

Written Testimony

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regarding

America’s Water Resources Industry: Approaches to Enhanced Project Delivery

before the

Subcommittee on Water Resources and Environment

Committee on Transportation and Infrastructure

U.S. House of Representatives

January 18, 2018

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Chairman Graves, Ranking Member Napolitano, and Members of the Committee, thank you for the opportunity to address the Subcommittee on this important matter. It is an honor and a privilege to contribute to this Committee's work.

My name is Jill Jamieson and, although I am not here today in representation of my employer, I am a Managing Director at Jones Lang LaSalle. I have over 25 years of professional experience in the specialized area of infrastructure finance and delivery, advising public authorities throughout the United States and around the world on how to execute complex infrastructure projects across a wide range of sectors in the timeliest and most cost-effective manner possible.

Over the past few years I have also had the privilege and opportunity to work closely with a variety of federal agencies responsible for water resource infrastructure, such as the U.S. Army Corps of Engineers (USACE) and the U.S. Bureau of Reclamation (USBR), as well as with non-federal partners and local water authorities. As a result, I have become intimately familiar with the unique challenges and opportunities facing our federally-sponsored water resource infrastructure. Some of these challenges, as well as specific recommendations, were recently incorporated in a report published by the Ash Center at Harvard Kennedy School entitled "[Tapping Private Financing and Delivery to Modernize America's Federal Water Resources](#)", which I co-authored with Mr. Stephen Goldsmith. For the benefit of the Committee, I have included this report as an addendum to my written testimony.

I am grateful for the opportunity to discuss these issues directly with the Subcommittee, as it considers measures to address our nation's critical infrastructure needs.

Before diving into water resources, however, I would like to make one general comment regarding infrastructure. While there has been a great deal of talk recently about an infrastructure bill that will provide \$1 trillion in investment over 10 years, it is important to note that this is just a drop in the bucket in terms of our nation's infrastructure needs. According to a report recently published by McKinsey Global Institute, supported by data provide by the World Economic Forum/OECD, by 2030, the United States needs to invest over \$7 trillion dollars infrastructure, just to keep pace with GDP. This number does not contemplate the impact of disruptive technologies, accelerated economic growth or disaster recovery.

For this reason, even with a trillion dollar infrastructure plan, the United States will still be woefully underinvesting in its critical infrastructure and while money is important, it is only part of the answer. Our nation's infrastructure solution cannot -and should not- be a one-off cash infusion. We need a long-term strategy for building and maintaining our infrastructure assets. We must also introduce reforms aimed at ensuring infrastructure is delivered and maintained in the timeliest and most cost-effective manner possible.

I. The Water Resource Infrastructure Challenge

Federally-sponsored water infrastructure built over the past century—in support of navigation, flood risk management, aquatic ecosystem restoration, hydropower, irrigation, water supply and wastewater treatment, hydropower, and environmental sustainment—provides substantial economic and social benefits to the Nation, fostering economic growth and improving our citizens’ safety and quality of life. Despite its criticality and positive impact, however, our nation’s water resource infrastructure is currently at risk.

Decades of inadequate funding have resulted in deferred maintenance and system unreliability that are damaging our economy. Our infrastructure is crumbling as Federal funding for maintenance, modernization and expansion dwindles and agencies such as the U.S. Army Corps of Engineers (USACE) and the U.S. Bureau of Reclamation (USBR) struggle to meet their obligations. USACE spending, for instance, has declined from 0.16% of GDP in 1962 to 0.04% of GDP today, as its budget has remained relatively flat in real terms.

In the face of this budget reality, federal agencies have been forced to direct their limited appropriations to the most critical infrastructure operation and maintenance needs, only being able to make limited new investments in water infrastructure. However, even with the recent emphasis on O&M funding, limited budgets have forced agencies to adopt a “*fix-as-fails*” approach to infrastructure, deferring required maintenance on critical infrastructure until the absolute last minute. In addition to lowering service levels and system reliability, thus negatively impacting national competitiveness, this fix-as-fails approach to asset management is the costliest and least efficient means possible of managing critical infrastructure assets. For every dollar of deferred maintenance, taxpayers will need to invest four to five dollars in capital improvements later on. It is simply bad business to postpone needed improvements, as the associated costs increase exponentially over time. Failure to act today does not simply move the burden to future years, but rather transfers a significantly *larger* burden to future generations of Americans.

While our existing infrastructure deteriorates, we are also unable to keep pace with the need for new and expanded infrastructure. Even when funding is made available for new projects, protracted appropriations, coupled with uncertainty about the timing and amount of funding, unnecessarily and exponentially escalate the cost of delivering infrastructure projects. Projects that reasonably should be completed in a few years often take decades to finalize, deferring public benefits and increasing costs. Indeed a recent study¹ notes that nine out of ten mega-projects overrun their budget, are delayed, and fail to delivery expected public benefits. Funding uncertainty and protracted appropriations contribute significantly to this problem.

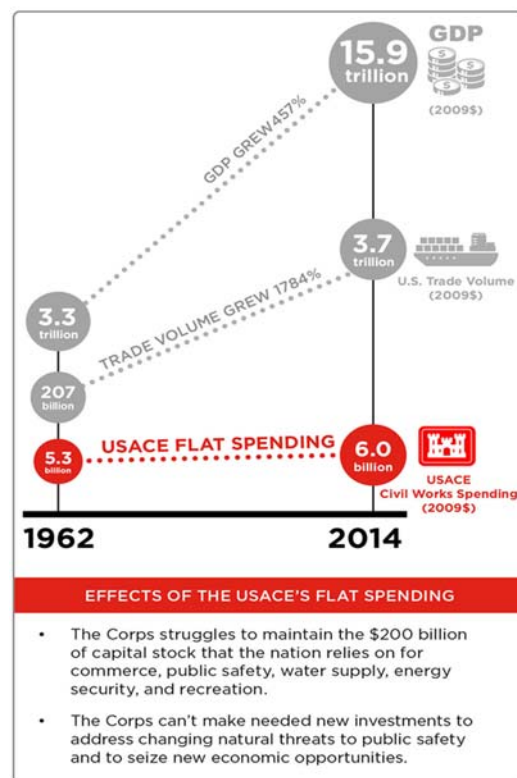


Figure 1: USACE Spending

¹ Megaprojects and Risk, Bent Flyvbjerg, University of Oxford Saïd Business School

Complicating matters further is that there is little to no consideration of life-cycle asset management. Building new infrastructure is important, but it we also need to identify a strategy for the ongoing funding of its operations and maintenance.

Given fiscal constraints, it seems highly unlikely that federal appropriations for water resource infrastructure will materially increase in the foreseeable future. As such, there is an urgent and pressing need to enhance project delivery in order to better address the Nation’s infrastructure needs and maximize the return on federal investment in water resource infrastructure. This involves looking beyond funding to ensure that infrastructure is delivered and maintained in the timeliest and most cost-effective manner possible.

II. Public-Private Partnerships

All of this begs the question of what we can and should do to address this problem in a holistic manner. One obvious approach involves enabling the use of performance-based delivery or public-private partnerships (P3) for federally-sponsored water resource infrastructure.

As illustrated in Figure 2, there is a broad spectrum of options available for delivering infrastructure. The more traditional approach involves public funding and/or financing and traditional procurement mechanisms, such as design-bid-build. In these instances, the public sector (and consequently the taxpayer) assumes most of the risk associated with the project delivery, including cost-overruns and schedule delays.

On the opposite end of the spectrum is “privatization,” which refers to instances where public authorities divest themselves of public assets, selling and transferring ownership to one or more private entities. This effectively transfers all risks of ownership to the private sector, although the public sector often retains regulatory oversight of some or all of the public service delivery.

Between these two extremes lies a multitude of other performance-based infrastructure delivery options, sometimes categorized as “public-private-partnerships” or “P3s”. In these arrangements, the public sector typically retains ownership of the assets, but the private partner puts its own capital (debt and equity) at risk, investing in public infrastructure for which it only gets compensated after delivery at prescribed service levels and standards. With P3, the public sector retains ownership, as well as control of key elements (such as tolls, quality standards, etc.), while transferring substantial completion and performance risk away from taxpayers and to the private contractor.

Performance-based infrastructure delivery refers to a broad array of medium to long-term contractual arrangements between a public sector contracting authority and a private entity for the design, construction/rehabilitation, financing, operation, and/or maintenance of a publicly-owned infrastructure asset.



Figure 2

Contractual arrangements vary as to the degree of private contractor responsibility and the extent of project risk transfer. At their core, these contracting modalities differ from the traditional delivery approach in that they typically transfer key delivery risks away from the public sector (taxpayer) and onto the contractor. This risk transfer changes contractor behavior and incentivizes performance, resulting in more efficient infrastructure and service delivery.

Some have expressed concern about P3 and similar forms of contracting, indicating that this is “privatization”. This confusion needs to be addressed, as American infrastructure should not be held hostage to misunderstanding or political hyperbole.

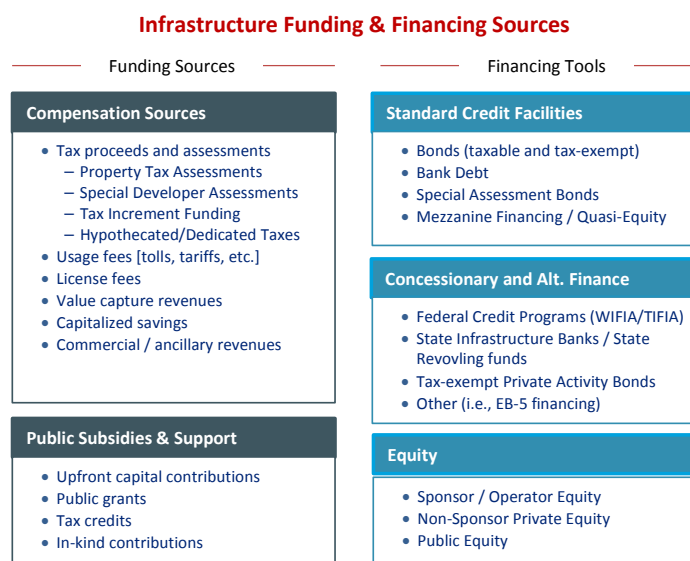
Private sector involvement in the delivery of our public infrastructure, including water resources, is not new. Most of our public infrastructure is already designed and constructed with extensive private sector involvement. Likewise, a great deal of the operation and maintenance of public assets is currently outsourced to private contractors. The public sector controls the planning and sets standards for these projects, but does not, has not, and likely will never swing every hammer or flip every switch on the nation’s publicly owned infrastructure.

While not suitable for every project, P3s have demonstrated their benefit by accelerating project delivery and generating better value-for-money for taxpayers through innovation, life-cycle asset maintenance, enhanced efficiency, reduced costs, and optimized risk allocation. In most instances, despite the private sector’s higher cost of capital, P3s have been able to deliver infrastructure to taxpayers at savings ranging anywhere from 15 to 25 percent when compared to traditional public delivery.

Although not a panacea, nor applicable to all projects, performance-based infrastructure is a delivery approach commonly applied across the globe and should be contemplated within any strategy aimed at delivering water resource infrastructure. Given the magnitude of the challenge, the United States needs access to all the possible tools to address its infrastructure needs. P3 represent another tool in the nation’s toolbox.

It is imperative to note that P3 is not a funding source and does NOT resolve the underlying water resource funding issue. Performance-based infrastructure and P3 are delivery tools, not a funding strategy. They can help deliver infrastructure in a timelier and more cost-effective manner, with enhanced transparency into how taxpayer dollars are spent, but they are not a means of funding projects.

Funding refers to the source of money to pay for the infrastructure assets, whether taxes or user payments (such as tolls). Financing is about how cash flows are structured, through debt or equity, to deliver that infrastructure. A source of funding must always be there to support financing activities, as the availability of finance or capital does not eliminate the need to fund our infrastructure. For example,



getting a mortgage doesn't mean you can quit your job and stop paying for your home. You still need funds to meet your debt obligations, as is the case with infrastructure finance. Funding and financing are two separate concepts and any legislation aiming to leverage P3 as a funding source would be misguided and ineffective. Funding sources need to be identified independently of any finance and delivery approach.²

While leveraging private sector debt and equity to provide full upfront funding for a water resource project could certainly help accelerate delivery and eliminate delivery inefficiencies, this is only a small part of the P3 value proposition. The benefits of P3 to the taxpayer derive from the alignment and integration of financial interests with private-partner performance over the life-cycle of the assets by putting private capital at-risk.

IP3s should only be used when they deliver better value for money over the life-cycle of the asset, as compared with traditional delivery. When compared to the traditional funding and delivery approach for water resources, incremental benefits of P3 may accrue from the following:

- (i) **Speedier implementation of infrastructure projects, accelerating public benefits and reducing capital costs:** Under the current water resources delivery structure, protracted appropriations significantly increase costs by unnecessarily delaying project completion, even when federal funding is available. This rise in costs not only reflects inflationary adjustments, but also real growth attributable to additional overhead, mobilization/demobilization, maintenance, insurance, etc. When project completion is delayed, federal and local taxpayers pay interest on debt associated with unfinished projects while they provide no public benefit. This is a bad deal for taxpayers. Under performance-based delivery, full project funding is made available at a project's outset with the help of private financing. Equally important, performance-based delivery transfers schedule and cost risk to the private partner, putting private capital at risk, thereby incentivizing performance. Compensation typically begins only after work is completed so that payments are concurrent with the delivery of public benefits over the life of the asset.
- (ii) **Life-cycle focus of service delivery / life-cycle cost efficiencies:** Under a P3 arrangement, the private partner is typically in charge of the financing and delivery of capital improvements, as well as the operation and/or maintenance of the infrastructure asset over the term of the contract. Linking long-term asset performance to design and construction creates powerful incentives for delivering a high quality facility, which optimizes operating performance and minimizes life-cycle costs. Likewise, P3 addresses life-cycle asset maintenance, locking-in funding and ensuring that assets are maintained at prescribed levels over the term of the contract through performance-based payments.
- (iii) **Risk Transfer:** With the traditional funding and delivery approach to water resources, the public sector retains almost all risks associated with the construction, operations and maintenance of public infrastructure. Under P3, much of this risk can be transferred to the private partner, who assumes fiduciary responsibility for the delivery and performance of the asset. This risk transfer creates real value for taxpayers: limiting cost overruns, schedule delays, performance shortfalls, and deferred maintenance. While not all risks can be fully transferred in all instances, there is

² To this point, there is broad misconception that all P3 involve tolls and fees, but this is simply not the case. P3 are frequently compensated on the basis of budget-based performance payments, without any user fees at all; while conversely, tolls and fees are often imposed by public authorities on government operated infrastructure.

real and quantifiable value to the taxpayer in reducing public sector risk exposure by allocating risk to private partners who are better positioned to manage those risks.

- (iv) **Improved service levels and reliability:** Given their use of performance-based incentives and compensation structures, P3s have a proven track record of improving the quality and service levels of public infrastructure. Specialist service providers offer access to expertise and innovation in order to meet or exceed contractually prescribed output-based performance levels for which they are held accountable.
- (v) **Improved efficiency and innovation:** Linking long-term asset performance to design and construction creates powerful incentives for efficiency and innovation. Much of the value of P3 derives from allowing the private sector to leverage innovative approaches to meet the output standards prescribed by the public contracting authority.
- (vi) **Monetization:** Innovation can incentivize the private partner to identify and develop new and creative sources of revenue from public infrastructure. These new sources of income can be used to offset core infrastructure costs, or alternately, may be shared with the public sector, creating additional sources of revenue for other priorities. Asset monetization is typically not a core competency of public agencies and thus these opportunities to extract value from existing assets often go unexplored under traditional delivery structures.
- (vii) **Heightened Accountability:** Detailed contracts between the public authority and private partner regulate P3s. The public authority sets service levels and then verifies and regulates the quality of the service through financial incentives for exceeding targets or punishment for underperformance. This arrangement provides the public with greater insight into targeted performance levels, something that is not always readily available under traditional delivery. Moreover, third party audits undertaken by lenders provides additional transparency and oversight in infrastructure projects.

Opponents of P3 often dismiss these potential benefits, focusing instead on one simple factor: the federal government has a lower cost of borrowing than the private sector. This interest rate differential is cited as evidence as to why P3 must be a bad deal for taxpayers. Nevertheless, this argument fails to understand that financial costs are only a small percentage of total life-cycle asset expenditures. A more important consideration is the whole-life cost of the asset, as well as the additional value to taxpayers in accelerating benefits, ensuring life-cycle asset management and transferring risk.

Case studies abound in which traditional funding and delivery results in delays, cost overruns and other inefficiencies that unnecessarily burden taxpayers. One may reasonably ask whether the transfer of construction risk, coupled with more timely appropriations, might have helped to mitigate some of the skyrocketing cost overruns and schedule delays associated with the Olmsted Dam in Illinois. A quarter century delay and a three-fold cost increase evidence the intrinsic value of optimizing risk allocation. Equally relevant would be to ask about the efficiency and cost-effectiveness of protracted appropriations. Given current federal appropriation levels, the Grand Prairie Irrigation Project in Arkansas, originally authorized in the 1950s, is not expected to be completed for decades. As benefits will not accrue until construction is fully completed, both federal and state taxpayers are paying interest on debt with no benefit. Moreover, delays have resulted in a nearly doubling of project costs, as well as questions about whether some completed components of the project (such as the pump station) will be obsolete by the time the project is ready to deliver water. Under a P3 approach, this project would likely have been completed in three to four years, at a significantly lower cost.

Performance-based delivery can help public authorities to more adeptly address our nation's water resource needs. Although P3s are complex policy tools that cannot be applied to all projects, when done correctly, they can create significant value for the taxpayer and the Nation. P3s will never entirely replace traditional delivery structures, but if the Nation hopes to address its water resource investment needs, it must be included as another tool in the federal water resources toolbox.

III. Constraints and Recommended Solutions

Given the potential benefits of performance-based infrastructure, it is reasonable to ask as to why these arrangements have not been applied more broadly to federally-sponsored water infrastructure. The answer is actually quite simple: there are a number of systemic constraints in place that severely restrict—if not outwardly prohibit—federal agencies from leveraging these modalities for federally-sponsored water resource projects.

The failure to address key constraints to performance-based infrastructure delivery is somewhat perplexing, as extensive federal precedent exists in which many of these same constraints were overcome to allow some federal agencies to leverage P3 and other forms of innovative project delivery for other types of critical infrastructure. Examples include energy savings performance contracts, special purpose vehicles for military housing, power purchase arrangements, and beyond. Similar formulas could be applied to federally-sponsored water resource projects.

When considering constraints and solutions, it is important to distinguish between fully-federal and cost-shared water resource infrastructure. As such, observations have been categorized as follows:

- A. Fully Federal Water Resource Infrastructure
- B. Cost-Shared Water Resource Infrastructure
- C. Enabling Framework

A. Fully-Federal Water Resource Infrastructure

Federally owned and operated water resources are those facilities for which the federal government holds title and has retained operation and maintenance responsibility. Projects that fall into this category include critical federal infrastructure, such as inland waterways, navigation channels, major dams and water supply projects (such as the Hoover Dam), as well as certain flood risk management projects. Federal agencies coordinate with local authorities, but the federal government retains full ownership, as well as operation and maintenance responsibility over the asset life-cycle.

While these assets are often considered critically important, federal agencies are for all effects and purposes prohibited from utilizing performance-based contracting for any aspect of infrastructure or service delivery, even though these structures could create better value for money for taxpayers. There are many reasons for this.

To begin with, performance-based contracting requires a predictable funding stream. This can either come in the form of usage-based payments (like tolls, user fees or facility charges) or budget-based performance fees (such as availability payments, take-or-pay arrangement, etc.). Regardless of the source of funding (usage payments, dedicated taxes or general treasury receipts), the ability to dedicate and pledge a funding stream to compensate the costs and risks associated with delivering an infrastructure asset is a precondition for any performance-based delivery structure.

The problem is that without specific legislative authority, federal agencies lack the ability to assess and commit collected usage payments for specific project purposes. Instead these monies are usually sent back to the Treasury General Fund or dedicated trust funds and subject to future appropriations. Without the ability to commit project-specific revenues to project costs, most federal P3 projects would then be entirely dependent on budget-based performance payments (i.e., availability payments), which – regardless of risk allocation – are generally considered under current budget scoring guidelines as capital leases and scored upfront. This effectively renders performance-based infrastructure impossible.

In other words, lacking the authority to assess and commit usage-fees for specific project purposes, federal authorities are effectively limited to availability or performance-based budget payments. However, with some limited exceptions (such as Energy Savings Performance Contracts and Power Purchase Agreements), this structure is untenable since budget scorekeeping rules under OMB Circular A-11 mandate that the entire federal obligation relating to a project be “scored” upfront in a single year at the time the contract is executed. This process is indistinguishable from a very large appropriation for a project, and it therefore renders the probability of getting such budget approval extremely unlikely. Without the ability to leverage usage payments for P3s, and given the budget scoring treatment of budget-based payments, federal agencies are simply unable to leverage P3 for the delivery of its federally owned and operated water resource infrastructure and services, even when P3 will produce significant benefits for the taxpayer.

To address this situation, a number of measures should be considered:

1. Federal Value-Capture, Revenue Generation and Ring-Fencing

In light of limited budgets, Federal authorities would benefit from the flexibility to create and assess new user fees, particularly when required for cost-recovery on federal water resource projects. This policy would foster self-sustainability of infrastructure and likewise enable private-sector participation in the provision of water resources. While certain checks and balances would need to be established, including consultation with affected user groups, the authorization of any new fees would help facilitate P3 by allowing for full or partial cost-recovery associated with infrastructure and service delivery.

There is ample precedent in which special authority has been granted to assess fees over federal infrastructure. For instance, Title 23 of the United States Code (Highways) includes a general prohibition on the imposition of tolls on Federal-aid highways. However, Title 23 and other statutes have also carved out certain exceptions to this policy. Two mainstream federal tolling programs and several pilot programs offer states the opportunities to use tolling to generate revenue for highway construction activities and to implement managed lanes on federal-aid highways. The most relevant of these is the Section 129 General Tolling Program, which allows tolling on new highways and new lanes added to existing highways, as well as on the reconstruction or replacement of bridges, tunnels and existing toll facilities. A similar pilot authority should be considered for inland waterways.

Likewise, consideration should be given to updating and expanding revenue opportunities for other water resource asset types. For instance, value-additive fees for enhanced service levels could be levied for some project types, such as water supply or inland navigation.

The proceeds of these initiatives, however, should be collected and retained for project-specific purposes, instead of going back to Treasury. In other words, to facilitate performance-based contracting, revenues generated from users of a specific asset should be reinvested back in that same

asset. Although variations and nuances by project type exist, in general, this could be achieved by either depositing funds into one or more revolving trust funds or by authorizing funds to be deposited into an escrow account held by a third party (either the non-federal sponsor or a private partner under a P3).

A revolving fund is a special account into which money is deposited for expenditure without regard to fiscal-year limitations. Federal agencies would need Congressional authorization to establish a revolving fund of this type for individual projects or project types. Although there are many different types of revolving funds exist, federal precedent exists as to their use. The creation of a revolving fund for individual projects or project types could allow revenues to be dedicated to specific purposes. Nevertheless, money in a revolving fund does not otherwise lose its identity as "appropriated funds" and is still subject to the restrictions of the Anti-Deficiency Act, so Congress would also need to grant an agency a limited exemption by giving the agency "contract authority," allowing them to enter into binding contracts even though they do not have sufficient funds available in the revolving fund for obligation. This would enable federal authorities the opportunity, on a limited basis, to enter into contractual arrangements on the basis of future revenues deriving from a specific asset.

As an alternative, the establishment of non-federal revolving funds would likewise enable the use of enhanced delivery. In this sense, there are some precedents that could serve as a model, such as the Bonneville Power Administration (BPA). The BPA region operates under a Direct Funding authority granted by Section 2406 of the Energy Policy Act of 1992.

2. Budget Scoring of Performance Payments

Given the lack of authorization to assess fees and dedicate them to project-specific purposes, federal agencies are essentially restricted to compensating performance-based delivery through budget-based payments. In accordance with OMB Circular A-11, however, these long-term payments are mostly treated for budget scoring purposes as a capital lease or lease-purchase, thereby requiring the entire project cost (an amount equal to the government's total obligations over the life of the contract) to be scored against the legislation in the year in which the budget authority is first made available. In other words, regardless of how and when the work will be accomplished, if the federal government is at some level responsible for financial commitments made in out years, current budget scoring parameters mandate that it account for this commitment the year in which the commitment is first made. This budgetary impact in a single year is thus the total value of the project, effectively precluding federal authorities from utilizing P3s for water resource projects since such a large cost would eliminate sufficient funding for other projects.

The primary purpose of budget scoring is to ensure proper control and disclosure of resources for capital investment and operational expenditures. Federal budgetary scorekeeping rules are implemented primarily through Office of Management and Budget (OMB) Circular No. A-11, which came about in the early 1990s in reaction to perceived abuses during the 1980s, especially in the area of real estate lease purchases where off-balance-sheet financing techniques left many believing that more visibility into the extent of financial commitments was needed. At the time these rules went into effect, OMB elected to use the principles embodied in Financial Accounting Standards Board ("FASB") Statement No. 13 which is a set of accounting rules designed to govern how private-sector companies either expense or capitalize leases. Now that more than 25 years have passed, many see a compelling need to revisit the logic of continuing to apply these same rules blindly to all infrastructure classes, especially because the underlying accounting rules have changed.

Water resources should not be subject to these same rules. Support for this differentiation can be found in standard accounting principles, which distinguish leasing from other forms of public-private partnerships. For example, Government Accounting Standards Board (“GASB”) Statement 60 establishes accounting and financial reporting standards for service concession arrangements, distinguishing these from capital purchases. As such, there is a strong argument to be made for OMB to establish budget scoring guidelines for water resource infrastructure, which should be done in accordance with the risk-reward methodology.³

This risk-reward approach, which is well regulated and understood on a global level, would eliminate one of the primary constraints to enhanced delivery modalities, thus accelerating infrastructure delivery. These rules would achieve the same purposes as current OMB budget scoring guidelines, ensuring the proper control and disclosure of resources, but they more accurately reflect the underlying risk allocation contemplated in performance-based infrastructure arrangements. Moreover, this treatment would not amend existing rules, but instead create a new category of control. Most consider that this could be achieved by the Executive Branch, without the need for legislative action.

3. Budget Prioritization methodology

Currently, potential investments are prioritized on the basis of their Benefit-Cost-Ratio (“BCR”). While this process is well understood, it relies heavily on historic costing and completion estimates, with no consideration whatsoever of key issues associated with performance-based infrastructure, such as risk allocation, federal return on investment, Value-for-Money, accelerated benefits, etc. These elements are critical factors that should be contemplated within the budget prioritization process; otherwise, there will be systemic discrimination against performance-based infrastructure delivery. Some elements that need to be considered:

- (i) **Federal Return on Investment:** Federal return on investment refers to the public benefits deriving from each federal dollar appropriated to a project. It should be calculated on a risk adjusted basis, reflecting estimated costs associated with differing delivery methods.
- (ii) **Value-for-Money:** Value-for-Money (VfM) is defined as the optimum combination of life-cycle costs and quality. VfM processes have been designed and utilized, including at the federal level, to help government officials compare the benefits of utilizing a P3 approach to traditional delivery. VfM analyzes the total life-cycle costs of service delivery and evaluating the benefits to the public at large, comparing these to alternative approaches (such as the cost of doing nothing and/or traditional delivery). Where there is true value for money derived from leveraging private sector financing and expertise, this should be considered for purposes of budget prioritization. Notably, in 2015 the VfM analysis was recommended as a best practice tool to be employed by all federal agencies by a Special Panel on Public-Private-Partnerships created by the Committee on Transportation & Infrastructure.⁴
- (iii) **Accelerated Benefits and Cost Savings:** In a manner consistent with VfM, consideration should be given in the BCR calculation to the accelerated benefits and life-cycle cost-savings from the use of P3s. Excluding these potential benefits and cost reductions will put enhanced delivery projects at a disadvantage for budgetary consideration.

³ The risk-reward methodology is commonly applied across the globe for infrastructure P3, as codified, for example, in European System of Accounts ESA10 and ESA95.

⁴ Findings and Recommendations of the Special Panel on Public Private Partnerships.

- (iv) **Risk Transfer:** Real and quantifiable benefits are associated with the transfer of project risks to a private partner, including completion risk, schedule risk, and constructability risk. When assessing the benefit/cost ratio for projects, risk must be considered. In much the same way the value of an insurance policy is determined, the value of risk transfer can also be calculated. Quantitative risk analyses should be used to evaluate and prioritize projects and project delivery methods. For its part, the Federal Highway Administration, Office of Innovative Program Delivery (OIPD) has been utilizing quantitative risk assessment for years for the evaluation and prioritization of project delivery models, so this is not a new tool or concept for federal authorities. To date, however, it has never been contemplated within the budget prioritization process for water resource projects.

If performance-based infrastructure is to be enabled, a broader budget prioritization framework that reflects the relative costs and benefits of different delivery methodologies is needed. Otherwise, it will be difficult, if not impossible, to secure appropriations for projects being delivered under innovative structures, even though they may be delivering better value for money for tax-payers.

4. Leveraging Non-Federal Interests for Fully Federal Water Resources

Given funding limits, consideration should be given to authorizing non-federal interests to be established for purposes of infrastructure and service delivery on fully federal water resource assets, such as inland waterways, applying the definition of Federal Interest established via section 221 of the Flood Control Act of 1970 (42 U.S.C.1982d-5b). It would also likely need to include the expansion of authorities set forth in WRDA of 1986 with regard to cost-share responsibilities to include inland navigation. This would provide two benefits: first it would allow non-federal sponsors to leverage value-capture and other strategies to help fund inland waterway improvements and second, in the event that federal P3 is not fully enabled, would allow for the delegation of responsibilities to a non-federal partner. That said, it is important to leveraging non-federal interests to address key infrastructure, such as inland waterways, is not a solution in and of itself. In fact, creating additional layers of government and bureaucracy could actually hinder inland waterway development, instead of advance it. The most efficient approach would be to encourage cost-sharing and enable federal agencies to work with existing non-federal entities on funding issues, while providing federal agencies with tools to directly engage in P3 or other forms of enhanced project delivery.

5. Reform Existing Trust Funds

As discussed previously, the establishment of federal trusts or revolving funds for project-specific purposes is a critical factor in creating an enabling framework for the enhanced delivery of federal water resources. At present, a number of similar funds exist, such as the Inland Water Trust Fund (IWTF), Harbor Maintenance Trust Fund (HMTF), and Reclamation Fund, but none of these currently have the legal authorities necessary to be leveraged for project-specific or life-cycle asset management purposes.

Consideration should be given to a structural reform of these Trust Funds to facilitate investment in critical water resource projects. For instance, on a purely pilot basis, Congress could authorize relevant federal authorities to dedicate some portion of the funds deposited in these Trust Funds to create a repayment stream in support of enhanced delivery. The designation of this guaranteed revenue source could be used to back repayment of project-specific bonds.

Significant legislative changes would be required to enable the existing Trust Funds to be leveraged for project-specific purposes, but this would quickly allow the public authorities to employ existing revenue streams to back longer-term investment in federal water resource works.

B. Cost-Shared Water Resource Infrastructure

Cost-shared or transferred works generally include a cooperative or contractual arrangement between the federal agencies and the non-federal sponsors of a project. In general terms, this involves a cost-sharing arrangement for the construction of the works, which is overseen by the federal agency. Upon completion of construction, the non-federal sponsor assumes full or partial responsibility to operate and maintain the asset over its useful life-cycle. These types of arrangements are often called public-public-private partnerships (P4).

Due to this delegation of responsibilities, these projects do not face the same constraints as fully federal water resource projects. Non-federal sponsors generally have greater flexibility than federal authorities with regard to both revenue generation / ring-fencing and budget-based payments. Nevertheless, enabling enhanced delivery for cost-shared projects also faces some important challenges:

1. Technical Assistance to Bolster Local Sponsor Capacity

Leaving aside the issue that not all jurisdictions have P3-enabling legislation for water resource infrastructure, the institutional characteristics and capabilities of non-federal sponsors can vary significantly depending on the project, ranging from state or local governmental agencies to small irrigation districts or specially created joint power authorities. This lack of uniformity in the delivery of water resources, coupled by significant disparities in non-federal sponsors, is a challenge. In many instance, the local water authorities may not be credit-worthy or have the institutional capacity to explore enhanced delivery models, such as P3.

To help address this problems, federal agencies should create a policy framework to assist non-federal sponsors of cost-shared water resource projects to identify, access and leverage value-captures opportunities and explore/implement performance-based infrastructure, where appropriate. This policy framework should also include parameters of federal technical assistance to eligible non-federal sponsors with regard to P3 procurement, contracting and contract governance and oversight. The policy framework should also align with other initiatives to develop federal aid programs and viability gap funding to ensure that poorer and rural communities also have access to private-sector financing and expertise. A relevant model for providing this sort of assistance can be found in the Federal Highway Administration, Office of Innovative Project Delivery.

2. Viability Gap Funding for Rural and Poorer Communities

Many economically justified public infrastructure projects may fall short of financial viability under a user-pay P3 structure, particularly when projects involve long development periods, early-stage demand risk, and/or the inability to immediately increase user charges to commercial levels. Extended revenue ramp-up periods can yield negative cash flows during the early years of a project, breaching debt service coverage ratio requirements, increasing costs and, more generally, impeding financial viability. If the public sector hopes to leverage private capital for high priority, economically justified projects that lack short term financial viability, it should consider authorizing policy tools aimed at increasing their financial viability.

Viability Gap Funding (“VGF”) is a broad term for government fiscal policy aimed at supporting performance-based infrastructure. Generally, the objective of VGF is to enhance the financial viability of the project to enable non-traditional finance and delivery through P3, likewise ensuring the affordability of public infrastructure and services to the community.

VGF mechanisms can take many different forms and are generally only offered after all other practical remedies have been exhausted (such as refinement in the scope or standards of the project). Depending on the needs of the project, VGF can be offered either directly to the private partner or directly to rate paying beneficiaries (users) of the asset. Forms of VGF can include, amongst others, the following:

- (i) **Cash Grants:** Federal grants paid to the private partner to off-set a predefined level of project costs, thereby enhancing financial viability;
- (ii) **Smart subsidies or usage incentives (to users):** Federal funding or tax credits provided on a temporary basis to users of an infrastructure facility to off-set part of the user fee and/or to incentivize use of the public asset. This accelerates demand, while likewise enabling commercial pricing, thus improving project viability;
- (iii) **Minimum revenue guarantees:** Federal guarantee provided to a private partner or non-federal sponsor to ensure a minimum level of revenues during a specified period. Payments of the guarantee are defined as the difference between predetermined revenue levels and actual revenues, based on tariff and demand levels. This lowers project demand risk and secures debt service coverage ratios, thereby improving a project’s financial viability;
- (iv) **Federal Credit Programs / Concessionary finance:** Expanded federal credit assistance and/or subsidized (below market) debt financing, thereby lowering financing costs in order to enhance project financial viability and/or lower user fees;
- (v) **Other:** A wide range of other policy tools, such as tax abatements or tax credits, work-in-kind contributions, land-use rights, etc., may be considered for eligible projects.

Eligibility criteria for VGF can vary, but would generally reflect the following:

- (i) The project is economically feasible but not financially viable in the short term [the expectation is that the project will transition to total cost-recovery and financial viability within a specified period, not exceeding 50% of the term of a P3 agreement];
- (ii) Project repayment is primarily based on user payments;
- (iii) Private investors are selected through open and competitive bidding process;
- (iv) Asset ownership remains with the public sector;
- (v) The feasibility study evidences benefits deriving from a P3 finance and delivery structure, including optimal risk allocation, and concludes that the project is economically feasible (including technical, legal, social, and environment aspects) and will become financially viable with VGF support;
- (vi) The amount of the VGF is generally a financial bidding parameter.

In order to balance the playing field for rural and poorer communities, federal agencies should develop a VGF program. This should include expansion of the WIFIA credit program, as well as the authorization of expanded grant and revenue guarantee programs for water resource infrastructure. The program could be administered within relevant federal agencies, such as USACE or USBR, or delegated to the EPA Water Infrastructure and Resiliency Finance Center.

3. Federal Funding and Budget Prioritization Criteria

Unless a non-federal sponsor is willing to assume full responsibility for the cost-shared or transferred works, the federal cost-share partner still maintains funding and other obligations under enhanced delivery. The challenge, however, is that the federal appropriations cannot be ensured on an ongoing basis, creating a funding risk for the project. While it is unlikely that the federal agency could be held liable for any failure to deliver funding or other obligations, this is a significant risk that may dissuade non-federal sponsors from pursuing enhanced delivery projects. Federal agencies must be able to commit to their cost-share and other obligations in these instances, otherwise non-federal cost share partners will be discouraged from advancing projects with the use of enhanced delivery.

Federal agencies should establish detailed screening and selection criteria for locally-led P3 projects, including budget prioritization criteria. This would allow for the objective assessment and ranking of eligible P4 projects across jurisdictions and project purpose. While this framework would necessarily align with the budget prioritization parameters proposed for fully federal projects, including consideration of issues such as federal return on investment, Value-for-Money, accelerated benefits and risk transfer, it would also need to include measures to ensure the equitable application of these criteria for poorer or rural communities (such as poverty mapping). The policy framework for funding P4 would also need to include broader consideration of total annual budget allocations for P4 projects.

C. Enabling Legislative Framework

If enhanced project delivery is to be pursued, there is a critical need for a broad-based policy and legislative framework. Although many federal agencies involved in water resources, such as USACE and USBR, have broad authorities to partner with non-federal entities, including non-governmental and private sector entities, the lack of an explicitly created framework to enable performance-based contracting for federally owned and/or operated water resources constitutes a significant constraint. Most successful federal civil works P3 initiatives to date (such as for energy and highways) have benefited from specific enabling legislation and/or special authorities. However, there have been no similar actions undertaken to facilitate P3 for federal water resources.

While WRRDA 2014 set out a framework for USACE to establish a P3 pilot program for authorized water resources development projects, activities related to the program were only authorized to the extent specifically provided for in subsequent appropriations, which have not been granted. Moreover, the legislation does not provide specific authorities necessary to enable P3, but simply sets for the parameters for developing a program and identifying constraints. Other agencies managing water infrastructure, however, have received no specific authorities relating to P3 or alternative finance and delivery, thereby limiting their ability to structure solutions to those provided in existing legislation.

Although many of the specific areas where legislative authorization is needed have been discussed in this testimony, such as the authority to assess fees and commit them to project-specific purposes, etc., other areas where legislation is lacking include, among others, the following:

- (i) **Contract Term:** Federal agencies require authorization to enter into long-term contracts to allow for repayment opportunity and to minimize contract risk. Congress has previously provided federal agencies with this authority, such as in the case of §2922a “Contracts for energy or fuel for military installations” or 10 U.S.C. 2922a (DOD Authority), which allows for contracting for up to 30 years for certain activities (energy production facilities on DoD real property or on private property).

- (ii) **Expanded use of federal value-capture / savings performance contracts:** This could be achieved by drafting provisions similar to those applied for Energy Savings Performance Contracts, allowing for operations and maintenance savings to be leveraged in performance-based contracting.

Finally, it merits noting that, at present, there is really no incentive for federal agencies to pursue enhanced delivery, even when it results in better value for taxpayers. Monies that would otherwise be obligated to these projects would be need to be taken away from projects that are already being funded, creating a disincentive for their use. This also needs to be addressed in order to enable more efficient infrastructure delivery structures.

In closing, as a nation, we urgently need to invest in our country's water resource infrastructure, but this is not simply an issue of funding. Our current infrastructure delivery system is broken and as such, the U.S. infrastructure solution cannot and should not be a one-off cash infusion. We need a long-term strategy for building and maintaining our infrastructure assets. We also must insist that our federal agencies deliver infrastructure in the timeliest and most cost-efficient manner possible, maximizing value-for-money for our citizens.

Thank you again for the opportunity to address the Committee on these important issues.