Fostering a Larger Private-Sector Role in United States Infrastructure
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At times, navigating the path toward critical infrastructure investments brings to mind the austere New Englander who ominously intones, “You can’t get there from here.” Indeed, despite the urgency of the mission, the nation seems unable to find its way toward the necessary destination of adequate funding for its deteriorating public works. But there is a way forward should both the public and private sectors be given the opportunity to do what they do best, our political leaders be emboldened to act, and informed citizens be willing to support actions necessary to enable the long-term economic and social benefits that accrue from infrastructure investments.

Two years ago, AECOM shared its concerns about the woeful attention paid to America’s infrastructure (U.S. Infrastructure: Ignore the Need or Retake the Lead). Since that paper was published, the U.S. has made negligible progress in meeting its infrastructure investment needs. According to the most recent American Society of Civil Engineers (ASCE) Infrastructure Report Card, released in March 2013, the U.S. “improved” from a grade of “D” to a “D+” across all categories of infrastructure. That improvement belies the harsh reality that the estimated infrastructure investment needed by 2020 amounts to $3.6 trillion, leaving an estimated funding gap of $1.6 trillion.

The consequences of infrastructure underfunding are evident whenever a node in the network fails, such as the recent collapse of the Interstate 5 Skagit River bridge north of Seattle; when entire cities or regions are overwhelmed by natural disasters, such as the impact of super storm Sandy on the New York City metropolitan area; or the disruptions from all-too-frequent pipeline breaks that bedevil aging water systems. A less dramatic, but more insidious, toll takes the form of lost productivity, decreased economic competitiveness, and declining quality of life.

The State of U.S. Infrastructure and Access to Private Capital

According to the 2012-2013 Global Competitive Report published by the World Economic Forum, the U.S. ranked 14th in infrastructure among its global counterparts. Of note, the U.S. ranked behind nations that are experiencing similar — if not more challenging — economic conditions, such as France, the United Kingdom, Spain and Japan, which suggests that these nations are more committed to maintaining infrastructure as a critical foundation for economic recovery and long-term prosperity.

Meanwhile, Business Insider’s Joseph Weisenthal assembled data available through the Federal Reserve Bank of St. Louis showing that U.S. public construction as a percentage of GDP is lower than it has been in more than 20 years.

While other areas of infrastructure deserve discussion, advocacy and funding, surface transportation, water and wastewater systems and public buildings are among the more urgently at-risk areas of infrastructure most Americans interact with on a regular, if not daily, basis. Given the state of the U.S. economy, it is evident the public sector alone will not be able to meet our dire infrastructure needs. The following reviews America’s needs and current federal policy in place that allows for strategic, cost-effective private investment in our infrastructure.
Transportation Infrastructure

For the past five years, the economic climate in the U.S. has challenged states and the federal government to provide much more than de minimis funding for maintenance, repair or minor upgrades to existing surface transportation infrastructure.

In evaluating U.S. transportation infrastructure, the 2012 Urban Mobility Report, published by the Texas Transportation Institute at Texas A&M University, estimates the cost of congestion on the U.S. economy in 2011 amounted to $121 billion — or roughly the equivalent of Viet Nam’s GDP (ranked 57th in 2011 for national GDP, according to The World Bank). The same report noted that the yearly peak delay for the average commuter rose to 38 hours in 2011 — or almost a full 40-hour work week. When the U.S.’s cost of congestion can approximate the economic output of a country that is a growing force on the global stage of commerce, or when its labor force loses the equivalent of one full week of work per employee per year, we can begin to understand how the nation earned its mediocre competitive ranking.

Still, there is good news to report related to surface transportation. In July 2012, the Moving Ahead for Progress in the 21st Century Act (MAP-21) authorized surface transportation programs through September 30, 2014. MAP-21 provides a total of $105.7 billion for fiscal years 2013 and 2014, consisting of approximately $40 billion for highways and $10.5 billion for transit annually. Work to reauthorize MAP-21 will begin later this year, but the fundamental challenge remains how to pay for it. At the core of the challenge is the reality that the highway trust fund (HTF) is no longer sufficient to cover surface transportation spending, primarily due to a decrease in federal gas tax revenue (mainly attributable to more energy efficient vehicles).

A short list of proven innovative financing models uses a relatively small amount of federal credit assistance or tax subsidy to leverage a much larger borrowing by state, local, or private project sponsors. Perhaps chief among them is the Transportation Infrastructure Finance and Innovation Act (TIFIA) program, which provides direct loans, as well as companion loan guarantees and line-of-credit facilities, to help states, localities, and other project sponsors borrow more productively.

A TIFIA loan or loan guarantee becomes a predictable revenue source that enables financing on attractive terms, unlocking funding for large-scale transportation projects. The MAP-21 legislation passed in July 2012 expanded and enhanced the TIFIA program, making this a more robust financing mechanism for surface transportation projects. The legislation makes available $1.75 billion for Fiscal Years 2013 and 2014, a significant increase from the $122 million authorized by its predecessor transportation legislation (SAFETEA-LU), and increased the amount of a project’s cost that can be funded with loans and guarantees to a maximum of 49% — up from the previous level of 33%. Through its ability to leverage financing mechanisms, the expanded TIFIA program could finance projects totaling as much as $18 billion. TIFIA credit assistance, if available, may be used for most large scale highway and transit capital projects eligible for federal assistance. While TIFIA loans can support traditional state and local financing, they have become a significant instrument in attracting private entities for transportation projects.

In addition to TIFIA, Private Activity Bonds (PABs) allow tax exempt financing for certain transportation projects, thus greatly improving the appetite for private participation in eligible projects. These bonds are issued on behalf of a special purpose vehicle (SPV) by a public or quasi-public body and are secured by the commitment of the SPV to make the debt service payments. Because the interest paid by PABs is exempt from federal income tax, PABs allow an SPV to issue tax-exempt debt at a rate relatively comparable to the tax-exempt rate obtained by public and quasi-public authorities and entities, facilitating participation in large-scale projects.

The cost of congestion on the U.S. economy in 2011 was roughly equivalent to the GDP of Viet Nam.
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Water and Wastewater

Despite their vital role in the health and security of the population, aging drinking water and wastewater conveyance systems receive little attention and less budgetary consideration until the inevitable failure of a critical node in the network. According to the ASCE, “aging pipes and inadequate capacity lead to a discharge of an estimated 900 billion gallons of sewer each year.”\(^1\) And according to the American Water Works Association, “investment needs for buried drinking water infrastructure total more than $1 trillion nationwide over the next 25 years.”\(^2\) With a growing population, fragile and aging assets and distribution networks as well as the rising risks associated with climate change, the nation’s water-related infrastructure remains vulnerable to constant disruption.

What’s more, municipal water utilities are constrained by rates and user fees that do not reflect the full costs of supply, treatment and ongoing system maintenance to go along with the necessary improvements that ensure long-term water quality and availability.

The federal Water Resources and Development Act (WRDA) is long overdue for reauthorization. Historically, Congress has authorized water infrastructure projects and policies for navigation, flood control, hydropower, recreation, water supply, and emergency management for the U.S. Army Corps of Engineers through the WRDA bill on a biennial basis. However, WRDA has not been reauthorized since 2007.

In May 2013, the Senate passed the Water Resources Development Act of 2013 (S. 601) bill, which is currently pending consideration by the House of Representatives. The bill would establish a pilot program to provide low-interest federal loans to water utilities under a Water Infrastructure Finance and Innovation Authority (WIFIA), modeled after the successful TIFIA program. Like the recently enacted MAP-21 bill for surface transportation projects, loans would be available up to 49% of an eligible project’s estimated cost, which, under the bill’s current framework, include pipe replacement or rehabilitation, new or upgraded treatment plants, combined sewer overflow and wastewater projects, reuse, desalination, capital projects to improve energy efficiency and new water supply projects. Unfortunately, the bill prohibits the use of PABs in conjunction with WIFIA debt financing. In contrast, the ability to use both TIFIA and PABs has been a fundamental key to the success of PPPs in the transportation sector.

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1 Failure to Act: The Economic Impact of Current Investment Trends in Water and Wastewater Treatment Infrastructure; American Society of Civil Engineers
2 Buried No Longer: Confronting America’s Water Infrastructure Challenge; American Water Works Association
Public Buildings

The nation's public buildings, often referred to as social infrastructure, including schools, hospitals, courthouses, universities and prisons, suffer from age, overuse and neglect. According to the National Education Association, more than 14 million children attend deteriorating public schools that school experts say are in need of maintenance and repair projects of at least $270 billion. Meanwhile, the 2013 Annual School Construction Report published by School Planning & Management notes that “total dollars spent on constructing new buildings in 2012 was the lowest since 1996, and in terms of actual rather than inflated dollars, the lowest level since 1990.” The American Hospital Association reports that 67% of hospitals have put on hold badly needed capital projects since late 2007.

Meanwhile, according to the U.S. Government Accountability Office, the owned federal buildings in the General Services Administration’s (GSA) portfolio average 48 years in age, close to the life expectancy of most commercial buildings. In addition, GSA’s buildings that are “over 61 years old are responsible for about 40 percent of its total maintenance liability.”

In particular, schools and other public facilities face diminishing funding as revenues from property, sales and income taxes remain below pre-recession levels and continued federal budget cuts mean fewer funds available for discretionary state and local projects.

Currently, there is no federal legislation under consideration to open the door for private investment in our public buildings, despite the recognized need.

Overcoming the Funding Challenge with Public-Private Partnerships

Addressing the investment gap in these sectors would represent a substantial step forward in the economic competitiveness of the nation and the welfare of its citizens. It may be a long and difficult road to meet our near-term infrastructure needs, let alone essential investments for the nation’s long-term economic and social well-being, but, contrary to what we may have been told, we can get there from here.

This paper does not address the revenue side of the funding equation — that is, sources for the funding, such as various types of taxes and user fees. Myriad ideas and proposals have been put forward to create a strong and reliable stream of revenues to sustain infrastructure funding; however, political and economic challenges continue to render these suggestions infeasible. Given these challenges and the lack of politically viable revenue-generating solutions, traditional grant-based funding is unlikely to nearly cover most significant project funding needs. However, one important tool to address the funding challenge is already available, proven and delivering benefits wherever it has been deployed: the public-private partnership (PPP).

Unfortunately in the U.S., PPPs remain a minor part of the nation’s arsenal for attacking its massive infrastructure challenge. By comparison, PPPs have become a widely accepted project delivery model outside of the U.S. across a variety of infrastructure sectors.

The preponderance of U.S. infrastructure PPPs are oriented to surface transportation. It’s time to expand the use of this tool not just for transportation projects, but also for water and public buildings projects where the need and the urgency for improvements is equal to if not greater than the need in transportation and other infrastructure sectors.

Federal financing and tax legislation can play an instrumental role in spurring the U.S. market for PPPs and opening the doors to infrastructure investment and job creation.

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1 2013 ASCE Report Card
2 Hospitals Continue to Feel Lingering Effects of the Economic Recession; American Hospital Association
3 GAO Highlights, July 2012, Federal Buildings Fund
Specific recommendations include:

1. **Expand the use of PPPs for surface transportation projects.** This can be achieved by extending the successful TIFIA and PAB programs before they expire in 2015. Two key proposals that would enable increased private-sector participation include:

   - The Administration's Fiscal Year 2014 budget proposal to increase the limitation for qualified transportation-related PABs to $19 billion from $15 billion would provide an important enhancement for increased private-sector participation.

   - Direct, taxable subsidy bonds under the Administration's proposed “America Fast Forward” program, for which issuers would receive a direct payment from the federal government in an amount equal to 28 percent of their interest costs, would reinstitute a popular and effective financing tool that emerged under the American Recovery and Reinvestment Act of 2009 (“Build America Bonds”). Unlike Build America Bonds, however, America Fast Forward bonds would be eligible for private involvement.

2. **Open the door for PPPs for water projects and public buildings.** The federal government must enact legislation and tax reform that create an environment that incentivizes federal, state and local agencies to leverage private capital. In particular, Congress should:

   - Pass the proposed “WIFIA” pilot program to provide long-term, flexible low-interest subordinated debt financing terms to water utilities.

   - Enable the WIFIA program funds to be partnered with PABs, as has proven successful with TIFIA.

   - Create an additional type of exempt facility PAB for public buildings that allows private investment to be combined with tax-exempt financing to design, build, finance, and maintain our public buildings.

3. **Enable creative PPPs to more expeditiously address disaster preparedness and recovery needs.** The U.S. needs to increase its readiness and resiliency in the face of natural disasters. SwissRe estimated total 2012 economic losses from natural disasters in the U.S. at $140 billion. According to AON Benfield’s 2013 Annual Global Climate and Catastrophe Report, super storm Sandy alone cost $65 billion in economic losses. With the adverse effects of climate change expected to increase over the years ahead, the prospect of paying for disaster recovery and rebuilding efforts out of general funds — especially during challenging economic times — will weigh heavily on the nation's pocketbook. The Federal Emergency Management Agency (FEMA) is well positioned to lead a national mobilization to dramatically improve disaster preparedness and resiliency, with critical support from Congress to enable private sector participation in the effort.

   - Increase funding for research to assess the nation's vulnerability to catastrophic events, including natural disasters that are likely to result from climate change. FEMA’s recently released report, “The Impact of Climate Change and Population Growth on the National Flood Insurance Program,” exemplifies the type of sober analysis required to forthrightly address the potential impact of natural disasters.

   - Identify and invest in measures to mitigate risk to physical infrastructure, including smart (resilient) development and upgrades to existing assets. Fast-track this work with the use of innovative funding tools that would attract private sector participation, such as — for example — the creation of tax-exempt “Resiliency Bonds” targeted for projects designed to harden physical infrastructure and public buildings.

   - For any future disaster relief and recovery legislation contemplated by Congress, include provisions to encourage the use of PPPs to speed rebuilding efforts — particularly related to major infrastructure reconstruction. Like the concept of “Resiliency Bonds,” “Recovery Bonds” would be equally meaningful in attracting private sector participation in post-disaster reconstruction.

   - 33 U.S. states have already passed legislation to enable PPP transportation projects.

   - Virginia alone has delivered more than $9 billion in transportation projects since its law passed in 1995.
AECOM's Recommendations to Close the Infrastructure Investment Gap

| Expand the use of PPPs for surface transportation projects. | Extend TIFIA and PAB programs before they expire in 2015; consider direct, taxable subsidy bonds. |
| Open the door for PPPs for water projects and public buildings. | Pass WIFIA program and enable program funds to be partnered with PABs; create exempt facility PABs for public buildings. |
| Enable creative PPPs to more expeditiously address disaster preparedness and recovery needs. | Develop new tax-exempt bonds for projects designed to harden infrastructure assets and speed rebuilding efforts. |

**PPPs:**
- Attract new sources of capital that may otherwise be unavailable.
- Deliver projects at significantly lower costs.
- Allocate risk more effectively.
- Improve on-time and on-budget project delivery.
- Increase accountability for asset performance.
- Promote innovations and efficiencies.

The Benefits of Public-Private Partnerships

Programs like TIFIA, the proposed WIFIA and PABs create a favorable environment for the use of public-private partnerships (PPPs) and recognize their value as a tool for the delivery of critical infrastructure projects. While the U.S. has been slower to adopt PPPs than many of our international peers, PPPs have already made numerous transportation projects of critical local, regional and national significance possible. PPPs must be considered as a valuable, long-term and sustainable feature of the U.S. infrastructure landscape. Thirty-three states now have enabling legislation for PPPs.

PPPs permit the public sector to leverage private sector investment capital, shift project risk, and facilitate a higher level of maintenance for significant projects. PPPs also enable the financing of larger deals, due in part to lower coverage ratios and the private sector’s ability to manage costs effectively. PPPs do not provide public agencies with “free” money, but they can and do provide overall “value for money,” as more fully described below.

PPPs offer a variety of significant benefits to the public sector, including:

- Attracting new sources of capital: The PPP structure has attracted new sources of capital, including equity capital provided by pension funds, to the financing of major infrastructure projects — capital which had previously not been available. Traditional approaches to project delivery, such as design-bid-build (DBB), often lack the capital needed to finance major infrastructure projects. Without sufficient capital, infrastructure projects experience delays that increase their cost.

- Value for Money: Value for Money means that a PPP will deliver a given project at a significantly lower cost — taking all program cost elements into consideration with a focus on cost savings — than a traditional DBB form of project delivery. While the cost of PPP financing is generally somewhat higher than a highly rated authority financing, in many cases a PPP will provide value for money because the other cost elements are lower. The premise of this approach is to objectively assess the full range of likely project costs across a range of delivery models to determine which model provides the greatest...
value for money, i.e., the lowest total life-cycle cost. To complete such an assessment, states/agencies must consider the total whole-life cycle costs of a project, including a quantification of all risks retained by the public sector in each model.

- Risk transfer: PPP project financing requires an intense focus on identifying, quantifying, and mitigating the risks associated with a project — a focus largely unachievable in the traditional project delivery framework. Allocating risk to the party best able, and best motivated, to manage that risk makes it less likely that risk will materialize, or makes it more likely that risk is managed and mitigated in a cost-and-schedule-effective manner. The contractual framework set out in the concession agreement (the legal document governing the transaction) incentivizes the private sector participants to perform and penalizes them for noncompliance.

- Improved on-time and on-budget project delivery: PPPs create contractual obligations and dynamics that ensure a level of certainty on the public sector’s maximum cost of a project through an allocation of the risk of both the overall project cost and its schedule to the private sector. In addition, because design and construction are not integrated in a DBB method, it can take more time for the project to be completed from start to finish. Each phase in a DBB is implemented separately and cannot start until the previous phase has been completed; unlike a PPP approach where the phases are integrated, ensuring accelerated delivery.

- Increased accountability for asset performance: A PPP project-delivery structure generally results in a much higher level of project accountability for asset performance than is the case for projects delivered using traditional structures. The project owner — a public agency — is able to hold the private sector highly accountable because the private partner must finance the asset and must meet all agreed-upon standards in exchange for a stream of revenue over the long term. A well-prepared and thoughtful concession agreement generally includes provisions for non-payment or imposition of penalties or deductions if the asset is not available for service or if certain key performance indicators are not being achieved.

- Innovations and efficiencies: Many technological and operational innovations and efficiencies have been first introduced on transportation assets under private operation and maintenance, including the development of Open Road Tolling and Video-Based Toll systems in projects like the Melbourne CityLink in Australia and the 407 ETR in Toronto, Canada. Similarly, innovations relating to maintenance strategies have driven substantial cost savings for private sector operators, which adopt a more whole-life cost sensitive approach to the entire project. The search for innovation and overall cost reductions is further incentivized by the competitive bidding process to secure project concessions. These same opportunities for innovation and efficiency likely would be available for PPPs in the water and public buildings sectors.
Clarifying Some Misunderstandings about PPPs

In the United States, the long-term concessions of the Chicago Skyway and the Indiana Toll Road network were viewed as breakthrough successes. Indiana used a $3.8-billion upfront payment to defease all existing toll road debt and fully fund a 10-year statewide transportation improvement program — something that is rare in typically cash-strapped states. Nevertheless, the Chicago Skyway and Indiana initiatives subsequently received criticism, raising concerns about the length of the leases, and (in Chicago) the use of upfront money for non-transportation purposes, among others.

What followed was a period of some skepticism, fueled largely by misconceptions that PPPs are more expensive in the long run, or trigger job losses, or diminish public control over transportation assets. The data allay these concerns, and demonstrate that many PPP fears are unwarranted. Indeed, a successful PPP, based on a careful and objective value-for-money analysis, can be both a cost saver and a way to save or grow jobs.

The following outlines the most common myths surrounding PPPs, as well as the widely accepted facts by industry and investors that counter such misperceptions:

Myth 1: The grantor will lose control of the asset — When a well-prepared concession agreement is in place, the grantor (the public entity that owns or seeks to build a new infrastructure asset) retains substantial control over the asset throughout the term of the concession, with the Special Purpose Vehicle (the entity established to enter into concession with grantor) directly responsible and accountable for performance. A thoughtful concession agreement will include provisions that provide the grantor with ample control through the imposition of explicit minimum performance requirements. Typical provisions for a transportation asset include (a) minimum levels of service for traffic volumes, (b) minimum asset condition, and (c) maximum intervention times for snow removal, accident identification and response. The grantor retains the ability to assume full control of the asset in the event of default or non-compliance with the concession agreement. The grantor may elect to insert an option in the concession agreement to buy back the concession “for convenience.” Further, the concession agreement often contains obligations and standards regarding the asset’s condition at the end of the agreement.

Myth 2: Concessions will result in a loss of jobs — Policy decisions made by the public sector will drive the job creation/retention and employment conditions to be adhered to by the Special Purpose Vehicle. The concession agreement will set out specific requirements with regard to the use of prevailing wage, organized labor (for relevant states), compliance with existing collective bargaining agreements (CBAs) and any requirement to negotiate future CBAs with relevant groups. In addition, greenfield or hybrid greenfield/brownfield concessions always involve major construction projects, which result in significant numbers of high-paying construction jobs. The majority of these projects — and therefore job creation — would not be feasible without funding from a PPP delivery method.

Myth 3: The cost of PPP financing is more expensive than the cost of financing using traditional public debt — Because public agencies have access to tax-exempt financing, it is often true that from a pure cost of financing perspective, PPP costs may be more expensive than a traditional approach. In fact, the higher cost of capital for private equity is a major challenge to overcome. However, many states and public agencies have reached or exceeded their debt limits and are unable to sell new bonds. They are looking for off-balance-sheet solutions or innovative approaches that allow them to do more with less. More important, the true cost comparison that should be adopted in these instances should be based on the life-cycle cost of a PPP form of project delivery versus a traditional procurement — taking all project cost components into account. Given the grantor’s requirement to deliver the project at as low a cost as possible — within the context of the grantor’s requirements — the concessionaire will strive to deliver the project at as low a construction and operations and maintenance cost as possible. The most fair and accurate way to evaluate PPP costs is through the value for money comparator.
Fostering a Larger Private-Sector Role in United States Infrastructure
Myth 4: Toll rates and user fees will increase excessively and the private sector will derive unreasonable profits — If a PPP is used in connection with a toll facility, the concession agreement will establish an initial toll rate and the maximum allowable rate of toll increase during the term of the PPP. Hence, the grantor has the ability to ensure the toll rates are reasonable from the perspectives of both the consumer and the concessionaire. In addition, concession agreements can be structured to provide for sharing of “windfall profits” with the grantor, including windfalls arising from re-financings, through a formula based on an agreed baseline assumption for traffic volume or total revenue. The bottom line is that a well-designed PPP will ensure that the public sector gains access to new investment capital, creates new jobs, and never loses control of the asset, from either a performance or revenue perspective.

Unlocking the Door to a Sound Future

Public-private partnerships will not singlehandedly solve the infrastructure crisis facing the U.S., but they do offer a valuable and significant complement to traditional grant funding when applied to the right opportunities. With additional support at the federal level, through legislation that enables innovative financing and tax policies that encourage private sector participation, Congress can unlock an important door to the nation’s long-term economic growth and competitiveness and the social welfare of its citizens.

At AECOM, we have no doubt that Congress understands the enormity and urgency of the U.S.’s infrastructure challenge. We know the discussion on Capitol Hill is not related to whether the challenge exists, but rather which paths the nation should take to properly address the challenge.

At the same time, we recognize that the “new normal” of the nation’s budget deficit and constricted finances combined with the political challenges of raising taxes or imposing new or higher user fees will continue to require state and local governments to do more with less. Public-private partnerships are a key asset for delivering the benefits that accrue from infrastructure investments.