents are rightly protective of their systems and focused on providing safe municipal services. The survey results suggest that P3s that complement rather than replace existing municipal service provision, by bringing resources, skills and project delivery experience and discipline to those infrastructure projects where the public sector does not have capacity and experience to deliver, are most likely to be favored.
- 5 In this context, as the US water sector increasingly invests in advanced wastewater treatment, energy recovery, potable water reuse, desalination and other complex infrastructure, P3 will have a key role to play. Equally, those municipal utilities that lack managerial or operational capacity to deliver complex programs of works and improve performance standards may find system concession P3s to be of value.

Moving water P3 forward

Looking ahead ...

We work with federal, state and municipal water stakeholders to help deliver water and wastewater infrastructure. In order to address the US water sector's current and medium-term infrastructure challenges, a mixed and innovative approach to funding and financing sources and delivery models is essential to bringing projects forward efficiently.

Between the tax-exempt market and SRF lending capacity, and the expanding WIFIA program, municipal authorities already have access to a range of low-cost financing sources. Equally, the increased uptake of design-build and progressive DB models across the sector introduce a range of potential construction contracting models for municipal utilities to choose from.

For those projects where there is a clear value case for P3, the effective deployment of this alternative delivery model takes existing models one step further. It offers the potential for whole-life asset management and performance-based contracting, underpinned by access to new forms of capital, all while keeping assets within public-sector ownership.

From the results of this survey, moving P3 forward in the water sector means three key things:

- ▶ **Empower municipal stakeholders** to use P3 as a delivery model where it is genuinely beneficial to do so
- ▶ **Focus on project success** through appropriate deal structuring, effective procurement and contract development, so that the anticipated benefits of P3 are realized through contracts that are recognized as successful. As this study highlights, many respondents recognize the many preconditions for success, but they are not fully able to put these building blocks in place, which (rightly) discourages the use of P3.
- ▶ **Create a positive feedback loop** whereby success by municipal authorities creates positive examples and role models for others to follow

Empower municipal stakeholders

Empowering municipal stakeholders to advance their consideration of P3 is a function of many factors, but the study results point to lack of managerial resources and experience, particularly in financial, legal and procurement matters, as a barrier to progress.

The results of the study also illustrate the fact that – unlike other P3 markets, such as Canada and the UK – there is a relative lack of objective guidance that municipal decision-makers can utilize to inform their thinking and to build stakeholder support for considering P3. While the University of North Carolina Environmental Finance Center has done good work in providing case studies and analysis, the municipal market could be well served by further guidance from trusted and independent sources, such as the EPA. This would have a number of key benefits:

- ▶ Avoiding the risk that inappropriate projects are pursued as P3 (with negative consequences), or that projects where P3 could be beneficial are not considered properly
- ▶ Bringing objectivity to the market and provide a wider government perspective on the use of P3 in water, in turn providing confidence to senior and political leadership to advance projects
- ▶ Assisting in building capability and expertise more widely to enhance transaction success

Moving water P3 forward

Focus on project success

In order to create a positive feedback loop where success builds on success, it is important that P3 projects are developed and contracted that demonstrate the benefits of the model. Given the long development lead times for large-scale infrastructure projects, there are a limited number of examples that can be currently pointed to.

Equally, while each municipality is clearly acting in the context of its own interests, success or failure of a single project in an emerging market can have much wider repercussions in terms of confidence in the market, both on the public and private sides of the equation. There have been a number of high-profile water P3 project cancellations and delays, primarily connected to project fundamentals not being in place prior to the commencement of procurement, and these have had a negative impact on market confidence.

In this context, it is essential that projects that are being mooted as P3s today are successfully developed, procured, and reach financial close, underpinned by high-quality contracts that appropriately protect the public sector's interests. In order to do this, the following key preconditions need to be in place, as indicated here:

- ▶ **Robust project feasibility analysis** of both the business case for the project itself and its financial consequences for end users, and a robust and objective assessment of financing and contracting models to justify the case for P3. This includes an understanding of achievable balance of risk transfer, financial envelope for the project, approach to addressing key deliverability risks and concerns the private sector may have.
- ▶ **Clear legislative and regulatory authority** so that the project can be advanced and procured with all parties confident that it is within the procuring agency's legal authority to do so
- ▶ **Strong executive champion and political support** that gives confidence that the P3 project is a priority, and that such support is sufficient to weather any setbacks the project may encounter
- ▶ **Empowered and knowledgeable project team** that includes a core client-side team able to make informed transaction decisions with confidence, supported as relevant by experienced advisors that can address financial, legal, technical, procurement and insurance matters
- ▶ **Engagement with key stakeholders** to build and maintain support for the project, and its delivery under a P3 model
- ▶ **A robust and transparent competitive procurement process** as the mechanism by which the objectives of the project are converted into bids from the private sector and **contractualized**, so that the anticipated benefits of the P3 project can ultimately be realized



A reaction to the findings from key industry leaders



We shared our survey results with three industry leaders with historically opposing views on the long-term potential for P3s in the US water sector, to get their reaction to the findings and what it might tell us about the use of alternative delivery models going forward.

Name: **Jeffrey Hughes**

Role: Teaching Associate Professor and Director, Environmental Finance Center, University of North Carolina

The P3 survey adds valuable insight and information on an important management topic that has long been debated and pursued throughout the industry. The findings are consistent with our work on this topic over the years and reinforce the idea that P3s are not for everyone and are unlikely to see wide-scale adoption any time soon, but nevertheless hold some promise and utility for a subset of the sector under specific circumstances.

I found it interesting that the findings support some conventional wisdom about the factors that have slowed uptake of these models, but they also provide some interesting new insight and clarity on barriers and obstacles that have not received much attention in the past. These types of pulse-taking or check-in surveys with key stakeholders will continue to be important as we look for and fine-tune new finance and management innovations to address emerging technology and risk challenges.



Jeff Hughes has more than 25 years of experience assisting communities in addressing finance and policy challenges related to the provision of environmental services and programs. Jeff is the author of numerous reports, guides and articles on environmental finance and environmental policy analysis subjects. He works with a range of state and national organizations that focus on utility and environmental issues. Jeff is the director of the Environmental Finance Center at the UNC School of Government.



A reaction to the findings from key industry leaders

Name: **Maureen Stapleton**

Role: General Manager, San Diego County Water Authority

Maureen Stapleton is the General Manager of the San Diego County Water Authority, the regional water agency that provides up to 90% of all the water used in San Diego County. As General Manager, Maureen oversees a dynamic agency that is pursuing a comprehensive array of water supply and infrastructure programs designed to diversify and improve the reliability of San Diego County's water supply.

The Claude "Bud" Lewis Carlsbad Desalination Plant successfully demonstrates the P3 delivery model for the delivery of major water utility infrastructure. As the region's wholesale water agency, the San Diego County Water Authority partnered with Poseidon Water, which permitted, designed and built the nation's largest seawater desalination plant to start operations in late 2015. Poseidon owns and operates the plant, selling desalinated seawater to the Water Authority to meet nearly 10% of the region's annual water needs.

The study's findings affirm several factors integral to the success of the Carlsbad P3 project:

- ▶ **Risk transfer:** The study confirms that the P3 model allows an agency to transfer the risks associated with permitting, designing, constructing and operating the plant – at a reasonable cost – to the private sector.
- ▶ **Organizational support for P3s:** As the study notes, organization-wide support is critical for the success of a P3 project. From the board of directors and senior executives to legal counsel and technical staff, the Water Authority committed to the P3 strategy for the Carlsbad project. In executing other large-scale capital projects, the Water Authority used other project delivery models, including design-bid-build, design-build and design-build-operate. For the Carlsbad project, P3 was, and is, the right approach supported by all levels of the organization.



- ▶ **External support:** Given a general lack of experience among US water agencies with the P3 model and related complexities, the study correctly points out that "the engagement of external support is likely to be a key way to address knowledge and resource deficiencies." Indeed, a highly skilled team of technical, legal and financial advisors was critical to the Water Authority in our P3 project development.

Our experience shows that P3 can be a successful strategy for implementing certain projects, particularly large and technically complex facilities.

Water infrastructure P3 survey

An industry view on the relevance of P3 delivery models



Name: **Dan Hoins**

Role: Sarpy County Administrator (Nebraska)

Dan Hoins is Administrator of Sarpy County, which is located south of the City of Omaha. In September 2017, the Sarpy County and Sarpy Cities Wastewater Agency was formed; its task is to build the Unified Southern Sarpy Wastewater System, a sanitary sewer system to serve the southern portion of Sarpy County.

The Sarpy County & Cities Wastewater Agency (SCWA) is a formal partnership between the county and the five cities located within it. Sarpy County is the third most populated county (181,000 people) yet the smallest geographic county (159,000 acres) in the state.

The sole purpose of SCWA is to find a solution to deliver wastewater treatment services to the southern half of the county. Lack of sanitary sewer in that area will soon grind new development to a halt. While the county and cities understand the need for a collaborative effort and formed the interlocal agency, we had no idea how we would accomplish the task.

Over the past 16 months, we have retained the services of multiple advisors to provide options on how to move forward, who looked at multiple delivery options, including various public-private partnership models in the context of the agency's specific needs and objectives. Our project is estimated to cost \$240m, and its feasibility will rest on three key factors:

- ▶ Rates for residential and commercial users must be commensurate with rates charged by the City of Omaha, the current provider of all sewer in Sarpy County.
- ▶ The operation of the plant must be contracted with the private sector.
- ▶ The governance structure must allow for the county and five cities to maintain appropriate autonomy over rate setting.

A P3 model for our sanitary sewer system is anticipated to meet these objectives.



In reading the results of the survey, many of the themes raised resonate with our own experience, particularly the importance of consistent political support for the project to enable progress to be made. In moving forward, the use of credible and objective feasibility analysis from experienced advisors has helped sustain this support as the project concept is translated into a delivery and contracting model.

For major wastewater projects such as ours, a P3 model appears to answer the age-old question, "why can't government operate more like a business?" The private partner can act quickly, assume risks and benefit from the financial rewards; meanwhile, the public entity maintains oversight and ultimately controls the costs passed along to the public, whether through fees or taxes.

Contact us



If you would like to find out more about our respective organizations, the study, or how to assess the relevance of evolving delivery models for your organization's specific water projects or initiatives, please contact our team:

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About AWWA

The American Water Works Association is an international, nonprofit, scientific and educational society dedicated to providing total water solutions, assuring the effective management of water. Founded in 1881, the association is the largest organization of water supply professionals in the world.

Our membership includes over 4,200 utilities that supply roughly 80% of the nation's drinking water and treat almost half of the nation's wastewater. Our nearly 52,000 total memberships represent the full spectrum of the water community: public water and wastewater systems, environmental advocates, scientists, academics, and others who hold a genuine interest in water, our most important resource.

AWWA unites the diverse water community to advance public health, safety, the economy and the environment.

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