



Bridging the Gap Together:  
**A New Model  
to Modernize  
U.S. Infrastructure**

*May 2016*



BIPARTISAN POLICY CENTER

## **ACKNOWLEDGMENTS**

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In addition, BPC thanks all the organizations and individuals who participated in the research and contributed to the council's roundtables and regional forums for their feedback.

## **EXECUTIVE COUNCIL ON INFRASTRUCTURE**

The Executive Council on Infrastructure is a working group of corporate CEOs and executives drawn from the financial, industrial, logistics, and services industries. The council has developed recommendations to help facilitate increased private sector investment in U.S. infrastructure.

## **DISCLAIMER**

This report is a product of the BPC Executive Council on Infrastructure, whose membership includes executives of diverse organizations. The council reached consensus on these recommendations as a package. The findings and recommendations expressed herein do not necessarily represent the views or opinions of the council member companies, the members of the Political Advisory Group, the Bipartisan Policy Center's founders or its board of directors.

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# Letter from Council Co-Chairs

*As American business leaders, we are committed to increasing investment in our nation's infrastructure. The condition of roads, bridges, water and wastewater systems, airports and civic buildings, serving communities all across this country, is deeply concerning. But, as with any crisis, we must recognize the incredible opportunities presented. Our council is proof of the willingness among bipartisan political leaders and the business community to come together with a renewed focus and imperative to invest in our nation's shared future.*

*The connected infrastructure systems that support households and industry are central to America's continued economic success and growth. Citizens must be able to live and work in areas with safe roads and bridges, clean water, and easy access to transportation. Businesses must enhance productivity and move goods efficiently to markets around the world to stay competitive. This is possible only with modern, robust, and well-maintained infrastructure.*

*Our determination to invest, however, is based on more than our businesses' bottom lines. America is the land of the innovator, and there are unprecedented opportunities to build emerging technologies into our communities, making them safer, healthier, and more connected. Unfortunately, government investments in infrastructure are not keeping pace and private capital has yet to be fully engaged. Complacency and competition for limited resources have led to the neglect of both our nation's valuable existing assets and the needs of a growing population. We have failed to incorporate new delivery methods that would help communities build, maintain, and operate their infrastructure more seamlessly, with less risk, and at a lower cost.*

*This report commits business leaders not just to ideas but to action, and in that way, our effort is different from previous work on this topic. The private sector brings access to capital, innovation, and expertise that we are eager to commit to a long-term investment in our nation's infrastructure, and we will work with the public sector to deploy these resources over the full life-cycle of our nation's infrastructure assets. However, we acknowledge and firmly believe that every investment must first be guided by a sincere statement of public purpose and fortified with a commitment by all parties to the proposed plan of action. Indeed, partnership between the public and private sectors is the only way to maximize the value of our shared investment.*

*Let's get to work!*

Sincerely,



**Doug Peterson**  
President and CEO, S&P Global



**Susan Story**  
President and CEO, American Water

# Letter from Advisory Group Members

*Among the most important challenges facing our nation today is the need to invest in our infrastructure. Indeed, there are few issues that historically, and still now, garner such bipartisan support. Investing in our nation's roads, rails, bridges, ports, waterways, aviation, and civic buildings creates jobs and prosperity. Over the long term these investments also make Americans safer and healthier, allow our economy to operate with maximum efficiency, and capture innovative technological advances.*

*The public sector, however, lacks the resources to make these necessary investments. As a result, our infrastructure, the very foundation of our communities and economy, is literally falling apart. The private sector has available capital and expertise to deploy. Yet decades of bureaucratic decision making has created layers of regulatory hurdles, which, together with a fundamental lack of needed data, are making it overly burdensome and cost prohibitive for the private sector to invest. As former mayors and governors, we have welcomed the opportunity to work with prominent U.S. business leaders leading the BPC Executive Council on Infrastructure to develop an approach that is assured to attract private capital to invest in our nation's most critical infrastructure.*

*The model put forward in this report will bring stakeholders together to make investments in the public interest; it underscores how future infrastructure decisions must take into account the full life-cycle costs of an asset, allocate risks across various parties involved in a transaction, and rely on strategic partnerships between the public and private sectors. Employing this model in states and municipalities across the country will bring about not only more, but better quality projects, completed quickly to support not only Americans today, but also future generations.*

*Together, we can demonstrate the leadership and courage needed to improve the infrastructure systems vital to the American standard of living. These are investments assured to have incredible returns. We stand ready to assist in advancing this new approach, acknowledging that it is time for a new American partnership – one that breaks down the barriers to private sector investment and collaboration.*

Sincerely,



**Haley Barbour**  
Former Governor



**Steve Bartlett**  
Former Congressman  
Former Mayor



**Henry Cisneros**  
Former Secretary of HUD  
Former Mayor



**Antonio Villaraigosa**  
Former Mayor

# Executive Summary



*We have an extraordinary opportunity in America — to confront the pressure being placed on our nation’s roads, water systems, ports, airports, and energy grid with available private capital. This report establishes the framework to unite projects that need funding with private capital ready to invest in a transparent system that allocates risks and resources to the public’s benefit.*

America is a nation of innovators — we are inspiring new industries through interconnected devices, commercializing suborbital space flight, and advancing cures to life-threatening diseases. Yet if we hope to foster the next generation of entrepreneurs that can push our economy forward and

maintain our quality of life, we must invest in our infrastructure. Wise infrastructure investments would create millions of jobs, maintain the health, safety, and security of our communities, and set our nation on track for decades of greater prosperity.

This is a choice between action and paralysis. Not making decisions today has serious consequences for tomorrow. We are already confronting prior mistakes as our infrastructure today is failing us. We are living at risk: driving every day on eroding roadways, questioning whether our water is really safe to drink, and sending our children off to schools built for our parents’ generation. The problem is growing worse. It shouldn’t be this way in a country that for so long has led and inspired the world.

## *The Challenge We Face: Short-Term Focus Fuels Mounting Liabilities*

The investments made 50 to 100 years ago are nearing the end of their useful life. We have no coordinated vision or plan for their replacement. And public agencies have struggled to maintain existing assets or plan for their replacement, let alone to make the investments necessary to support future population growth and economic needs.

The price tag to adequately prepare America for the future is hefty — likely requiring trillions of dollars to upgrade, modernize, and expand our infrastructure. Long-term needs — operations and maintenance, repair, expansion and modernization of infrastructure systems — are too often ignored in favor of a focus on short-term costs.

There are many competing demands for public resources — healthcare, public pensions, and existing debt — that are expected to overwhelm public budgets. If we are to meet our nation's future needs and preserve our American quality of life, the public sector cannot continue to cover the cost and absorb the risk of our degrading infrastructure alone. We have to act before lasting damage is done to our economy and the next infrastructure-related failure consumes another American community.

## *The Solution Is Clear: Long-Term Outlook Compels New Model, Delivers More Infrastructure*

There is another way. The private sector stands ready to partner and assist — bringing an appetite for risk, necessary capital, and valuable expertise. Investors with hundreds of billions of dollars to deploy are actively seeking infrastructure projects to support.

Unfortunately, there are a number of barriers preventing the investment of private capital into U.S. infrastructure projects. As a result, America is leaving dollars on the table as capital flows to more receptive shores.

## **Case Studies:** Partnerships across the United States

Some state and local leaders in the United States have successfully partnered with the private sector to deliver needed infrastructure improvements. These partnerships include a range of financing mechanisms and risk-sharing approaches. For example:

**PENNSYLVANIA** will make major strides toward addressing its backlog of bridge repair needs through an innovative approach that bundled more than 550 small bridges into a single procurement. The economies of scale engendered by this approach will allow the private consortium to repair and maintain the bridges for 25 years at less cost than the state would have had to spend to do the work itself.

Facing billions of dollars in courthouse repair needs, the state of California contracted with a private partner to build, operate, and maintain a new courthouse in **LONG BEACH**. The state will pay a set amount each year, subject to the private partner meeting specific standards for upkeep of the building. This approach will ensure that the new courthouse building is maintained to a high standard, with many years of life remaining when it is turned over to the state at the end of the 35-year lease.

In **PHOENIX**, the private sector partnered with the city to design, build, and operate a new water treatment plant designed to serve 400,000 homes. Construction was completed in 2007, and the water treatment plant will be operated and maintained by the private partner until 2022, with the option for a five-year extension. The public-private partnership model saved the city an estimated \$30 million.

Together the public and private sectors can establish a new model for infrastructure investment that confronts risk and captures value over a project's full life-cycle — propelling America's infrastructure into a modern, technologically advanced, and integrated network that enables prosperity long into the future. Our council aims to increase the flow of private capital into U.S. infrastructure projects — by:

- addressing the pervasive underappreciation of future infrastructure liabilities in America;
- encouraging partnerships with the private sector to share risks and maximize the value the public receives from infrastructure assets;
- ensuring communities across the country have tools to make necessary investments.

The challenge before us is enormous, but we have the resources to address it — if we can overcome the barriers that are pushing those resources away.

### ***Understanding the Barriers***

Private investment in infrastructure is happening around the globe, serving as a major source of capital in countries such as Canada, Australia, and the UK. Yet, here in the United States it is rare, due to a number of unique barriers associated with the American market. We identified three major risks hindering the flow of private capital to U.S. infrastructure: the lack of a project pipeline, political risk, and permitting risk.

**Lack of a project pipeline.** The key barrier is the lack of identified projects that are both attractive to private investors and tied to a clear public benefit. Public agencies, including the federal government, are not conducting the analyses needed to put forward projects that satisfy these criteria, so there are few opportunities for private investment.

**Political risk.** The United States has a well-developed economy, a strong democratic tradition, and a clear legal code; however,

competing stakeholders and interests, parochial opposition, and the current lack of political consensus and commitment to long-term investments create political risk. There are many cases where projects have been canceled or delayed for political reasons unrelated to their merits as infrastructure projects. These actions are particularly unsettling to private capital looking to invest in the United States.

**Permitting risk.** Infrastructure projects are subject to various environmental and planning statutes and typically require multiple permits, from many levels of government. The risk that a project will be delayed due to sequential permitting and reviews is one of the biggest barriers to getting projects done. Concerns remain high among private companies that the project they invest in may take years longer than anticipated, adding time, increasing costs, and exacerbating political risks due to unnecessary delays in permitting.

### ***Achieving a New American Model for Investing in Infrastructure***

We propose a new model for the way we plan, pay for, and deliver infrastructure projects. This model is simple. It begins with ongoing collaboration between government and the private sector. It is transparent to the public, focuses on long-term costs and benefits, allocates risks efficiently, and puts all available resources to work, whether public or private.

The core principles of the **New American Model for Investing in Infrastructure** are:

- Projects proceed only after public benefits have been identified and clearly stated;
- Infrastructure investment decisions incorporate full life-cycle evaluation, beyond upfront costs;
- Project benefits, costs, and risks are completely accounted for and made publicly transparent;
- The risk of not investing is quantified and compared against the costs of action; and

- Public and private sector partners share these risks, costs, and benefits.

The new model will transform both how we invest and how much we invest. It will result in infrastructure investments that meet the country’s growing needs and are able to effectively respond to the shifting demands of our nation in the coming century. As more projects are completed through this new model, supported by transparent financial and performance data, the United States will be able to develop a tradeable infrastructure asset class to attract an even greater share of global capital.

This report provides a plan to develop an American infrastructure market that is competitive in the search for investment capital — reducing pressure on public budgets — and successful at getting more projects done.

## ***Recommendations***

Our recommendations for a **New American Model for Investing in Infrastructure** rely on the dedication and commitment of actors at all levels of government, and private industry partners. In order for this new model to be met, the following recommended actions must be followed:

### **Emphasize Outreach, Engagement, and Education**

Every project should begin with a statement of public value. Stakeholder outreach, engagement, and education throughout project development is central to a project’s success.

#### **We recommend:**

- Public and private partners associated with a project assess public value and disclose that information.
- Public and private partners develop a transparent process for public outreach and engagement with continuous opportunities for stakeholder feedback throughout the life cycle of an investment.

- The private sector identify, standardize, and publish project data in an accessible format.
- The private sector work with nonprofits and educational institutions to develop customized training and technical assistance tools for understanding and participating in public-private partnerships.

### **Establish Broad Enabling Framework**

Appropriate conditions and transparent expectations must be set for investments to occur; therefore, a viable legal framework needs to be put in place.

#### **We recommend:**

- States adopt the Bipartisan Policy Center (BPC) model legislation enabling public-private partnerships which includes:
  - Authorization of the full range of partnerships between the public and private sectors for all types of infrastructure, at all levels of government; and
  - Establishment of an expert coordinating office with the authority to convene multiple agencies, focused on attracting private investment to infrastructure.
- States and localities set up a dedicated development fund to provide financial assistance to meet the upfront costs of public-private partnerships.

### **Inventory All Public Assets**

Establishing a standardized inventory of the physical and economic condition of all public assets is critical to understanding and meeting infrastructure needs.

#### **We recommend:**

- Federal, state, county, and municipal governments and independent public authorities develop and publish a complete list of all assets owned, including transportation

infrastructure (streets, bridges, stations, ports), water systems, civic buildings (schools, courthouses, convention centers), vacant land, and underutilized real estate, including air rights.

- Those entities develop a complete inventory that includes the physical and economic conditions of each asset with estimates of the cost of maintaining it over its remaining useful life, the cost of replacement, and the potential impact of a failure.

### **Exercise the Full Range of Options for Project Delivery and Financing**

Public officials must identify the infrastructure needs they are best positioned to own and operate, which needs could be shared with the private sector, and which needs could be fully transferred.

**We recommend:**

- States and local governments prioritize projects for investment based on clearly identified, measurable goals.
- State and local governments conduct an “optionality analysis” to match infrastructure projects with the best delivery and financing options.

### **Simplify Project Development and Permitting**

Permitting and environmental review, particularly when executed sequentially, is one of the most significant deterrents to private capital investing in U.S. infrastructure projects.

**We recommend:**

- The federal government, states and localities establish and enforce implementation of simultaneous agency review of projects.
- Public agencies identify all required permits and clearly delineate responsibility and timelines for acquiring them,

prior to entering into a project contract.

- Public agencies collect data and publish tracking reports of permitting timelines, making delays transparent, increasing accountability, and improving coordination and communication.
- The public and private sectors work together to develop model forms, standardized documents, and contract language to make it easier for investors to assess candidate projects.

### **Expand the Range of Revenue Options Available**

Project sponsors must identify revenue to leverage financing. Where possible the source of revenue should have a nexus to the project, where those who will benefit from the project pay for it with user fees, tolls or explicitly-tied taxes.

**We recommend:**

- Federal and state action to provide long-term, stable infrastructure funding, derived from the breadth of revenue options available, such as: motor fuel tax, vehicle miles traveled charge, facility use charge, sales tax, rate payer fees, and license surcharge.
- Project sponsors identify a broad range of revenue options, including blending multiple sources, to meet the needs of identified projects.
- Public and private sector leaders maximize the use of emerging funding sources that directly engage the private sector: value capture, naming rights, crowdfunding, and private development capital.

### **Create New and Leverage Existing Financial Tools**

Increasing the variety and strength of financial tools will attract new private capital that has not traditionally been invested in infrastructure, while preserving the existing tax-exempt bond market.

**We recommend:**

- Public and private sectors work together to activate new or broaden use of existing investment vehicles that would stimulate the development of a project pipeline: REITs, MLPs, asset-backed securities, regional infrastructure funds, and pension pools.
- The federal government consolidate credit programs that have been important for private investment into a single infrastructure loan provider open to all types of infrastructure, set funding levels commensurate with demand, and modernize program terms and credit scoring to reflect actual experience and best practices.
- The federal government authorize and expand promising initiatives such as Build America Bonds, QPIBs, and Move America Bonds.
- The federal government conduct an audit of its tax regulations and other infrastructure-related guidance and amend any that create unneeded barriers to private investment in infrastructure.
- The private sector develop benchmarks for infrastructure investments that will lead infrastructure into a tradable asset class.

As American business and political leaders, we call for public and private resources to be put to use to build necessary public infrastructure. We call for an America open for business in the market for global capital. By working together to put the **New American Model for Investing in Infrastructure** into action, we can create jobs, ensure our businesses can deliver goods to market efficiently, protect the health and safety of our communities, and give our children something to aspire to with investments that capture the cutting-edge technologies and innovations of tomorrow.

## ***Our Call to Action***

American competitiveness and quality of life depends on continuous investment in public infrastructure. The short-term gains of job creation, efficient transportation, safe drinking water, and harnessed technological advances will be tremendous. Moreover, the long-term gains of a robust market of infrastructure assets attracting substantial capital with reduced risk on public balance sheets, producing a system of interconnected infrastructure that is the envy of the world, are essential.

# *Chapter 1: Opportunity and Risk – What the Future Holds*



Imagine — it is 1916. You are looking to America’s future with all the promise and peril of its growing dominance on the world stage. Can you envision the nation that will exist in 2016? The United States as it exists today would most likely be unfathomable. And yet, the decisions made at the turn of the last century set the stage for today’s America. With history as our judge, we now know that our investments — in transportation, water, power, and communications — and ingenuity were key to our prosperity, helping millions achieve the American dream.

Now in 2016, our future is uncertain. The 21st century contains the potential for both remarkable improvement and staggering deterioration in America’s economy and our quality of life. No one can say which future will come to pass. What is certain is that choices we make today will determine the answer for our children and grandchildren. Interrelated trends in population growth, technological innovation, infrastructure needs, and declining funding leave us to confront difficult decisions about our priorities for investment.

## Defining “Infrastructure”

America’s infrastructure is a complex, interconnected network that supports our nation’s economy and quality of life. It includes many elements, from the systems that carry clean water, gas, and electricity to America’s homes and businesses, to the railroads and highways that move goods thousands of miles, to the schools that educate the next generation of Americans. Each element of this diverse network operates under a unique governance structure, involving multiple public agencies, boards, and oversight bodies. This report covers both economic infrastructure — the physical networks that allow economic activity to occur, such as water systems and transportation networks — and social infrastructure, the facilities that allow social services and civic functions to take place.

### Economic Infrastructure

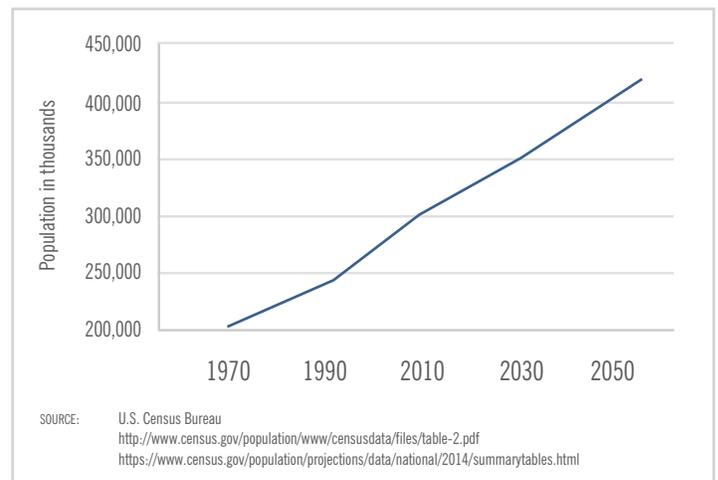
- Drinking water systems
- Waste water systems
- Roads
- Bridges
- Rail
- Ports
- Waterways
- Airports
- Telecommunications
- Power/electricity systems
- Pipelines

### Social Infrastructure

- Schools
- Libraries
- Hospitals
- Housing
- Courthouses
- Prisons
- Civic buildings

Current projections call for America to be home to 100 million more people by mid-century, and to continue growing at a rapid rate.<sup>1</sup> To support this growth, we will need millions more homes and thousands more schools, which will require clean water, reliable energy, and access to roads and sewers. The U.S. Department of Transportation (DOT) estimates that America will need to move 14 billion additional tons of freight by 2050, about twice what it moves now.<sup>2</sup> We face the growing risk that America is not positioned to make these investments, which are necessary to provide access to millions of high-paying, high-skilled jobs for a growing population.

**Chart 1.1 - Projected Growth in U.S. Population<sup>3</sup>**



For much of the last century, America’s infrastructure supported and enabled innovation. Governments laid down roads to facilitate travel by automobile. The nation’s power grid expanded until virtually every household had access to electricity, allowing the proliferation of electric lights, TVs, washing machines, refrigerators, and personal computers. Over the course of the 20th century, American infrastructure helped this country raise the standard of living and become the strongest economy in the world.

Americans continue to invent new life-changing technological innovations and tools with the potential to help meet the needs of a growing population and reduce the demands placed on our infrastructure. Home appliances that communicate with each other

offer not only convenience but also increased energy efficiency and cost savings. Driverless cars will reduce accidents and delays due to human error, and allow people to recapture valuable time that today is wasted behind the wheel. The use of 3-D printing and delivery drones are revolutionizing the way goods are produced and distributed to American consumers.

However, America is not prepared to take advantage of these innovations. Pavement conditions and lane markings on many existing roads make it difficult for driverless cars to safely operate on them. Our nation’s civic buildings are getting older, requiring retrofits with smarter heating, cooling, and lighting systems to save costs. Laws and regulations are struggling to keep pace with disruptive technologies like ride-sharing services Uber and Lyft.

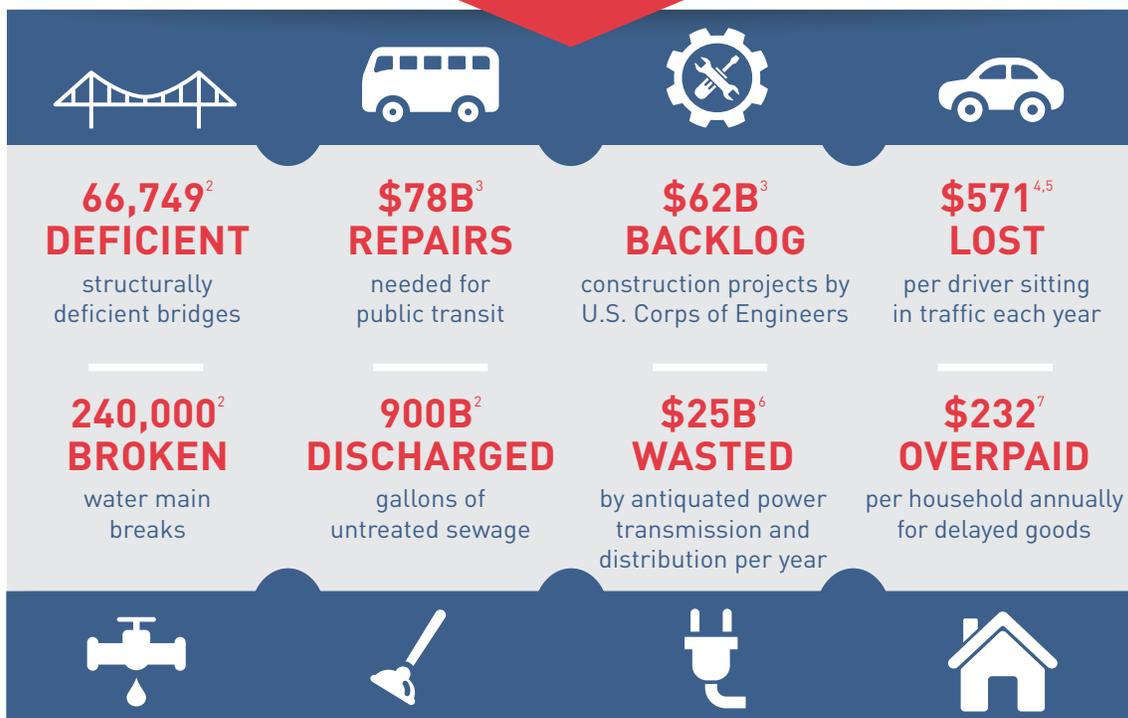
Preparing America for the future will require trillions of dollars to upgrade, modernize, and expand our infrastructure. Airports that were once state-of-the-art are now crowded and crumbling. Thousands of miles of water pipes and sewer lines are long past their expected life. America’s power grid is straining under current demands. Ports are scrambling to be ready for the larger ships

that the Panama Canal expansion will bring. Local infrastructure issues — from potholes to blackouts to contaminated water — are a mainstay of town hall and neighborhood meetings. Instead of providing a pathway to innovation, U.S. infrastructure is now struggling to keep up with a changing world. These issues are a large part of the reason that U.S. infrastructure ranked 16th in the World Economic Forum’s Global Competitiveness Report for 2014-15, behind countries such as Finland, Austria, and the United Arab Emirates.<sup>4</sup>

If the condition of U.S. infrastructure does not improve while the country’s population grows as projected, American quality of life will decline, with more demands placed on infrastructure built for fewer people. The impacts will be felt not just by individuals

## *U.S. infrastructure is now struggling to keep up with a changing world.*

### MUCH NEEDED FUNDS TO IMPROVE OUR ECONOMY AND QUALITY OF LIFE



## PAYING THE PRICE OF INACTION BY 2020<sup>1</sup>

↑  
**\$1.2**  
**TRILLION**  
increased  
business costs

↓  
**\$3.1**  
**TRILLION**  
lost in gross  
domestic product

↑  
**\$611**  
**BILLION**  
additional  
household costs

↓  
**3.5**  
**MILLION**  
fewer jobs  
in U.S.

1 "Failure to Act: Economic Impact Summary Report," American Society of Civil Engineers, January 2013, [http://www.asce.org/uploadedFiles/Issues\\_and\\_Advocacy/Our\\_Initiatives/Infrastructure/Content\\_Pieces/failure-to-act-economic-impact-summary-report.pdf](http://www.asce.org/uploadedFiles/Issues_and_Advocacy/Our_Initiatives/Infrastructure/Content_Pieces/failure-to-act-economic-impact-summary-report.pdf)

2 "2013 Report Card for America's Infrastructure," American Society of Civil Engineers, March 2013, <http://www.infrastructurereportcard.org/a/documents/2013-Report-Card.pdf>

3 "National State of Good Repair Assessment," Federal Transit Administration, 2011 and Nicole T. Carter and Charles V. Stern, "Army Corps Fiscal Challenges: Frequently Asked Questions," Congressional Research Service, August 18, 2011, [http://planning.usace.army.mil/toolbox/library/Misc/R41961\\_Corps\\_fiscal\\_challenges-11Aug.pdf](http://planning.usace.army.mil/toolbox/library/Misc/R41961_Corps_fiscal_challenges-11Aug.pdf).

4 "2012 Urban Mobility Report," Texas Transportation Institute, December 2012.

5 "Our Nation's Highways: 2011", Federal Highway Administration, <https://www.fhwa.dot.gov/policyinformation/pubs/ht/pl111028/chapter4.cfm>.

6 Common Good Two Years, Not Ten [http://commongood.3cdn.net/c613b4cfd258a5fcb\\_e8m6b5t3x.pdf](http://commongood.3cdn.net/c613b4cfd258a5fcb_e8m6b5t3x.pdf)

7 "An Economic Analysis of Transportation Infrastructure Investment," National Economic Council and Council of Economic Advisors, July 2014, [https://www.whitehouse.gov/sites/default/files/docs/economic\\_analysis\\_of\\_transportation\\_investments.pdf](https://www.whitehouse.gov/sites/default/files/docs/economic_analysis_of_transportation_investments.pdf). Based on U.S. Census Bureau data showing 116, 211, 092 households in 2014.

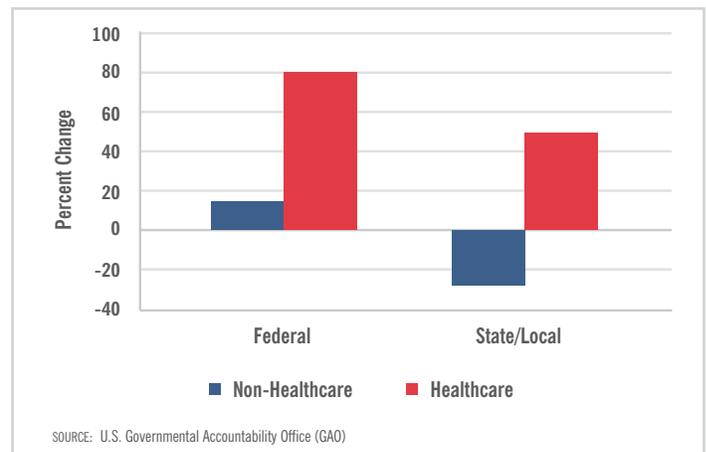
and families; they will wear on the bottom lines of American businesses. The American Society of Civil Engineers (ASCE) has conducted extensive research into the risks and costs of failing to upgrade America's infrastructure to keep pace with needs. Ultimately, such a failure puts our public health, safety, economic competitiveness, and overall quality of life at risk.

By taking up the challenge of addressing these needs, America can lay the groundwork for future infrastructure that will allow our nation to thrive. S&P Global Ratings has estimated that an increase of \$160 billion in infrastructure investment in the United States — about one percent of GDP — would boost economic output by \$270 billion over a three-year period and add as many as 730,000 jobs in the first year to the U.S. economy.<sup>5</sup> In other words, for each additional dollar of public investment in infrastructure, \$1.70 would be added to real GDP over three years. Perhaps more importantly, infrastructure improvements — especially when they reduce congestion or make possible other private sector activities like new housing construction — result in greater long-term economic growth.

Unfortunately, future trends in public budgets show clearly that government revenues will fall dramatically short of what is needed. ASCE estimates that \$2 trillion in investment is needed to keep America's water and transportation infrastructure in working condition through 2020. To date, governments have committed only half that amount, leaving a \$1 trillion gap in funding.<sup>6</sup> But the situation grows increasingly dire as the century progresses.

Future liabilities in healthcare and other costs will dominate public budgets, making it more difficult for state and local agencies to address infrastructure needs. Over the next 45 years, healthcare costs are projected to balloon, while public spending on everything else, including infrastructure, is expected to be flat or declining.

**Chart 1.2 - Rate of Growth, Healthcare vs. Non-Healthcare Public Spending, 2015-2060<sup>7</sup>**



As healthcare costs consume an increasing portion of public budgets, states and cities will have to grapple with other costs as well, including paying promised pension benefits to retired workers. As the number of retirees drawing on the funds is increasing, the number of active workers contributing to pension funds is declining. The common practice of deferring contributions to pension funds in order to pay for today's needs has increased the challenge, as did the 2008 recession.

As healthcare and pension costs grow to dominate public spending, the increasing frequency of natural disasters will continue to place unprecedented demands on America's public budgets. More extreme weather events are already testing the resiliency of both our built environment and our economy — the consequences of which include everything from increased costs and reduced yields for farmers due to droughts, wildfires and floods; rising demand for energy to power cooling systems; and adverse impacts on public health and productivity. The cost associated with addressing and mitigating these impacts promises to be significant, forcing difficult trade-offs in already-overwhelmed public budgets.

In the face of competing challenges such as healthcare, pensions, and natural disasters, it is only too easy for governments to defer infrastructure investments to another day. But this is short-sighted. Infrastructure is critical to a functioning American economy. Clogged roads and contaminated water drag down communities, while a lack of investment neglects key opportunities for job creation. Our economy suffers as a result.

Infrastructure that is efficient, resilient, and well-maintained is an essential foundation for economic growth. Upgrading our infrastructure would reduce costs for businesses through faster goods movement and increased productivity. Families would spend less on transportation costs like wasted fuel and car repairs. Thousands of jobs would be created, not only during construction, but also by increasing efficiency and productivity once the project is in use. According to the Value of Water Coalition, every job created in the water sector helps add 3.68 jobs in the national economy.<sup>8</sup> The American Public Transportation Association has found that every dollar invested in public transportation generates \$3.70 of economic activity.<sup>9</sup>

Infrastructure investment has long been a driver of American economic success. The 20th century was marked by several major infrastructure programs that played an indisputable role in the economic growth of the nation. During the Great Depression,

## ***Infrastructure that is efficient, resilient, and well-maintained is an essential foundation for economic growth.***

federal funding supported construction of thousands of roads, bridges, civic buildings, airports, and dams, including such major undertakings as the Hoover and Grand Coulee Dams. The goal of these programs was not only to create needed infrastructure, but also to put thousands of unemployed people to work.

During the 1950s, President Eisenhower spearheaded the “National System of Interstate and Defense Highways,” built over the next three decades with 90 percent of the funding coming from the federal government. As the name suggests, the interstate system was initially conceived as not only an economic asset but also a national security asset. The President had taken a trip across the United States in 1919 as part of an army convoy and was dismayed at the country's lack of capacity to accommodate cross-country travel — particularly if it were needed to move people and supplies for national defense. Congress established a new federal fuel tax to help pay for the interstates, and the actual construction work was done by the states, yielding a highway network thousands of miles long that enabled commerce and travel throughout the country.

However, these massive government programs are a thing of the past. Public officials today lack the wherewithal to modernize our infrastructure. According to the U.S. Government Accountability Office (GAO), state and local governments face a growing gap between available revenues and future spending needs.<sup>10</sup> While local tax revenues have begun to rise again in the last few years, total municipal revenues have still not reached their pre-recession levels.<sup>11</sup> Moreover, city leaders are reluctant to take on

large amounts of additional debt to fund long-term expenditures, especially when they are faced with pressing short-term needs.<sup>12</sup>

We cannot address our infrastructure needs with a business-as-usual approach. America needs a new model for the way we plan, pay for, and deliver infrastructure projects. The new model begins with significant, ongoing collaboration between government and the private sector. Hundreds of billions of dollars in global private capital is available for investment in infrastructure. The private sector also brings valuable expertise skilled at anticipating life-cycle costs and risks associated with investments. We will only be able to effectively address the enormity of this challenge facing our nation with public and private partners working together.

This report sets forth an action plan for the public and private sectors to together deliver infrastructure that keeps American communities safer and economically resilient, and our nation a leader in innovation, competitive in a global marketplace. We recommend specific actions for public officials as well as the private sector to take to transform America's infrastructure into a modern, technologically advanced, and integrated network that enables prosperity long into the future.

# *Chapter 2: A New American Model for Investing in Infrastructure*



Infrastructure, for all its valuable contributions to the American way of life, is also a source of risk. At the outset of a project, the risks include construction delays, denial of permits, or unforeseen changes in public policy. For the vast number of “middle-aged” infrastructure assets around the country, risk manifests as unfunded future maintenance costs. And for a mature infrastructure asset, the risk is the cost of replacement, or, on the flip side, the possibility of a critical failure.

While much attention is focused on the short-term risks of project construction, the long-term risks are rarely quantified or acknowledged by public agencies. Lacking a full accounting of those long-term risks, public agencies often prioritize short-term projects, leaving infrastructure needs unaddressed. The longer this situation persists, the worse the problem will grow. It is time to face this issue head-on and develop a new model for infrastructure investment that will address the pervasive under-appreciation of future infrastructure liabilities in America and empower communities to make smarter investment decisions.

## Core Principles for New American Model for Investing in Infrastructure

- Projects proceed only after public benefits have been identified and clearly stated.
- Infrastructure investment decisions incorporate full life-cycle evaluation, beyond upfront costs.
- Project benefits, costs, and risks are completely accounted for and made publicly transparent.
- The risk of not investing is quantified and compared against the costs of action.
- Public and private sectors partner to share these risks, costs, and benefits.

### *Infrastructure is a Life-Cycle Investment*

For most of the last century, American infrastructure has primarily been publicly funded and owned.<sup>13</sup> As a result, all of the associated risks have rested with the public sector. However, these future costs and liabilities are typically not reflected on public balance sheets. Future liabilities such as the cost of replacing assets at the end of their useful life, economic disruption and legal liabilities due to infrastructure failures, and decades of operations and maintenance costs are rarely quantified. Because few public agencies have historically been incentivized to account completely for these liabilities, there is a fundamental information deficit about the state of American infrastructure.

As a result of this precedent of widespread under-appreciation of growing risks, deferred maintenance, and investments made without consideration of life-cycle costs, most of America's current infrastructure will reach the end of its useful life within only a few decades (and some already has). Roads, bridges, water treatment plants, miles of sewer lines and school buildings need to be replaced. As the owners of much of that infrastructure, state and local governments are facing a massive future liability — potentially

just as crippling as the healthcare and pension costs described in the previous chapter. But because there is no public accounting for those future costs, it has become all too easy to ignore them.

This inaction can be just as costly over the long term, or even more so, than taking action. Costs increase as assets deteriorate, existing inefficiencies continue, and the risk of a failure rises. Leaky water pipes, broken mains, and faulty meters waste 6 billion gallons of water every day across the country.<sup>14</sup> Inefficiencies in the power grid lead to brownouts, costing businesses that rely on electricity both time and money. The cost of such failures can be significant, not only in terms of economic disruption but in potential lives lost. Yet these risks are almost never quantified for public officials, who must make decisions about infrastructure investments, or for the general public, who may be asked to vote for bonds or taxes to finance projects.

### *Costs and Risks—including the Cost of Inaction—Quantified and Publicly Transparent*

The long-term cost of infrastructure is largely obscured from both government leaders and the general public. Public statements and the media tend to give more weight to the short-term costs of constructing infrastructure projects, rather than their life-cycle costs and benefits — or indeed, the cost of inaction. A recent report by the water technology company Xylem, Inc. found that existing technology could reduce greenhouse gas emissions from electricity use in the wastewater sector by nearly 50 percent.<sup>15</sup> Much of the investment in this technology would be cost-neutral or even have a negative cost due to the electricity savings that would result over time. However, one of the biggest barriers to implementing this technology is “willingness to adopt existing solutions that have a higher initial capital cost, and a lower ongoing operating cost.”<sup>16</sup> Too often, the high initial costs can obscure the fact that the new project will have both fiscal and environmental benefits, while failure to act will simply allow existing negative impacts, such as high levels of emissions, to continue.

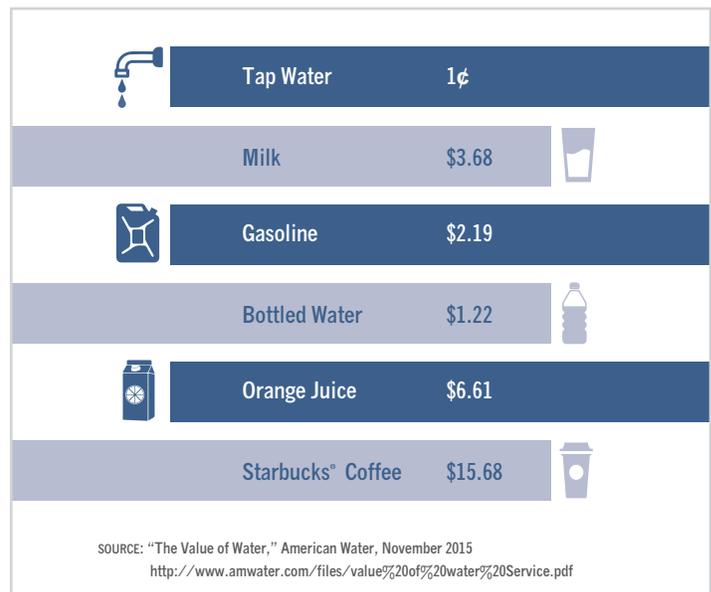
Many observers also focus on just one set of possible outcomes, rather than comparing them with the likely outcomes if the status

quo is maintained. For instance, it is possible that private sector involvement will impact the level of user fees charged over time — often a subject of great consternation among the public. However, this measure is only meaningful when put into context against the level of user fees that would have to be charged over time if the status quo is maintained. Many other important measures of the outcomes that could be expected by maintaining the status quo — including measures related to workforce, general fund revenues, community debt levels, risk exposures, environmental impacts, and community involvement — are often left unquantified, making it difficult to put the benefits and costs of private sector involvement into context. And the result — doing nothing when a change will result in a positive outcome for a community — is one of the biggest risks that public agencies face.

The lack of readily available, quantifiable information on the long-term costs and benefits of infrastructure investment and the risks of not investing have contributed to a lack of urgency among the American public for infrastructure investment. The case has not been made, except in the few high-profile emergencies where infrastructure has literally collapsed, that there is a need to act. For example, the true costs of providing water and transportation have long been hidden from consumers. With some exceptions, water service is one of the lowest monthly costs for households, far below what the typical household spends on electricity and phone service.<sup>17</sup> As a result, many consumers have come to consider water to be essentially free, and may resist attempts to build more of the cost of infrastructure into the price of clean water.

With regard to transportation, people think they are already paying too much. Most Americans believe that the gas taxes they pay cover the full cost of maintaining roadways. In fact, gas taxes cover only about 50 percent of the cost of roads, with general revenues from local, state, and federal budgets making up most of the difference.<sup>18</sup> Because gas taxes are not listed separately when gasoline is purchased at the pump (in contrast to sales tax, which is itemized when consumers purchase other goods), most people have no idea

**Figure 2.1 - Cost Per Gallon: Tap Water is Unmatched**



how much they are paying in fuel taxes and many assume that the federal tax is far higher than it is.<sup>19</sup>

America cannot continue to ignore the full life-cycle costs of infrastructure, including the potential costs of not investing. Only with a full accounting of costs, risks, and benefits, can public officials establish priorities to optimize the use of limited public funding and lay the groundwork for future economic prosperity. This information must be transparently disclosed to the public, both to engender public understanding of and support for infrastructure projects and to encourage greater accountability for investment of public dollars.

The **New American Model for Investing in Infrastructure** begins with an upfront acknowledgment that being an infrastructure owner entails future liabilities, risks, and obligations that span decades, and that today, virtually all of those future liabilities, risks, and obligations are on the government's ledger — albeit in invisible ink. The new model recognizes that doing nothing has a cost, and that cost must be accounted for in public decision-making. Infrastructure assets must be viewed not as one-off construction projects, but as long-term investments, with a full valuation of life-cycle costs, including risks and benefits. And, perhaps most importantly, the public sector

# The new model recognizes that doing nothing has a cost.

alone cannot take on the entire burden — costs and risks — of building, operating, and paying for the infrastructure on which 400 million Americans will depend.

## The Value of a Private Sector Partner

When the private sector partners with state and local leaders to address their growing infrastructure needs, they bring capital, specialized project expertise, and cost-saving ideas and innovations. They can help to reduce the risk currently on the balance sheets of public agencies. Of course, private companies will expect to receive a return in exchange for taking on that risk, but in many cases, sharing both the risks and benefits of infrastructure projects is extremely valuable to the public sector.

Currently the primary way to tap private investment for infrastructure, other than the individual investors who support public needs through the municipal bond market, is through public-private partnerships (P3s). P3s are widely used in other developed nations, but are still relatively rare in the United States. While private companies have long been involved in the construction of infrastructure projects, their conventional role has been primarily limited to that of a contractor, with the ultimate responsibility for funding, financing, and delivering projects resting with the public sector, typically a state or local agency.

In a P3, the public sector partners with private companies to share the risks and responsibilities of delivering infrastructure projects. P3s can take a variety of forms along a spectrum of responsibility and risk-sharing. The most common types of P3s are shown in Table 2.2. However, even in two P3s of the same type, roles and responsibilities of the public and private partners may be different, as each P3 is individually negotiated and specific risks may be allocated differently. Examples of risks that may be retained by the public sector,

transferred to the private partner, or shared among the parties are shown in Table 2.3.

**Table 2.2 - Common Types of P3s with General Areas of Responsibility for Public/Private Sectors**

	Public Sector	Private Sector
<b>Conventional</b>	Individual contracts for design and construction; public O&M; public financing	Different contractors at each stage
<b>Design-Build</b>	Single contract for design and construction; public O&M; public financing	Responsible for project through construction
<b>Design-Build Operate-Maintain (DBOM)</b>	Single contract for design, construction, O&M; public financing	Responsible for project from design through O&M
<b>Design-Build-Finance Operate-Maintain (DBFOM)</b>	Single contract for design, construction, O&M	Responsible for all aspects of project development including financing for a fixed term of years
<b>Private Ownership</b>	Sells asset to private owner/ operator	Responsible for all aspects of project indefinitely (may be regulated, e.g. by public utility commission)

**Table 2.3 Common Risks in Infrastructure Projects**

Risk	Description
<b>Construction</b>	Risk that something will delay construction, such as an unexpected type of soil or a disruption in the supply chain for needed materials
<b>Land Acquisition</b>	Risk that the price of land needed for the project will be higher than expected
<b>Permitting</b>	Risk that the project will take longer than expected to receive permits and complete environmental review
<b>Financing</b>	Risk that terms will be less favorable when refinancing is needed
<b>Political</b>	Risk that the project will be slowed or stopped by community opposition, a government official or at the ballot box
<b>Usage/Demand</b>	Risk that the expected number of people will not use the project or that it will not raise the expected amount of revenue
<b>O&amp;M</b>	Risk that operations and maintenance costs will be more than expected, or savings from energy efficiency improvements will be less than expected
<b>Taxation</b>	Risk that tax laws may change in the future in a way that affects the project

## P3s help reduce the current and future infrastructure risk facing public agencies in several ways:

- Aligning incentives to take a life-cycle approach to operation and maintenance of the asset to maximize useful life;
- Sharing or transferring risks to the private partner;
- Reducing pressure on public budgets; and
- Enabling innovation.

### Align Incentives to Achieve Cost-Effective Decisions

Contracting with one consortium from design through construction and operations aligns incentives to achieve cost-effective decisions throughout the life-cycle of an asset. In a traditional procurement, the design firm knows that they will not have to build the project, so it lacks incentive to incorporate elements that would streamline the construction process. The construction firm knows that it will not have to operate or maintain the project, so it lacks incentive to use materials that might cost more today but will reduce maintenance costs down the road in the project's life cycle. In a P3, the same private consortium may be responsible for design, construction, and operations. Incentives are therefore in place to consider life-cycle costs from the outset of the project, leading to reduced cost overall and maintenance of the asset over the term of its life to a certain pre-specified standard.

These incentives influenced the design of the **LONG BEACH COURTHOUSE** P3 project, when the private partner made the decision to use a particular wood within the building despite its higher purchase price, because over the next 35 years the cost to maintain it was significantly less than the alternative. A construction contractor without that incentive may have used the cheaper product, leaving the public sector with higher maintenance costs down the road.

**PHOENIX, ARIZONA**, experienced a similar benefit from working with the private sector to build a new water treatment plant. The \$228

*Protection against future liabilities has economic value for the government and taxpayers, but is rarely quantified in a transparent way.*

million plant, delivered on schedule and within budget, has a capacity of 80 million gallons per day (mgd) that will ultimately be expanded to 320 mgd to keep pace with increasing development in northern Phoenix. The city of Phoenix had considered three alternative delivery approaches for the treatment plant and raw water facilities, including Design-Bid-Build, Design/Build and Design-Build-Operate. Officials ultimately selected DBO because it enabled operating staff to be involved in the design from the earliest stages, which helped ensure a project with a long service life.

### Share or Transfer Risks

P3s also allow the public sector to share or transfer risks to the private partner. For example, in a traditional procurement, the public agency managing the project has no recourse if costs overrun the budgeted amount, other than to cut from other programs or appeal to the legislature for more funding. Most P3 contracts, on the other hand, transfer the risk of cost overruns to the private partner, on the theory that the private company has greater expertise and a more direct role in project oversight and is therefore in the best position to manage that risk. Table 2.4 illustrates a number of other common ways in which risks can be shared or transferred between public and private partners.

In the case of the **DULLES GREENWAY** and the **INDIANA TOLL ROAD**, most of the demand risk (i.e., the risk that the toll road would not be used as much as projected) was transferred from the public sector to the private sector. As a result, the public did not retain any future liability for the costs of maintaining the roadways should

**Table 2.4 - Common Risk Allocation Under Conventional and P3 Procurement**

Risk	Design, Bid, Build	Design, Build	Design, Build, Finance, Operate, Maintain
Change in Scope	Public	Public	Public
NEPA Approvals	Public	Public	Public
Permits	Public	Shared	Private
Right of Way	Public	Public	Shared
Utilities	Public	Shared	Shared
Design	Public	Private	Private
Ground Conditions	Public	Public	Private
Hazmat	Public	Public	Shared
Construction	Private	Private	Private
QA/QC	Public	Shared	Private
Security	Public	Public	Shared
Final Acceptance	Public	Private	Private
O&M	Public	Public	Private
Financing	Public	Public	Private
Force Majeure	Public	Shared	Shared

SOURCE: VA DOT's PPTA Risk Analysis Guidance, September 2011. "Value for Money Assessment for Public-Private Partnerships: A Primer," Federal Highway Administration, December 2012

toll revenues not be sufficient. Protection against future liabilities has economic value for the government and taxpayers, but is rarely quantified in a transparent way.

**Reduce Pressure on Public Budgets**

P3s can also reduce pressure on public budgets, freeing up public funding for other programs. In some P3s, the private partner is responsible for financing some or all of the projects' cost, and may put in its own capital (equity). While the cost of capital for a private company may be higher than the cost to a public agency of using tax-exempt debt, private financing has other benefits. Since the recession of 2008, many states, cities, and counties have become more cautious about taking on large debt loads. In a survey of city finance officers, the National League of Cities found that while the municipal debt market remains strong, much of the recent activity has been refinancing, not new debt issuances.<sup>20</sup>

In some cases, a high debt burden can put a state or municipality at or near a statutory borrowing limit. In others, a significant amount of

debt may negatively impact the state or city credit rating, potentially raising the cost of capital for future needs. In these cases, private financing can help deliver projects that otherwise may not get done. Even a locality that has the capacity to raise additional debt can benefit from using private financing for infrastructure projects, as it

**Reasons for Using Private Financing for Infrastructure**

The U.S. is home to a highly regarded tax-exempt municipal bond market. Still there are reasons a community might pursue other methods of private financing for infrastructure.

- At or near statutory debt limit
- Unfavorable public credit rating
- Concern that additional debt would affect credit rating
- Public or political opposition to taking on more debt
- Other priorities for available public capital

could then use capital raised in the debt market for other pressing needs. Even well-managed places have infrastructure needs that extend beyond what can reasonably be financed with public borrowing.

The **DULLES GREENWAY** project, a toll road connecting rapidly growing Loudoun County, VA, to Washington Dulles Airport, was one of the earliest P3s in the country, and was completed using private financing at a time when Virginia lacked capacity within the state budget to take on such a major endeavor.<sup>21</sup> More recently, the private operator of the high-occupancy toll lanes on Interstate 495 in Virginia added \$250 million of their own equity into the project in order to buy down the cost of the project's debt; had the project been publicly financed, it is extremely unlikely that the Virginia General Assembly would have been willing or able to provide the additional funding.

Across the country, **RIALTO, CALIFORNIA** was hit hard by the 2008

recession and its water utility lacked funding to address urgent environmental and operational needs. The city entered into a 30-year concession with a private group to take on needed repairs and ongoing operations in exchange for collecting revenues from ratepayers according to an established formula. As part of the arrangement, the city received an upfront payment and was able to retire its utility debt, leaving it in a stronger budgetary position without the added responsibility of running the utility.<sup>22</sup>

The **BOROUGH OF HADDONFIELD, NEW JERSEY** decided to meet its needs with a full transfer of its water and wastewater system, an aging system facing significant challenges, to the private sector. Over the next five years, New Jersey American Water will spend more than \$16 million on system modernization. If the sale did not go through, the Borough of Haddonfield Board of Commissioners, which recently had raised rates by 25 percent, was expected to raise rates again to pay for the much-needed capital improvements in the system. As part of the sale agreement, New Jersey American Water committed to leaving the water rates unchanged for a minimum of three years. And, because New Jersey American Water is regulated by the New Jersey Board of Public Utilities, any future proposed changes in water or wastewater rates will be subject to extensive governmental review and approval.

In some cases, the need to address failing infrastructure becomes more urgent than public budgets can handle on the timeline required under federal consent decrees or other remediation plans to address a “Notice of Violations” (NOV) issued by a federal agency. The more distressed a system, the more costly it tends to be to bring it into compliance — costs that are not easily absorbed in constrained public budgets. In these circumstances, partnership with the private sector, including transfer of the distressed asset, can be a way to bring necessary upfront capital to address critical infrastructure issues.

Private sector involvement in infrastructure projects can even bring additional revenue to public budgets by increasing the amount of

property and other general tax revenues for a region. For instance, Tennessee American Water, a subsidiary of American Water Works Company, Inc., has one of the top five taxable assessed values in Chattanooga, where it owns and operates the water utility. Had that utility remained in public hands, those taxes would not have been assessed. Many municipalities are looking for ways to expand their tax bases by offering incentives for businesses to move to their area. In addition to those efforts, cities should also explore how partnering with private entities for infrastructure investments and operations could provide similar tax base improvements.

### **Enable Innovation**

P3s can enable innovation, which can save the public sector time and money. While public employees do have creative ideas, in general public sector rules and processes are not structured to reward “thinking outside the box.” Government employees are rarely criticized for following existing processes — doing things the way they’ve always been done — but also are rarely rewarded for trying something new. In the private sector, supervisors tend to have more flexibility when it comes to bonuses or other rewards for new ideas.

Private companies have incentives to push for innovation among their employees: in the competitive business of infrastructure development, companies must distinguish themselves from their competitors. Bids are not typically won by applying traditional thinking and frameworks, but by incorporating innovative ideas and operational efficiencies into their proposals.

The Virginia I-495 High Occupancy Toll Lanes project, discussed above, was the result of a proposal by a private consortium to bring cutting-edge traffic management technology to one of Virginia’s most congested regions. The Virginia Department of Transportation did not have expertise in these advanced technologies, and it was only through the resulting P3 contract that they were deployed in November 2012.<sup>23</sup>

## Core Principles for a Successful P3

Public and private partners should follow seven core principles to successfully develop and deliver a P3 project.

- Develop a clear understanding of the public purpose and benefits of the project, including clear measures for success.
- Include key stakeholders early and often in project development.
- Proactively seek opportunities to monetize assets.
- Analyze life-cycle costs and risk transfer benefits in addition to the upfront cost of capital.
- Structure P3 agreements to encourage efficient management and protection of the public interest.
- Look for opportunities to bundle multiple sources of funding and financing.
- Use transparent, competitive bidding that allows room for innovation.

For more information, see “Case Studies: Infrastructure Public-Private Partnerships” at <http://infrastructurecouncil.org/wp-content/uploads/2016/04/Case-Studies-Public-Private-Partnerships.pdf>.

## *Partnership between the public and private sectors can reduce future public liabilities and lower project costs.*

Taken together, the benefits of partnership between the public and private sectors can reduce future public liabilities and lower project costs. Operations costs are minimized, risks are removed from public balance sheets, and debt capacity is freed up for other priorities.

The **New American Model for Investing in Infrastructure**, beyond simply measuring the risk currently on public balance sheets, requires the private sector to take into account full life-cycle costs of an asset and absorb some of the risk, freeing up public capacity to address other pressing challenges such as increasing healthcare costs, pension obligations, and unplanned emergencies.

# Chapter 3: Barriers to Putting the New American Model into Practice



Despite the benefits the private sector can bring to the delivery and financing of infrastructure, its role has been limited in the United States. A study by the U.S. House of Representatives Transportation and Infrastructure Committee found that more than \$61 billion was spent on highway P3s from 1989 to 2013. However, that amount is just 1.5 percent of all highway projects completed during that same period.<sup>24</sup> This raises two important questions:

- 1) Given the potential benefits and such significant need for investment, why do so few projects engage the private sector?
- 2) What is preventing implementation of a new model for investing?

The answer revolves around risk. Entering into a P3 for a U.S. infrastructure project is still seen as a high-risk, low-return proposition by many in both the public and private sectors. However, public officials and private companies have different reasons for reaching the same conclusion.

## ***The Public Perspective on Risk in Partnership***

As discussed in the previous chapter, public agencies do not fully account for and therefore recognize their retained risks over the full life-cycle of the infrastructure assets they own. Many even lack a list all of their assets, let alone an accounting of the total costs to operate, maintain, repair, and replace them.

The failure to account for retained risks leads public procurements to overvalue low initial costs, and undervalue future obligations. Traditional procurement models reward bidders who offer the lowest cost (or sometimes the “best value” over a short time horizon, such as the period of construction). Because the other side of the ledger — future risks — is never calculated, public agencies are unable to evaluate them as part of the procurement. Since the value of P3s stems in large part from long-term, life-cycle cost reductions and risk-sharing, if those factors are not considered, the true value of P3s is obscured.

At the same time, many government policies and practices limit the options public agencies have for working with the private sector. In some states, the law actually prohibits public agencies from entering into partnerships with private companies to design, build, or finance infrastructure projects. Seventeen states currently do not have enabling legislation to allow public-private partnerships for public projects.<sup>25</sup> Some states that do have enabling laws allow P3s only for specific types of projects, and may apply other conditions such as limitations on the duration of contracts or requiring a vote of the legislature before a contract may be signed. Even in states where the authority exists to partner with the private sector, lack of experience with the P3 concept and the availability of the familiar tax-exempt debt option can make public officials unlikely to explore alternative approaches, especially when the true risks and life-cycle costs are hidden.

Many public officials also shy away from P3s due to the perceived risk of public opposition. Infrastructure projects, even those under a conventional procurement, are rarely completely free of controversy. Local business owners may be concerned about disruption caused by construction; neighborhood groups may be frustrated by being left out of a project’s service area. But P3 projects can attract public opposition for reasons not faced by conventional projects. In the absence of clear communication about the benefits of a P3, concerns about unfettered increases in tolls or rates are common, with people believing that the private concessionaire or owner will receive a windfall at taxpayer expense.

The history of American P3s suggests that the concern about private investors making a windfall profit are generally unfounded, as there are many examples of projects in which the private partners fared poorly rather than made a large profit.<sup>26</sup> But even when the public is protected in the case of the private operator’s loss, public perception is that they too have somehow lost. The **INDIANA TOLL ROAD** is perceived as a failure by many because the private operator was not able to cover its debt costs due to lower than expected usage and a unique debt structure. Headlines blared that the toll road was bankrupt — a “good deal gone bad,”<sup>27</sup> wrote one publication — creating the perception that the public was stuck with a bankrupt asset. In fact, in this case, the public was largely shielded from the effects of the bankruptcy. The losses were borne by the debt and equity holders, there is a limit on the amount that tolls can be increased, and the state still retained the upfront payment of \$3.8 billion from the private partners.<sup>28</sup>

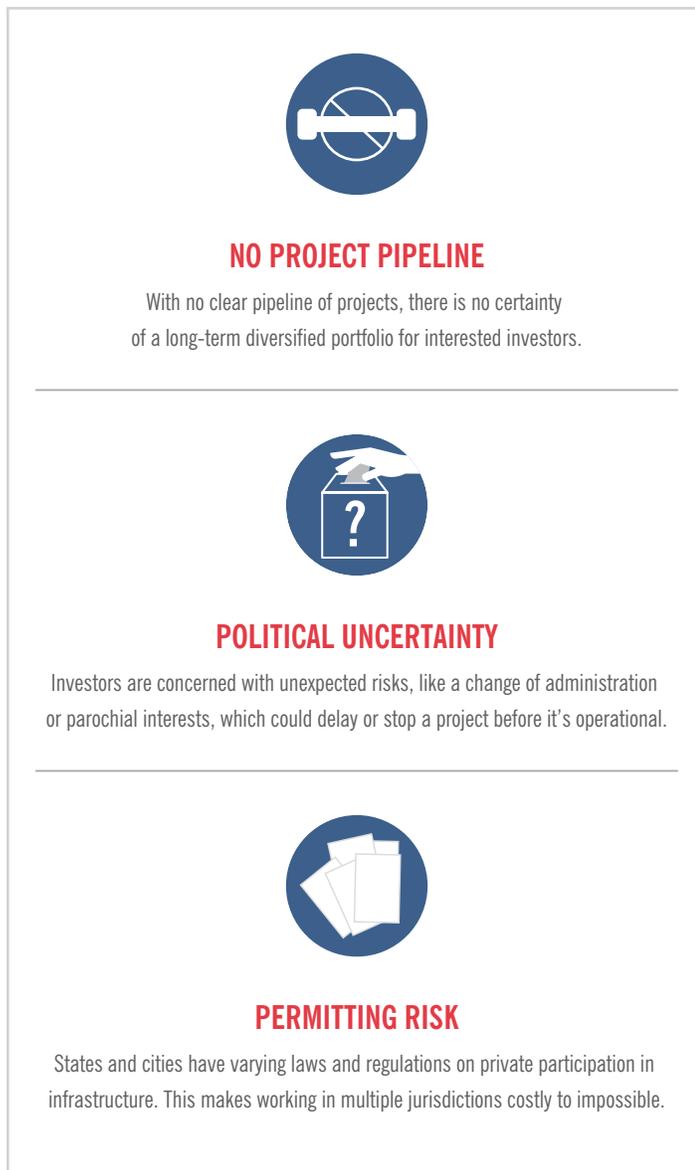
Recent evidence suggests that there may be the potential for more support among the public for P3 projects than these negative headlines would suggest. JD Power surveyed consumers about their attitudes toward infrastructure, both generally and with regard to specific local projects.<sup>29</sup> A majority of respondents expressed support for private financing of publicly-managed infrastructure and believe that the private sector can be more efficient in the construction and management of infrastructure projects than the public sector. The survey demonstrated that people are open to P3s when their benefits are clearly communicated.

However, even a perceived lack of public support — whether there is a basis for it or not — can discourage public officials from exploring P3s as a way to address infrastructure needs. This is especially true when traditional procurements appear cheaper over the short term and long-term costs are unknown. In other words, the risks appear to be high, while the benefits appear artificially low.

## The Private Perspective on Risk in Partnership

Our nation has large and growing infrastructure needs. Private capital is available globally for infrastructure projects. There are daily reports of infrastructure investments being made in countries from Argentina to Zambia. Investors are actively looking for projects in which to place their capital, but so far, the United States has not attracted a significant amount of private investment. There are a number of key reasons American projects are struggling to compete with investment opportunities overseas.

Figure 3.1 - Key Barriers to Private Investment in the U.S.



### Lack of Project Pipeline

Public agencies rarely break with traditional procurement practices. With just a handful of possible P3 projects identified each year, investors have formed the view that it is just not worth their while to participate in this underdeveloped market. The time required to identify opportunities, navigate through individual state and local regulations and procurement codes, and prepare bids is cost-prohibitive when there is no guarantee that there will be more projects in the future. Without a “project pipeline,” or a critical mass of projects that are expected to be available for private investment in the future, it is difficult to convince investors that it makes sense to actively engage in the U.S. infrastructure market.

According to the World Economic Forum, “[a] clear infrastructure pipeline should be the first step for governments wanting to maximize investor participation in financing.”<sup>30</sup> The lack of a project pipeline is one of the biggest barriers to increasing private investment in U.S. infrastructure. To be clear, the problem is not simply a lack of information about projects that have been identified as available for private investment. Investors have numerous ways to find out about such opportunities, to the extent they exist. The problem is the lack of projects themselves. In the United States, too few projects are being proposed.

Even when projects are proposed, private investors may be reluctant to participate, not only because of high bid costs, but because of two additional risks uniquely attributable to American P3s: political risk and permitting risk.

***The lack of a project pipeline is one of the biggest barriers to increasing private investment in U.S. infrastructure.***

## International Competitors Move Ahead while America Falls Behind

Around the world many countries are proactively working to attract private investment to meet their infrastructure needs. The European Commission recently announced a pipeline of 2,000 projects worth €1.3 trillion to be financed primarily through the capital markets; a publicly-funded European Fund for Strategic Investment will take the junior (or riskier) positions in the financing structure in order to attract significant private capital for the safer tranche of the investment. Canada has also developed a significant P3 marketplace with leadership from both the federal and provincial governments. Canada sees a consistent stream of P3s, with multiple projects happening every year.<sup>1</sup>

The United Kingdom established a National Infrastructure Commission in October 2015, independent from the national government. The commission is charged with developing a long-term, 10- to 30-year, needs assessment of the country's infrastructure priorities. Commissioners are appointed to serve five-year terms. The group is to work across economic sectors to develop a long-range plan for investing in target infrastructure projects, as well as to produce technical reports providing solutions to the barriers holding back long-term investment in infrastructure and robust project delivery. The commission is not responsible for actual project delivery. Further, government agencies must formally respond to the commission's prepared needs assessment of projects that aim to be sustainable, and affordable and deliver real economic benefit, with reasoning about why or why not to advance certain investments.

The Asian Infrastructure Investment Bank (AIIB) is a multilateral entity initiated by the Chinese government in 2013 to encourage investment, connectivity, and accessibility throughout Asia. Members, or signatories, of the bank include over 50 countries around the world, many from the EU, Africa, and Mideast. This financial institution identifies investments based on social, economic, and sustainability returns. Each member owns shares of the bank's capital stock. The bank can raise or borrow funds from any member country. AIIB can make direct loans, investments, and guarantees, and/or provide technical assistance to selected projects. Through regional cooperation the bank's role is to assess proposed projects, determine appropriate terms and conditions of financing, negotiate contracts with project partners, and monitor and report on compliance and project impact.

Sources: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/489950/National\\_infrastructure\\_commission\\_jan\\_16\\_print\\_final.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/489950/National_infrastructure_commission_jan_16_print_final.pdf); <http://www.aiib.org/>

## Political Uncertainty

Political risk is multifaceted, but in general refers to the risk of projects being delayed or canceled for political reasons, unrelated to their merit as an infrastructure project.<sup>31</sup> Political reasons can include partisan differences, parochial opposition, or simply the election of a new official who does not support the goals of his or her predecessor. Even if public officials take the first step of proposing a project, they cannot guarantee that the opportunity will survive the often lengthy project development process. This lack of certainty dissuades investors from participating in the United States, particularly as other robust infrastructure markets throughout the developed and developing world present more transparent and committed options.

The **MARYLAND PURPLE LINE** and the **INDIANAPOLIS JUSTICE CENTER** are oft-cited examples of political risk.<sup>32</sup> In both cases, teams of private companies had spent months preparing bids and millions of their own dollars, only to find that political winds had shifted and the project was not moving forward as expected (although the Maryland Purple Line eventually got back on track). This type of uncertainty does not create an attractive environment for private investors. These high-profile, costly defeats make private investors — particularly those based in other countries who lack experience with U.S. political systems — skittish and overshadow successful P3s that have been completed in the United States.

Political uncertainty is higher in the United States than in other developed countries, even in countries with similar federal-state structures, such as Canada and Australia. One reason is the sheer number of public infrastructure owners in the United States, each with their own local politics and processes. Another reason is that the United States and most states lack a dedicated entity with responsibility for shepherding projects through the process. In Ontario, Canada, the provincial government established Infrastructure Ontario to handle development and procurement of P3s. The commitment of the province to that process is such that once Infrastructure Ontario issues a Request for Proposals, the

# *The United States and most states lack a dedicated entity with responsibility for shepherding projects through the process.*

project is highly likely to be completed. The same cannot be said for project RFPs issued in the United States.

## **Permitting Risk**

Permitting risk is the risk that projects will be delayed due to permitting and environmental reviews. Infrastructure projects of all types are subject to various environmental statutes and typically require multiple permits, from all levels of government. For example, the federal government's Permitting Dashboard lists 38 possible permits for infrastructure projects, administered by 12 different federal agencies — separate and apart from required reviews under the National Environmental Policy Act (NEPA).<sup>33</sup> State and local agencies issue permits as well, covering everything from state environmental issues to local building codes to utilities and construction.

There is no single source of information on the time and cost involved in reviewing and permitting infrastructure projects. Data collection on reviews under NEPA — the most commonly cited contributor to permitting risk — varies by agency. Most agencies track only the number of environmental impact statements, the most comprehensive of NEPA documents, which are required for less than one percent of infrastructure projects. A few agencies collect data on the cost of EIS, and a 2003 estimate put the range at \$200,000 to \$2 million for a single EIS.<sup>34</sup>

Large, complex infrastructure projects — the most likely candidates to be P3s — typically have the greatest potential to be delayed in the review and permitting process. A few high-profile, long-delayed projects now define the permitting challenge. The desalination plant

now operating in Southern California began its permitting process in 2003, and completed it nearly a decade later, in 2012.<sup>35</sup> Raising the Bayonne Bridge between New Jersey and New York, a project with the same physical footprint as the existing bridge, required five years of reviews.<sup>36</sup> While there have been some success stories over the last decade — most notably, the replacement of the collapsed I-35W bridge in Minneapolis in a mere 13 months — concern remains high among private companies that the projects they invest in may take years longer than anticipated, adding time and increasing costs.

Unnecessary delays in the permitting process cost money for both the public and private sectors. Direct costs can go up if the costs of materials, supplies, and labor rise during the delay. There is also a public cost to delaying needed infrastructure improvements, as older facilities may produce more emissions or break down more often. A recent report by the nonprofit organization Common Good estimated the cost of delaying the start of all U.S. public infrastructure projects by six years to be \$3.7 trillion, which includes the adverse effects of prolonging inefficiencies and unnecessary pollution from existing outdated infrastructure.<sup>37</sup>

Permitting delays may also increase political risk, because the longer a project stays in the review phase, the more likely it is that there could be unforeseen changes in public policy, priority, or support. The interactive effects of delays from political, regulatory, and permitting issues are a key reason why infrastructure needs go unaddressed and private capital does not invest.

The possibility that a project could be delayed for many years before being approved (or canceled) requires private investors who are willing to take on a great deal of risk, as it undermines the attractiveness of these investments. As with political risk, permitting risk is perceived to be much more obtrusive in the United States than in other developed nations. Germany and Canada typically approve projects within two years, not because of weaker regulations but because they have coordinated their decision-making processes and established clear lines of authority.<sup>38</sup> In the global marketplace for private infrastructure investment, projects in countries with a

better track record of efficient approvals will have an advantage over projects in the United States.

The United States has a well-developed economy, a strong democratic tradition, and a clear legal code. But the practice of overvaluing short-term costs and undervaluing long-term risks in infrastructure procurements, coupled with public concern about private involvement in infrastructure, has inhibited public officials from seeking to partner with the private sector. For private investors, the dual challenges of political risk and permitting risk have made the United States an unattractive market for investment. Taken together, these factors are stifling the essential development of a long-term pipeline of projects. The remainder of this report outlines a plan to develop an American infrastructure market that is competitive in the search for investment capital — reducing pressure on public budgets — and successful at getting more projects done.

***The dual challenges of political risk and permitting risk have made the United States an unattractive market for investment.***

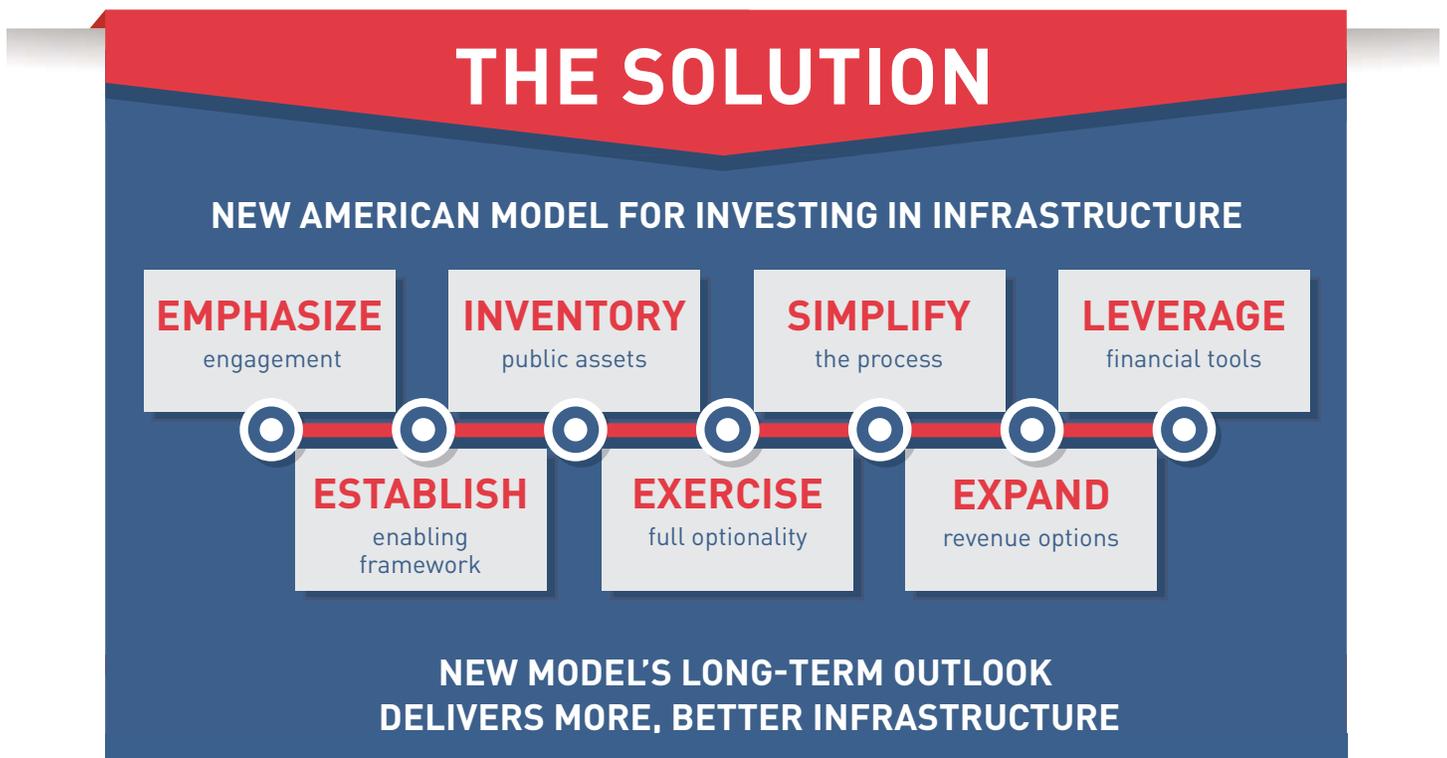
# Chapter 4: Recommendations for Achieving the New American Model

Private capital is available to help meet America's infrastructure needs. Globally, private investors are increasingly seeing infrastructure as an attractive option for deploying their resources. With hundreds of billions of dollars potentially available for infrastructure projects, the private sector is partnering with government agencies across the world to help deliver urgently needed infrastructure. But up until now, the United States has largely been on the sidelines in this expanding market. If we continue our business-as-usual approach, the United States will continue to suffer from second-rate infrastructure and miss the opportunity to capture the attention of global investors. We cannot continue to leave these dollars on the table. It is time to adopt the **New American Model for Investing in Infrastructure**. The following recommendations will create the conditions necessary for the United States to attract new private capital to help meet our pressing needs.

To ensure America is positioned to take advantage of the opportunities of the 21st century, the public and private sectors must act together.

The key barrier to greater collaboration is neither lack of will nor capital. It is the lack of identified projects that are both attractive to private investors and tied to a clear public benefit. The **New American Model for Investing in Infrastructure** rests upon a robust pipeline of identified projects that meet public and private goals, supported by transparent data and a consistent regulatory framework. These recommendations provide the path to achieve that goal.

The following sections of this report lay out a series of actions for the public and private sectors to take to attract more private investment in U.S. infrastructure projects. The New American Model requires multiple steps and multiple actors; however, the benefits of moving to this new structure — where life-cycle costs are fully accounted for, risks are efficiently allocated and absorbed, and partnerships are negotiated to the benefit of all parties — will result in infrastructure investments that meet the demands of our nation in the coming century.



# Recommendation 1: Emphasize Outreach, Engagement and Education



<p><b>Aim</b></p>	<p>More engaged and better informed decision-makers, stakeholders, and general public.</p>	
<p><b>Recommendations</b></p>	<p>Creation of a public-private center of excellence with comprehensive educational resources on infrastructure financing and delivery.          Analysis and publication of additional data on the performance of infrastructure projects across a range of delivery models.</p>	
<p><b>Roles</b></p>	<div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>• Joint participation with private sector in center of excellence.</li> <li>• Leads on establishing practices that enable meaningful stakeholder input.</li> </ul>	<div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>• Joint participation with public sector in center of excellence.</li> <li>• Leads on data collection and analysis of projects with private participation.</li> </ul>

For a state or locality to successfully work with the private sector to deliver infrastructure, there must be “buy-in” from many interests in the community and, in some cases, the broader region and state. Some of the key stakeholder groups which can influence public support include the business community, labor, environmental groups, civic organizations, and local media. A plan for regular and consistent engagement with stakeholders is essential to develop the support required for greater private sector participation.

A lack of awareness of the potential benefits of partnering with the private sector is one of the key factors inhibiting development of a more robust project pipeline in the United States. Public officials need to understand how a P3 might work in their community; otherwise, an official, with limited time and resources, may not be inclined to consider this approach. For those officials who are interested in P3s, the challenge of educating other stakeholders — agency heads, business and labor, and the general public, to name a few — can seem daunting. Yet without the support of these stakeholder groups, P3s face increased political risk and will be less likely to attract private investors. Some private stakeholders could also benefit from an enhanced understanding of infrastructure P3s, particularly investors who have not historically allocated funds in this area.

There are already some resources available for those who aim to learn more about P3s, and the library is growing. National organizations such as the National Governors Association (NGA) and the American Association of State Highway and Transportation Officials (AASHTO) offer interactive courses and peer-to-peer workshops on infrastructure financing, including P3s.<sup>39</sup> The federal Department of Transportation, through the Build America Transportation Investment Center (BATIC), as well as the Federal Highway Administration’s (FHWA) Office of Innovative Program Delivery, offers technical assistance and resources for state and local officials on transportation P3s.<sup>40</sup> These efforts, in addition to others, offer three important lessons for future educational efforts: know the audience, make the case, and continue the education.

## **Know the Audience**

Programs and materials need to be customized for the circumstances of each audience. Educators must understand the goals of the audience — addressing increased traffic congestion? replacing hundred-year-old pipes? revitalizing Main Street? — in order to make the discussion engaging and provide relevant lessons learned. Officials from peer communities can be helpful in educating and inspiring action, but they must be perceived as peers by the audience: a case study from New York City may not be helpful in Boise, and vice versa. In addition, whether the audience is public officials, community members, or private investors, educators need to meet the audience where they are along the knowledge spectrum. There may be a need to cover the basics of infrastructure development, funding, and financing as part of the education on P3 structures.

## **Make the Case**

While existing materials provide a wide variety of useful information, there is still a need for additional data to further understanding of the costs and benefits of P3s. Case studies and anecdotal examples are useful, and more success stories would likely engender greater interest in P3s, but many of these examples lack quantitative information about projected and actual project performance. For example, while there have been studies in other countries, there has yet to be a comprehensive look at American P3s’ adherence to projected costs and schedules. Other than a few instances in which such information was published, there is little data on government costs saved through P3 project delivery. More objective, comprehensive information about the actual performance of P3s would help to counter misconceptions and increase the level of understanding of this approach, both for the general public and for private investors.

## **Continue the Education**

Education and communication must be an ongoing process, not a one-time occurrence. Issues involved in delivering infrastructure

projects are complex in and of themselves. While it may have long-term benefits, using a P3 approach, especially for the first time, can add to this complexity. In addition, the need for stakeholder support throughout the process requires ongoing outreach and educational efforts beyond the project scoping phase. Public officials will be more comfortable pursuing partnerships with the private sector when there is deep support among key external stakeholders and the general public. To reduce the chances that a project will be halted for political reasons, project sponsors — both public and private — must build and maintain broad consensus and support throughout the development and construction process. The JD Power survey of consumers' attitudes toward P3s demonstrated the value of consistent communication. The more communication there was about a project, the more people viewed the project in a positive light.<sup>41</sup>

The need for customized, ongoing education is a gap that the private sector is well-positioned to fill. While not without cost, some private companies, investors, and foundations are in a position to offer support with funding for materials development and sponsorship of events. It will be important, however, to ensure that the materials and workshops provide objective information about P3s, as some participants may become skeptical if they believe P3s are being “oversold.” In some cases, it would be better for private companies, particularly those likely to participate on a future P3 project, to work through a third party such as a nonprofit organization or a university, to mitigate conflicts of interest. **We recommend immediate creation of a center of excellence, supported by both the public and private sector, to serve as a comprehensive resource on ways that the public and private sectors can work together to address infrastructure needs. The center of excellence would also develop the standardized tools and methodologies called for in subsequent recommendations.**

The private sector is also well-suited to compile data about American P3s to help better understand their performance over time. While a state or city may be involved in one or two P3s, private companies (construction firms, infrastructure funds, other investors, and advisors) are involved in multiple projects at the same time, and have a wide

variety of information to draw on. A great deal of the data that would be useful in these efforts is already publicly available in project documents, but has not been compiled or analyzed. The center of excellence should immediately focus on finding and publishing data in a useful format, which would be an important contribution to the field.

### ***Political Risk Self-Assessment Tool***

As discussed in Chapter 3, political risk is one of the biggest barriers to public-private partnerships in infrastructure. While ongoing stakeholder engagement and education is a critical component of addressing that risk, it is not the only component. Public officials and their private partners can take other steps to mitigate political risk. This self-assessment tool is intended to assist project sponsors in identifying and addressing the factors that can increase political risk for an infrastructure project. The self-assessment tool includes all of the contributors to political risk:

**Political process.** Turnover in elected and appointed government officials can result in unforeseen changes in public policy or priorities. The longer the period for a project's development, the greater likelihood that there will be unforeseen changes. Other indicators of risk in the political process include the presence or absence of bipartisan support for the project. A requirement that there be a popular or legislative vote on a project before it can proceed is also a contributor to political risk.

**Permitting and environmental review.** As discussed in Chapter 3, the permitting process is inherently linked with political risk, as the longer a project is delayed in that process, the more difficult it will be to maintain political consensus. Factors that contribute to a faster review process, such as the existence of a lead agency in charge of permitting, early engagement and delineation of authority, and the possibility of simultaneous reviews, will reduce political risk.

**Project development process.** A decision-making process supported by an objective value-for-money analysis, with key project-level information disclosed to the public, can build confidence and support for a P3 approach. Conversely, if the

rationale behind the P3 is hidden from public view, opposition becomes more likely.

**External stakeholders.** A strong indicator that political risk is low is support from a broad variety of stakeholder groups, including neighborhoods directly affected by the project. Local media coverage can also contribute to a project's level of risk. A formal stakeholder engagement strategy and dedicated outreach staff are factors that can reduce political risk.

**P3 structure.** Some P3 structures carry more inherent risk than others. P3s that involve new tolls, fees, or rate increases will generally meet more public concern than those that do not. Limits on the amount of any increases and control by the public sector can mitigate the added risk these create. Other elements that can affect political risk are the extent to which any windfall revenues or downside risks are shared between the public and private sectors, and the presence of performance standards to ensure a good customer experience.

**Other items.** Other factors that can impact political risk include the inclusion or exclusion of a project labor agreement in the P3 contract, a community benefit agreement with affected neighborhoods, and a clear statement about the number of local jobs that a project will create.

To be clear, the political risk self-assessment tool is not a tool for judging the overall merits of a proposed P3. For example, although tolls may raise political risk, there also may be valid reasons for including them in an agreement. Similarly, a high project cost is more likely to attract negative public attention, but that does not mean large projects should be avoided. The tool is simply intended to help evaluate the likelihood that a project may be delayed or canceled due to political reasons, one of many factors that private investors will consider in determining whether to participate in a project. It also offers a guide to help mitigate this anticipated risk.

**Figure 4.1 - Political Risk Self-Assessment Tool**

Issue	Assessment Question	Score
Political Process	Likelihood of official turnover: How many elections expected before construction begins? (1 = none, 3 = 1, 5 = 2 or more)	
	Have officials of both parties made public statements of support? (1 = yes, 5 = no)	
	Is a vote required (either by a legislative body or the public) before P3 agreement can be executed? (1 = no, 5 = yes)	
Permitting/ Environmental Review	What type of NEPA review is required? (1 = none, 2 = CE, 3 = unknown, 4 = EA, 5 = EIS)	
	Are state environmental reviews required? (1 = no, 5 = yes)	
	Have all required permits been identified and responsibility for acquiring them assigned? (1 = yes, 5 = no)	
	Is there a one-stop shop/lead agency at the state level? (1 = yes, 5 = no)	
	Are there more permits at front-end or back-end? (1 = more at front-end, 5 = more at back-end)	
	Can permitting and reviews be conducted simultaneously? (1 = yes, 5 = no)	
Project Development Process	Is a state, regional, or local P3 office involved in the procurement? (1 = yes, 5 = no)	
	Was the decision to do a P3 based on a value-for-money analysis? (1 = yes, 5 = no)	
	Has detailed information about the project (e.g., costs, risks, responsibilities) been shared with the public? (1 = yes, 5 = no)	
External Stakeholders	Is there a formal stakeholder engagement strategy for the project? (1 = yes, 5 = no)	
	Have both public and private partners dedicated staff to stakeholder engagement/outreach? (1 = both have, 3 = one partner has, 5 = neither has)	
	Has local media coverage been positive or negative? (rate 1-5, with 1 being highly supportive and 5 being highly opposed)	
	Have public statements from the following groups been positive or negative? (rate 1-5, with 1 being highly supportive and 5 being highly opposed) <ul style="list-style-type: none"> <li><input type="checkbox"/> Businesses and business groups</li> <li><input type="checkbox"/> Civic institutions (e.g. schools, hospitals)</li> <li><input type="checkbox"/> Labor</li> <li><input type="checkbox"/> Community/social equity organizations</li> <li><input type="checkbox"/> Neighborhoods affected by the project</li> <li><input type="checkbox"/> Environmental groups</li> </ul>	
P3 Structure	Is upside potential (e.g. more revenue than projected) shared? (1 = yes, 5 = no)	
	Is the public protected from a private partner's bankruptcy? (1 = yes, 5 = no)	
	Does the project involve new taxes, fees, or tolls? (1 = no, 5 = yes)	
	If so, is there a cap or formula for adjustments, or other public sector control over increases? (1 = yes, 5 = no)	
	Are there performance standards related to quality of service/customer experience? (1 = yes, 5 = no)	
Other Items	Has the number of local jobs the project will create/support during construction and over the long term been made public? (1 = yes, 5 = no)	
	Is there disagreement over the inclusion or exclusion of a project labor agreement (PLA) or community benefits agreement? (1 = yes, 5 = no)	
	Will current employees be retained? (1 = yes, 5 = no)	
	Will current residents be displaced? (1 = no, 5 = yes)	
	Does project cross city, county, state, or other jurisdictional boundaries? (1 = no, 5 = yes)	
	Is total project cost more than 90% of the jurisdiction's most expensive prior project of the same type? (1 = no, 5 = yes)	
Final Score	*Higher Final Score = Greater Political Risk	

# Recommendation 2: Establish Broad Enabling Framework



<b>Aim</b>	A legal and policy environment that supports a full range of options for collaboration between the public and private sector.	
<b>Recommendations</b>	Enact broad authorizing legislation that enables the full range of options for the public sector to work with the private sector. Provide support systems, through expert offices and development funds, to empower public agencies to work with the private sector.	
<b>Roles</b>	 <ul data-bbox="358 1770 850 1801" style="list-style-type: none"><li>• Leads on establishing the legal and policy framework.</li></ul>	 <ul data-bbox="967 1770 1435 1833" style="list-style-type: none"><li>• Leads on providing expertise and support for public policy changes.</li></ul>

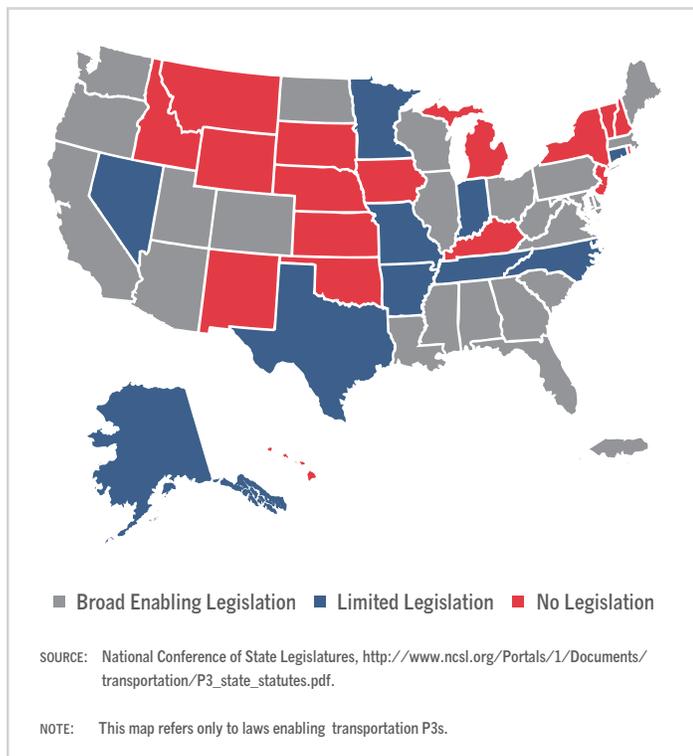
For public agencies to utilize the best approaches to meet their infrastructure needs, they must be empowered to engage in a full range of partnership options with the private sector. States, cities, and counties must provide the necessary legal framework and support for P3s to happen — through enabling legislation, development funds, and expert offices.

### Enabling Legislation

State and local government agencies have only the powers given to them through state law or local ordinance. As a result, public agencies can only consider P3s as procurement or financing tools if they have been specifically authorized to do so.

Currently, 17 states do not allow P3s. Among those that do, the laws vary in what types of P3s may be undertaken. Some states allow P3s only for transportation projects and not for other types of infrastructure; other states have authorized P3s for only one specific

Figure 4.2 - States with P3 Enabling Legislation



project. Some laws restrict the type of financing and repayments that may be used, while others limit the duration of P3 contracts. In some states, a vote of the legislature is required before a P3 contract can be signed.<sup>42</sup> This patchwork of requirements and limitations unnecessarily ties the hands of state and local officials who want to explore innovative partnerships with the private sector. Rather than creating restrictions, **we recommend states enact broad laws consistent with the Bipartisan Policy Center’s Model State Legislation, which enables P3s for all types of infrastructure, at all levels of government, through a process that promotes transparency and community engagement.** (See Appendix B.)

### Development Funds

Agencies will need to build staff capacity through additional training or through a secondment approach as is used in Europe, hire outside experts, design screening tools, and potentially negotiate complex contractual provisions with multiple partners. Ultimately, the time and cost savings of P3s should offset these initial expenditures, but they can be a hurdle for public agencies dealing with limited budgets, and a disincentive for private partners to engage. **We recommend states and localities also provide dedicated financial assistance to help public agencies and private partners take on the upfront costs of developing a P3.**

### Expert Offices

Even in states that authorize P3s, actual experience with negotiating and delivering a P3 is limited. Staff with expertise in traditional procurement and project management may not be familiar with the structure of P3s, and agencies asked to review and issue permits for these projects may question the approach. From the private sector side, it may be difficult to find the “right person” within the many state agencies to talk to about the possibility of pursuing a P3. Taken together, these conditions create a kind of inertia among public agencies, leading them to continue using familiar, conventional methods without exploring alternatives.

**We recommend establishing offices within state or local governments focused on attracting private investment to infrastructure to overcome this inertia.**

An Office of Infrastructure Investment would serve other government agencies, the private sector, and the general public. For other agencies, the office would help broker deals and provide technical assistance on the use of P3s, including conducting value-for-money analyses (see discussion on p.49), coordinating multi-agency actions, and helping to resolve interagency disputes. Working with state or local procurement offices, the office would develop clear and consistent rules for P3 procurements, making the process easier to navigate for both public and private stakeholders.

For the private sector, the office would be a single point of contact through which interested investors could begin a dialogue with a state or locality. Standardized processes and forms developed by the office would reduce the costs of doing business (see discussion of standardization on p.55). The office can publish information about P3s in the state, including performance of past projects and the potential for future projects, making it easier for private investors to gain access to the state’s project pipeline.

The office would also provide information to the general public about P3 projects, increasing transparency and countering any misperceptions that might exist. Information about the responsibilities of the public and private partners in ongoing P3s — how tolls or other rates are set, what P3 projects are on the horizon, and how the office determines whether a project is appropriate for a P3 — would go a long way toward increasing the public’s understanding of this approach.

As with P3s themselves, there is no one-size-fits-all structure when it comes to P3 offices. The United States Congress has recognized the value that such offices can have; the Fixing America’s Surface Transportation (FAST) Act, enacted in December 2015, allows federal highway funds from the Surface Transportation

Block Grant Program to be used for “the creation and operation by a State of an office to assist in the design, implementation, and oversight of public-private partnerships eligible to receive [federal highway and transit funds].”<sup>43</sup> Whether structured as a state agency, a regional body, or a joint venture, a dedicated office to provide public agencies with expert advice and services related to P3s can help to modernize project development processes; provide transparent, data-driven analysis to support procurement and financing decisions; and identify more opportunities for private investment.

**Table 4.3 - States with P3 Offices<sup>44</sup>**

State	Name of the Office	Location in Government	Dedicated P3 Unit	Year Established
VA	Office of Public-Private Partnerships	State Department of Transportation	Yes	2010
CA	Public Infrastructure Advisory Commission	State Business, Transportation and Housing	Yes	2010
MI	Office of Public-Private Partnerships	State Treasury Department	Yes	2008
DC	Office of Public-Private Partnerships	Office of the City Administrator	Yes	2014
OR	Office of Innovative Partnerships	State Department of Transportation	No	2003
CO	High-Performance Transportation Enterprise	State Department of Transportation	No	2009
GA	P3 Program	State Department of Transportation	No	2009
WA	Transportation Partnerships Office	State Department of Transportation	No	2005

## Models of P3 Offices

The Bipartisan Policy Center developed a model state enabling law that incorporates best practices from laws around the country. The model law enables P3s for a wide range of projects, establishes a state-level office dedicated to providing P3 expertise and assistance reporting to the governor, standardizes and promotes best practices, and protects the public interest. The model law is a tool that may be used both by states considering P3 legislation for the first time and by those that are interested in updating their existing laws (see Appendix B).

BPC's model structure is similar to Virginia's P3 Office, which has many of the responsibilities described under "Expert Offices," and is headed by a director appointed by the secretary of transportation. The District of Columbia has also recently established a P3 office along these lines.

On the west coast, a multistate P3 office, the West Coast Infrastructure Exchange (WCX), serves the states of California, Oregon, and Washington, and the Canadian province of British Columbia. Formed in 2012, WCX is an independent nonprofit organization whose mission is to develop standards for P3 contracts in the region, provide technical assistance to public officials negotiating contracts, serve as a clearinghouse of information on P3s, and develop a methodology for identifying a pipeline of projects in the region that are well-suited to P3s. In its first few years of operation, the WCX has primarily focused on education for public officials in an effort to stimulate more P3s in the region.

In the state of Florida and the City of Chicago, joint ventures between the public and private sectors have been established to increase business investment in their respective areas. These entities – public-private partnerships themselves – could also serve as P3 offices, as they work with both public agencies and private companies to find business opportunities.

It is also worth noting the Canadian approach to P3 offices, in which the office is given direct responsibility for procurement of P3 projects, rather than simply advising other agencies. Infrastructure Ontario is a government-chartered corporation that reports to Ontario's Minister of Economic Development, Community, and Infrastructure. Among other responsibilities, Infrastructure Ontario procures and manages the delivery of P3 projects (called Alternative Financing and Procurement, or AFP, projects) for the province of Ontario, and advises municipal governments on the use of the AFP approach. Infrastructure Ontario issues an annual list of current and upcoming procurements, providing a clear pipeline for interested investors.

# Recommendation 3: Inventory All Public Assets



<b>Aim</b>	A comprehensive understanding of all publicly-owned assets with current condition and life-cycle costs to maintain.	
<b>Recommendations</b>	Develop a standard methodology for asset inventories. Develop transparent, publicly available asset inventories at all levels of government.	
<b>Roles</b>	 <ul data-bbox="370 1766 847 1829" style="list-style-type: none"><li>• Leads on conducting asset inventories working with public engineering offices, as well as finance officials.</li></ul>	 <ul data-bbox="964 1766 1497 1829" style="list-style-type: none"><li>• Assists in developing a standardized methodology for information required as part of asset inventory.</li></ul>

Infrastructure providers often accumulate various assets such as land, rights of way, and buildings over the course of decades (and sometimes centuries) of building and operating infrastructure. Just as families look through their attics and basements from time to time, so too should public agencies. Unfortunately, most governments lack a complete list of the infrastructure assets they own, let alone a comprehensive assessment of those assets' condition, expected useful life, and the consequences of a failure. A transparent asset inventory of full life-cycle costs and the risks of inaction would make it possible for government leaders — and the public — to understand the magnitude of projected infrastructure liabilities their communities face, identify opportunities for allocating costs and sharing risks with the private sector, and evaluate the cost of doing nothing. It would provide valuable context to facilitate stakeholder engagement around infrastructure projects. The comprehensive view provided by a full asset inventory will allow governments to tackle their infrastructure needs more efficiently, derive value from underutilized assets, and optimize infrastructure performance through strategic investments and partnerships with the private sector. Asset inventories empower communities to make informed decisions and ultimately can save the public significantly more money than they cost to produce.

**We recommend development of life-cycle asset inventories that include a complete list of all assets owned by a state, municipality, or county government, including transportation infrastructure (roads, bridges, public transit vehicles, sidewalks, ports, airports, etc.), water infrastructure (pipes, treatment facilities, sewer lines, etc.), and other assets, including schools, civic buildings, vacant land, and other underutilized real estate.**

The inventory would list assets and compile data on the condition of those assets, the cost of maintaining them over their remaining useful life, the cost of replacement, and the potential impact of a failure. This is the type of information private businesses track

as a matter of course, and the public sector should adopt the same approach.

Developing a comprehensive inventory focused on asset life cycles will enable public agencies to strategically manage their assets by conducting needed maintenance on-schedule to extend useful life, identify deteriorating assets most at risk of failure, and find new ways to generate revenue from existing assets. Preparing such an inventory is not without cost, but that expenditure would be dwarfed by the benefits achieved in terms of greater efficiency, transparency, new revenue generation, and disaster avoidance. Further, such an inventory would help mitigate political risk associated with project selection, as the inventory would provide an independent, technical review of the state of public assets. This assessment would lend political leaders a guide and evidence for project prioritization based on asset needs. This is not to say that the order of project prioritization could not shift to meet local desires; however, the costs and risks associated with reprioritization would be transparent.

Some states and local governments are already moving in this direction. The state treasurer of California recently called for California to perform such an inventory, which would include “a detailed list of all major capital assets, an evaluation of its remaining useful life and the cost of replacing it or doing nothing.” He then called upon the state to use the inventory to “figure out the best way to pay for construction, using a combination of innovative public and private investments.”<sup>45</sup> The District of Columbia recently began the process of developing such an inventory, as did the Northern Ohio Areawide Coordinating Agency, the metropolitan planning organization for the Cleveland area. The federal government has also developed asset inventories in a few cases; the FHWA maintains a useful database of structurally deficient and functionally obsolete bridges, categorized by state, to help states identify their most urgent bridge repair needs. Making this list public and easily accessible online, FHWA does the public a great service. It was Pennsylvania's presence

near the top of this list — with more than 4,000 structurally deficient bridges — that motivated the state to develop its innovative public-private **RAPID BRIDGE REPLACEMENT PROGRAM**. Information can move the public and policymakers, creating political will to tackle infrastructure challenges.

By developing and publishing a life-cycle inventory of its own assets, the federal government would make clear that comprehensively assessing the condition of assets throughout their useful life is a top priority. Federal assets are diverse, from federal office buildings and courthouses to dams. The U.S. Army Corps of Engineers owns \$232 billion worth of water resource infrastructure assets.<sup>46</sup> The General Services Administration owns or leases over 376.9 million square feet of space in 9,600 buildings.<sup>47</sup> The Federal Aviation Administration has \$13.2 billion in general property, plant, and equipment assets. This includes real property assets such as buildings, air traffic control towers, mobile buildings, roads, sidewalks, parking lots, and other structures.<sup>48</sup> The U.S. military also owns a significant amount of family housing in addition to troop barracks.<sup>49</sup> Yet there is no single source in which this information — as well as the assets owned by other agencies — is compiled and available for public review.

It is difficult to efficiently manage assets when an agency lacks a comprehensive view of its needs over time. In addition, opportunities for raising revenue from unused or underutilized assets are being missed. Surplus land, defunct facilities, or air rights can deliver needed infusions to public budgets if they are conveyed to the private sector and put to more productive use. In some cases, the agency may decide the asset would be better operated and maintained by the private sector. In New York City alone, a recent audit identified more than 1,000 vacant lots owned by the city, many of which had been sitting idle for decades.<sup>50</sup>

Today's vacant lot can transform into tomorrow's public infrastructure. In Long Beach, California the city conveyed an unused parcel of land downtown to a private consortium in exchange for a new mixed-use civic center area that will include

a public library, city hall, and green space in addition to commercial buildings. The city will pay an annual fee comparable to the cost of operating its existing city hall, but it will receive a building designed to be seismically-safer and attract new businesses and residents to the downtown core. In addition, the private sector will be able to develop the vacant land for a more productive and profitable use.

Working assets that the government is struggling to maintain can also be converted into a source of revenue through private sector acquisition. Fairview Township, Pennsylvania recently sold its wastewater system, which provides service to approximately 4,000 customers, including more than 200 businesses and commercial accounts, to a private company, American Water. This transaction not only provides a long-term wastewater solution but also financial relief for the local community. According to the Township's Board of Supervisors, because of the sale, township residents will receive a 50 percent reduction in real estate taxes in 2016. The proceeds of this sale will also help pay off approximately \$21 million in sewer debt and avoid an anticipated \$14 million in additional debt that would have been required to complete planned projects.<sup>51</sup>

***It is difficult to efficiently manage assets when an agency lacks a comprehensive view of its needs over time.***

Public property can be a source of revenue even without a full sale to the private sector. Selling air rights over publicly-owned land or space along a public right-of-way can add significantly to the public treasury, as can long-term concessions that specifically require the return of the asset in good condition after a specified maintenance program. The Washington Metropolitan Area Transit Authority (WMATA) generates rent from cellular carriers who use telecommunications equipment they have been allowed to place

along WMATA-owned tracks and tunnels. New York City makes about \$2 million a year by allowing restaurants and commercial buildings to place art, seating, or other items on its sidewalks.<sup>52</sup>

States and localities looking to attract private investment should begin requiring agencies to first complete an internal inventory of the assets they own, then project the costs over the asset's lifecycle, and, finally, assess the level of risk and consequences of a failure. Not only will the inventory serve as a guide for private investors looking to engage in those areas, it will also allow for additional transparency for the public about the costs and risks of infrastructure, which are not visible today. Life cycle asset inventories will lay the groundwork for responsible and informed action by both public and private sector leaders to take the next step in meeting America's infrastructure needs. Each step in this process will increase public confidence, uncover new sources of revenue, and unlock new opportunities for productive engagement between the public and private sectors.

# Recommendation 4: Exercise Full Optionality



<p><b>Aim</b></p>	<p>More public infrastructure needs are met in partnership with the private sector, freeing up public resources for other needs.</p>	
<p><b>Recommendations</b></p>	<p>Prioritize projects according to local goals.</p> <p>Match projects to optimal delivery and financing methods through data-driven optionality analysis.</p>	
<p><b>Roles</b></p>	<div data-bbox="581 1627 682 1743" data-label="Image"> </div> <ul data-bbox="397 1774 743 1858" style="list-style-type: none"> <li>• Leads on project prioritization.</li> <li>• Leads on conducting optionality analysis.</li> </ul>	<div data-bbox="1112 1627 1323 1743" data-label="Image"> </div> <ul data-bbox="982 1774 1490 1837" style="list-style-type: none"> <li>• Leads on providing expertise and methodologies for optionality analysis with full life-cycle costs.</li> </ul>

With the legal framework in place, coordinated support for P3s, and a complete asset inventory, state and local governments will have an actionable to-do list and the necessary tools for advancing investment in infrastructure assets. Public officials can then identify the infrastructure needs they are best positioned to own and operate, which needs could be shared with the private sector, and which needs could be fully transferred.

When prioritizing projects, state and local officials should consider the potential results of inaction in addition to assessing the positive impacts of individual projects. As discussed in Chapter 2, if existing infrastructure is not upgraded, public entities can face future costs and liabilities stemming from inadequate operation and maintenance. The ongoing inefficiencies of using outdated infrastructure also have costs, such as water lost through leaking pipes. The project prioritization process must take a long-term view in calculating risks.

### ***Project Prioritization***

Once empowered to utilize the full range of options for financing and delivering infrastructure, public officials must match their needs to those options. **We recommend that process begin with a strategic and value-driven project prioritization that ensures limited public funds are used as efficiently and effectively as possible and proposals advance local, state or regional goals.** Project decisions must be transparent and based on objective measures such as return on investment. This approach protects public budgets from wasteful expenditures and makes it less likely that projects will be slowed or stopped on a political whim.

In 2009, North Carolina began developing a project selection process based on an objective scoring framework tied to state goals. Transportation projects in the state are now scored against evaluation criteria related to safety, mobility, and public health. The scoring criteria are publicly available.<sup>53</sup> Virginia is also moving toward a data-driven project prioritization process. The Virginia Department of Transportation recently released its first list of projects scored through an evaluation process that takes into

## **BPC National Transportation Policy Project Performance-Driven Approach to Project Decision-Making**

In 2009, a bipartisan group of transportation experts recommended an improved approach to transportation project prioritization and selection. The commission advocated that surface transportation projects should be required to demonstrate performance toward a set of five goals:

- **Economic growth** – producing maximum economic growth per dollar investment
- **National connectivity** – connecting people and goods across the nation with effective surface transportation
- **Metropolitan accessibility** – providing efficient access to jobs, labor and other activities throughout metropolitan areas
- **Energy security and environmental protection** – integrating energy security and environmental protection objectives with transportation policies and programs
- **Safety** – improving safety by reducing the number of accidents, injuries, and fatalities associated with transportation

States and localities seeking federal resources for investment in transportation projects under this scenario would be required, as a contingency of receiving federal dollars, to provide data on a standardized set of metrics demonstrating how a project would manage to meet these national goals throughout its life cycle.

Source: BPC NTPP, Performance Driven, 2009.

consideration a project’s anticipated contribution to state goals, including economic development, safety, accessibility, congestion mitigation, and environmental impact.<sup>54</sup>

Using a process by which projects are assessed on how they will further local, state and regional goals will translate into public support for those investments. Public officials will be able to clearly demonstrate tangible benefits such as economic return, jobs created, dollars or time saved, health and safety benefits, and reduced pollution and environmental impact. Having an outcome-oriented message is essential for developing and sustaining public support for infrastructure projects — a fundamental precondition for successful P3s.

### Optionality Analysis

**Once projects have been prioritized for action, we recommend state and local governments sort them into categories for delivery across a full range of partnership options**

(see Table 2.2), including:

- Construct and operate with public funding/financing;
- Use a P3 for construction, continue public operations and maintenance (O&M), public financing;
- Use a P3 for construction, continue public O&M, private financing;
- Use a P3 for construction and O&M, public financing;
- Use a P3 for construction and O&M, private financing; or
- Transfer asset to private sector.

This matching process includes two steps:

- 1) an initial project screening to assess suitability of the various approaches, and
- 2) value-for-money analysis of the selected approaches.

States, cities and counties should ensure that agencies fully consider all options by requiring projects of a certain size and type be screened to see if a P3 approach — anything from design-build to a full transfer of ownership — might offer greater value than a traditional procurement.<sup>55</sup> The federal government can and should incentivize full optionality screening. Many federal programs provide funds for infrastructure projects, such as community block grants, USDA rural development loans, New Starts transit funds, clean water state revolving fund loans and grants, and drinking water state revolving fund loans and grants. These funds are limited and competitive. Federal agencies reviewing applications for funding should require a meaningful exploration of delivery alternatives as part of their evaluation for awarding funds.

The Virginia Office of Public-Private Partnerships conducts this type of screening to decide whether a project merits development

**Table 4.4 - Virginia High-Level Screening Criteria**

<b>Project Complexity</b>	Is the project sufficiently complex in terms of technical and/or financial requirements to effectively leverage private sector innovation and expertise?
<b>Accelerating Project Development</b>	If the required public funding is not currently available for the project, could using a P3 delivery method accelerate project delivery?
<b>Transportation Priorities</b>	Is the project consistent with the overall transportation objectives and missions of the Commonwealth and the RPE? Is the project consistent with priorities identified by the appropriate transportation plans and programs, such as SYIP, STIP, and MPO plans and programs? Does the project adequately address transportation needs?
<b>Project Efficiencies</b>	Would the P3 delivery method help foster efficiencies through the most appropriate transfer of risk over the project lifecycle? Is there an opportunity to bundle projects?
<b>Ability to Transfer Risk</b>	Would the P3 delivery method help transfer project risks and potential future responsibilities to the private sector on a long-term basis?
<b>Funding Requirement</b>	Does the project have the revenue generation potential to partially offset the public funding requirement, if necessary? Could a public agency pay for the project over time, such as through an availability payment, as opposed to paying for the entire cost upfront?
<b>Ability to Raise Capital</b>	Would delivering the project under the PPTA help free up capital from other sources for other transportation priorities within the Commonwealth? Is the project consistent with federal requirements and potential agreements for federal funding and/or approval for P3 projects?
<p>SOURCE: "Implementation Manual and Guidelines for the Public-Private Transportation Act of 1995 as amended," Virginia Office of Public-Private Partnerships, January 2016, <a href="http://www.p3virginia.org/wp-content/uploads/2016/01/PPTA-Implementation-Manual-01-04-2016-final-posted-to-website-before-Jan-CTB.pdf">http://www.p3virginia.org/wp-content/uploads/2016/01/PPTA-Implementation-Manual-01-04-2016-final-posted-to-website-before-Jan-CTB.pdf</a>.</p>	

as a possible P3. (See Table 4.4) Findings of these screenings are made available to the public on the office's website and have helped Virginia develop a growing pipeline of P3 projects.<sup>56</sup> Canada, considered a world leader in the use of P3s, also used a screening requirement to help stimulate the pipeline. In 2013, the Canadian government required that infrastructure projects costing over C\$100 million would have to be screened as potential P3s before accessing federal funds.<sup>57</sup> This requirement remained until removed by newly-elected Prime Minister Justin Trudeau in November 2015 in order to give more control over P3 decisions to local governments.<sup>58</sup>

Screening requirements at the state or local level can result in projects being put forward for private investment that otherwise may never have been considered. Once those projects are open for consideration, private firms can make specific proposals for one or more possible P3 structures for the desired project.

At this stage, the full costs and benefits of each project — including life-cycle costs and risk-transfer benefits in addition to the cost of capital — should be carefully analyzed using a standard, transparent methodology to determine which specific approach provides the optimal mix of public and private financing and risk-sharing. A widely used analytical tool internationally, called value-for-money analysis, allows for a comparison of the long-term costs and benefits of P3 approaches against a “public-sector comparator,” a hypothetical example in which the same infrastructure project is delivered through conventional methods. VfM differs from traditional cost-benefit analysis, because its goal is not to determine whether a project's benefits outweigh its costs (i.e. whether the project is a good use of funds). That should have been determined in the project prioritization process. Instead, VfM analysis assumes the project will be built, and that the only question to be answered is whether a traditional approach or a P3 (which may include a full transfer of the asset to the private sector) will provide better value.<sup>59</sup>

In addition to looking at construction and financing costs, VfM analyses also examine project costs over the life cycle of the asset. As stated by the Federal Highway Administration, “[t]hrough the capital cost of a new road project certainly attracts focus, a project's life-cycle cost is a superior measure of true cost.”<sup>60</sup> In addition, VfM analysis must assign value to aspects of project delivery that are difficult to quantify such as the risk that the project will underperform or whether there will be schedule or cost overruns.

Methodologies for determining life-cycle costs and assigning value to project risks are still evolving. While state and local governments typically have a good understanding of the costs of construction, few of them gather data on life-cycle and long-term maintenance costs, making it difficult to accurately predict what those costs will be.<sup>61</sup> Nor do they typically compare the costs and risks of doing nothing against the costs of the P3. The task of assigning value to project risks is even more challenging.<sup>62</sup> Practitioners typically use some form of probability analysis, evaluating the likelihood that a risk will take place and the expected costs that would result. However, the specific formulas used to calculate value, as well as the underlying assumptions, can differ widely.

***Ultimately, the decision to move forward with a P3 will depend on the characteristics of that particular project.***

Despite the fact that the P3 option will not come out ahead in each individual case, use of an analytical tool like VfM benefits P3s. VfMs provide an objective basis on which public officials can decide to do a P3, allowing them to counter any critics who might claim the decision was politically motivated. VfMs also provide

a concrete overview of the various costs and benefits of a P3 approach which can be used to inform the public. Regular use of VfMs will increase overall trust among stakeholders and the general public that P3s are being used only when they would provide the best deal, an important element in developing support for a project. JD Power found that 58 percent of consumers surveyed said that P3s should be used only when government proves that the P3 would provide the best value for money.<sup>63</sup>

While VfMs are a useful — indeed essential — tool, they are not perfect. As noted, the methodologies and assumptions underlying the analysis can vary from one practitioner to another, raising the potential for different studies to produce different results. VfM methodology must be standardized and transparent to policymakers and the public to ensure that the result is a reliable basis for decision-making. Developing this methodology is one of the items that should be taken up by the public-private center of excellence.

Proactively encouraging the full range of P3s — through enabling laws, P3 offices, pre-development funds, and optionality analysis — would catalyze the development of a larger project pipeline in the United States. It is important to note that while these actions would express a public policy goal of increasing use of P3s, they do not mean that any particular project must proceed as a P3. Ultimately, the decision to move forward with a P3 will depend on the characteristics of that particular project. Still, requiring public agencies to analyze whether private capital and expertise can yield faster delivery and better life-cycle performance will undoubtedly lead to more P3s. And, as more P3s are successfully completed, public understanding and support will grow, making public officials more likely to consider P3s, and yielding more successful projects — a virtuous circle that will reduce political risk, lower infrastructure costs, and attract more private investment.

# Recommendation 5: Simplify the Process



<b>Aim</b>	An operating environment that mitigates political risk and provides greater certainty to investors, which reduces costs and results in faster public use of needed infrastructure.	
<b>Recommendations</b>	Formalize standards and best practices for project permitting and environmental reviews while building collaborations. Standardize documentation.	
<b>Roles</b>	 <ul style="list-style-type: none"><li>• Leads on improving permitting and environmental review.</li></ul>	 <ul style="list-style-type: none"><li>• Leads on standardizing documents and data.</li></ul>

For private companies working toward a P3 contract, the more protracted the project development stage is, the more costly it becomes. Two of the greatest disincentives to participation in U.S. infrastructure projects are permitting risk and high due diligence costs. Providing certainty that permits and reviews will be completed on schedule and reducing the time and complexity of sorting through thousands of pages of project documents will make infrastructure projects more attractive to private investors while improving efficiency for all projects.

### *Collaborative Planning and Processes*

As discussed in Chapter 3, permitting risk is inherent in infrastructure development. In the United States, this necessary process too often becomes unnecessarily lengthy and costly, partly due to sequencing of one approval after another. Despite extensive anecdotal evidence, little substantive data tracking permitting and environmental review exists. It is therefore difficult to pinpoint where in this process projects languish. The reality is that it largely depends on the type of project, how it is prioritized, public expectations, and the commitment of all responsible public officials. Despite limited data and examples of success, a growing body of work suggests permitting risk is a key barrier to speedy project development and private investment — a significant cost to the U.S. economy.<sup>64</sup> In particular, sequential agency issuance of permits and reviews needlessly drives up project costs and clouds continued project viability.

There are examples of success in permitting, such as the Tappan Zee Bridge in New York and the rebuilding of the collapsed I-35W bridge in Minneapolis. A common theme in these examples was a commitment from all levels of government to act quickly in a transparent and engaging way (as public scrutiny was high). This level of commitment should be incorporated regularly into project development.

While these examples provide key takeaways for public officials, there is also no easy answer to expediting permitting across the board. The process largely benefits from a coordinated and collaborative effort to build relationships with the public, potential stakeholders, opposition groups, and between public agencies. On the federal level, efforts

(including provisions in the 2015 transportation law known as the FAST Act) have honed in on this process but made changes that generally target high-priority or expensive projects as opposed to wholesale reform. As P3 projects are often large and complex, this may be helpful but is not a panacea.

The **TAPPAN ZEE BRIDGE** project was one of a handful selected by the Obama administration for expedited review.<sup>65</sup> It took about 11 months to complete the project’s environmental impact statement (EIS), from notice of intent (NOI) to final EIS.<sup>66,67</sup> In comparison, the 186 final EISs made available in 2014 took 4.7 years, on average, to prepare.<sup>68</sup> Had EIS preparation taken three years longer for the Tappan Zee Bridge project, costs would have increased by about \$600 million.<sup>69</sup> While this example shows the benefit of having agencies simultaneously consider and issue permits, reviews, and approvals, the project timeline also received a special push from the Obama administration — it is unclear which component conclusively moved the needle.

Similarly, public focus on the collapsed I-35W Mississippi River bridge led to a speedy replacement plan that did not deviate much from what had existed previously — the project was considered a “categorical exclusion” in the NEPA process, few alternatives were considered, and the project moved ahead quickly.<sup>71</sup> The environmental review process for the **I-35W BRIDGE REPLACEMENT** was studied by the FHWA along with several other bridges following their collapse.<sup>72</sup> FHWA concluded that a speedy environmental review and permitting process results from the elimination of a few key causes of general delay (shown in Table 4.5). In particular, the emergency situation around the project helped prioritize funding, minimize controversy, remove local opposition, and

**Table 4.5 - Major Causes of Delay**<sup>70</sup>

	Non-Emergency	Emergency
Lack of funding or low priority	✓	
Local controversy	✓	
Stakeholder and/or local opposition	✓	
Insufficient political support	✓	
Project complexity	✓	✓
Poor consultant work	✓	✓
Environmental review	✓	✓

garner substantial support and commitment from local political leaders. This simply made what can be a drawn-out process work faster, but the example is instructive — while encouraging simultaneous agency review, setting review deadlines, and expediting priority projects can all help speed the permitting process along, the system can work more quickly for projects that have public buy-in, clear public purpose, and coordinated engagement.

In BPC’s model legislation, the Office of Infrastructure Investment plays a key role in coordinating permitting efforts among multiple agencies and adds accountability. States should ensure that the expert offices they create replicate that role to help limit permitting risk and engage the private sector.

At the project level, **we recommend requiring early identification of all necessary permits, clearly delineating responsibility and timelines for acquiring them, prior to entering into a P3 contract.**

Establishing clear decision-makers (principally by assigning a lead agency) and charging them with building relationships with participating agencies, project managers, and the public can aid in this process. Further, publishing tracking reports can help make successes and failures transparent, add accountability, and improve coordination and communication among all parties. Government agencies, wherever possible, should also prioritize consensus-building processes and transparency with the public.

Figure 4.6 Permitting Dashboard - Example<sup>73</sup>



## *Building on the FAST Act*

Accelerating permitting at the federal level has been the focus of recent legislative and administrative efforts. Title I of the FAST Act made minor transportation-specific changes to permitting, while Title XLI pertains to infrastructure broadly. Although not without controversy, some of the provisions of the FAST Act with the highest likelihood of expediting permitting are efforts to limit the NEPA statute of limitations for transportation projects, formalize the Federal Permitting Improvement Council and Permitting Dashboard established by the Obama administration (See Figure 4.6), and require better coordination and deadline-setting for permitting decisions.

In March 2016, BPC hosted a public event to explore opportunities to accelerate environmental review and permitting beyond the FAST Act. Event participants highlighted a number of additional ways in which permitting could be improved:

- Emphasize programmatic review for all types of infrastructure, a process that sets out a clear framework of responsibilities and focuses on project design and environmental impacts that are not site-specific first;
- Focus on increasing the experiential or practical understanding of the NEPA process among senior level officials; and
- Direct the Council of Environmental Quality and Office of Management and Budget (OMB) to make final decisions and resolve disputes during interagency NEPA collaboration.

**We recommend that the federal government aggressively implement and enforce the changes made in the FAST Act and build on them to ensure that permitting is done simultaneously across agencies with minimal delay.**

**Just as at the federal level, we recommend that states and municipalities enforce implementation of simultaneous agency**

**review and cement interagency cooperation. Further, all public entities involved in permitting and review should prioritize the use of programmatic EISs and mitigation plans. In addition, adding greater accountability and transparency to agency tracking of analysis volume and costs would help speed up project delivery and incorporate results-based accountability into infrastructure investments.**

## *Developing Standardized Documentation*

In addition to other barriers, the sheer number of different forms and contract terms that must be parsed in order to submit a bid or invest in a project means that those who participate must have a strong commitment to the potential transaction as they are making a substantial investment in participating. It can cost millions for a relatively small project and tens of millions for a larger and more complex project to get to financial close, due in part to the challenge of navigating through each state's unique laws and regulations governing procurement and contracting.

For investors, the due diligence required to find projects to invest in is time-consuming and can dissuade smaller investors from participating at all. Doubling or tripling staff in order to invest in more projects is a costly solution that requires a bigger project pipeline to justify.

Greater standardization in project documents would reduce the transaction costs involved in participating in infrastructure, requiring a lower level of "project development capital" return to make the investment in bidding worthwhile. In order to be an effective solution, however, it has to also result in a larger and more sustainable project pipeline. Documents that would benefit from greater standardization include procurement forms, contract language, and financial term sheets. Every infrastructure project is different and will require some unique contract terms, but many terms will be the same from project to project and if standardized, could significantly reduce hours spent on legal reviews.

To make it easier for investors to assess candidate projects, **we recommend that financial term sheets be developed that standardize the presentation of:**

- Concession terms and risk allocation;
- Obligations on the public sector (e.g. procurement of permits, land acquisition, approvals, change of law risk, tax neutrality etc.);
- Obligations on the private sector (e.g. construction, operation and maintenance standards, condition at end of the concession, upside sharing, labor standards, pension funding);
- Investment terms specific to the project (e.g. specific upside revenue sharing);
- Expected base case revenues from the project;
- Credit rating of the project sponsor and other financial partners;
- Requirements around bidder certainty of funding including indicative ratings on the proposed debt package, and;
- Level of project development and remaining stages of approvals process through to financial close (which will then illustrate the remaining exposure of the project to political risk).

Standardized documents have been successfully developed in other contexts by private sector actors. These documents will be particularly helpful in developing infrastructure as an easily accessible and transparent asset class for both debt and equity investors. The debt private placement market offers a relatively standardized model which is in increasingly widespread use by pensions, infrastructure funds, and insurance companies' for investment in infrastructure, and could serve as the foundation for further standardization efforts. The Master Agreement<sup>74</sup> developed by the International Swaps and Derivatives Association (ISDA) serves as an umbrella document, used by parties as a standardized contract for over-the-counter derivatives swaps. Its comprehensive nature helps both sides avoid risk through clear

definitions of contract terms. Similarly, the Uniform Commercial Code (UCC) was developed by the National Conference of Commissioners on Uniform State Laws and the American Law Institute to standardize and regulate the transfer or sale of personal property. The UCC has been adopted in all 50 states, albeit with some variations, making it possible for businesses to conduct commerce throughout the country without having to comply with widely varying legal requirements.<sup>75</sup>

In keeping with the successful process used to develop the ISDA master agreement and the UCC, **we recommend the new public-private center of excellence take the lead on developing model documents that could be adopted by each state's P3 office for use in that state.** The center of excellence should convene an expert working group of practitioners in both the public and private sectors to identify priority areas for standardization and oversee the process of developing model forms, documents, and contract language.

# Recommendation 6: Expand Revenue Options



<b>Aim</b>	Broad range of available and accepted long-term funding sources for infrastructure.
<b>Recommendations</b>	Take action to adopt stable, long-term funding options for infrastructure. Utilize emerging funding options for specific projects, including naming rights, value capture, crowdfunding, and private development capital.
<b>Roles</b>	<div style="display: flex; justify-content: space-around; align-items: center;"><div style="text-align: center;"></div><div style="text-align: center;"></div></div> <ul style="list-style-type: none"><li>• Public and private sectors work together to maximize funding options.</li></ul>

As public and private sector leaders work to solve the infrastructure needs in this country, the challenge of identifying the full range of potential revenue sources for infrastructure development is central. *Financing* is important to ensure that cash on hand matches the total cost to construct the project, but it does not replace *funding*, the ultimate source of repayment for project debt and equity investment.

According to the U.S. Treasury, current infrastructure spending by all levels of government in the United States has fallen 50 percent over the last 50 years to about 2 percent of GDP.<sup>76</sup> One of the reasons for the decline is that sources of funding that have traditionally been used for infrastructure are losing purchasing power as they stay stagnant while the costs of construction increase. The federal gas tax, 18.4 cents per gallon sold, has not been increased since 1993. Had the tax simply been adjusted for inflation over that period, it would be 30 cents per gallon today, providing billions more in infrastructure funding each year.<sup>77</sup> The Passenger Facility Charge which airports have traditionally used to fund maintenance and capital expenditure has not been increased since 2000 despite numerous proposals in front of Congress. In other cases, competing priorities or concern about spending in general have reduced the amount of funding available for infrastructure. Overall, public spending on infrastructure is falling further and further behind the need.

Along with devoting savings from other policy reforms to infrastructure, there are many possible sources of revenue that could be used for infrastructure projects. (See Table 4.7) Some of them have a close nexus to the type of infrastructure, through fees paid by those using or benefitting from the infrastructure, such as fuel taxes and vehicle miles traveled fees. Others are spread among taxpayers more generally, such as sales taxes. While there are political challenges to increasing fees or taxes, there are states and localities that have done so successfully. In 2015, Georgia, North Carolina, Idaho, and Kentucky passed infrastructure funding packages, following on the heels of another dozen states who took action in 2013 and 2014.<sup>78</sup> At the local level, ballot initiatives for

transportation pass at twice the rate of other ballot measures.<sup>79</sup>

One of the keys to success is clear communication with the public about the benefits they can expect from paying more and, conversely, the consequences of inadequate funding. Advocates in St. Louis, Missouri made use of this principle in what has become a model advertising campaign among those looking to increase support for investment in public transportation. Citizens for Modern Transit ran a series of TV, radio, and print ads demonstrating the importance of transit for the St. Louis region, not by citing the number of buses or trains but by examples of the adverse outcomes if transit funding were cut. One ad stated, “Without transit, 10,000 people couldn’t get to the game. More than 100,000 wouldn’t make it to work. Thousands of college students would miss class.”<sup>80</sup> An ad in Spokane, Washington, supporting Proposition 1, a 0.3 percent sales tax measure to fund transit expansion, made the point even more succinctly, stating simply that “Prop 1 means economic growth.”<sup>81</sup>

The decline in dedicated public funding for infrastructure not only limits the number of projects that can be done, but also reduces opportunities for participation by the private sector. Public sector leaders who lack a long-term funding source are reluctant to undertake new projects, inhibiting the development of a long-term project pipeline.

While raising public investment in infrastructure is essential and we recommend public sector leaders act quickly, we do not recommend any particular funding mechanism. The available options are plentiful, but no single option is appropriate for every type of infrastructure. Instead, each legislative body — Congress, state legislatures, and local councils — must work with public and private stakeholders in their community to find options that best meet the needs of identified projects.

### ***Emerging Revenue Sources***

**We recommend public and private sector leaders maximize the use of emerging funding sources that directly engage the private sector: value capture, naming rights, crowdfunding, and private development capital.** Too often, these options are not exercised, leaving dollars on the table that could otherwise be used to support

infrastructure projects. While these mechanisms will not replace the need to raise funding for infrastructure more generally, they can help to close the funding gap for individual projects.

## Value Capture

Value capture is a mechanism for monetizing the economic benefits of infrastructure into a source of public revenue. Value capture is premised on the idea that infrastructure provides economic value, and that much of the value created is absorbed by the private sector in the form of higher property values, increased sales or productivity, and reduced infrastructure-related costs, such as new access to a rail station or more efficient freight operations. If that value can be monetized and captured by the public sector, it can provide new revenues that can be used for infrastructure needs.

Value capture encompasses several distinct tools. Some of the most common are described below.

**Tax-increment financing (TIF)** captures future increases in property taxes, or sometimes sales taxes, due to higher real estate values over a certain baseline. The share of future tax increases dedicated to the TIF can either be the repayment stream for project financing, or can contribute to ongoing operations and maintenance costs. A TIF is typically administered by local governments or local financing authorities and applies to increased tax collections from the specific district that will benefit from the new infrastructure. Local governments typically must take legislative action to establish a TIF district, and must also be empowered by state law to do so.

**Special assessment district (SAD)**, also known as Benefit Assessment Districts or Local Improvement Districts, are areas in which a special fee is assessed on property owners who are expected to benefit from an infrastructure project. SADs typically require a majority vote of affected property owners as well as legislative action at the local level. The assessed fee can vary depending on the type of property (e.g. some SADs charge only commercial property owners) or the amount of the expected benefit (e.g. by reducing the fee charged as the building's distance from the

project increases).

In 2002, Genesee County, Michigan through its established Land Bank Authority set up a TIF district scattered across several sites throughout the county. The TIF aimed to reimburse developers and investors, through the increase in projected property tax payments, for the clean-up and demolition of blighted properties. The TIF leveraged \$3.5 million for property demolitions over a three year period from 2002–2005.<sup>82</sup> During this time over 400 properties were demolished, including empty residential dwellings and commercial buildings. At the completion of the efforts, an independent review from Michigan State University estimated many positive impacts as a result of the TIF, including \$112 million in increased private property value and associated tax payments.<sup>83</sup> In this case, the investment more than paid for itself, as the increase in local real estate values is directly attributed to the demolitions.

The SAD concept was successfully used to build a new Metrorail station in an underutilized area of Washington, D.C. The station was funded by a partnership between private landowners, the District of Columbia, and the federal government; each party agreed to pay \$25 million, with any cost increases paid for by the D.C. government. Nearby landowners agreed to 30-year special assessment, on top of regular property taxes, which would be applied to all non-residential tax-paying properties within a certain distance of the new station. The assessment served as the repayment source for bonds issued by the D.C. government to provide upfront capital for the project. The D.C. City Council established the SAD in 2001 and the station opened in 2004. The benefit of the station opening in terms of increased property values was almost immediate: in the 1980s, land in the area sold for \$10 per square foot, and by 2006 it had jumped to \$50 per square foot, a 150 percent increase when adjusted for inflation.

Value capture will not be a possibility for every infrastructure project. In some cases, the benefits may be too diffuse for private landowners to be willing to pay. In slow real estate markets, the benefits of the infrastructure project may not be enough to generate significant increases in property values. Still, value capture represents a potential source of private funding for infrastructure that is rarely tapped.

## Naming Rights

Naming rights is a unique way to capture the value that infrastructure can provide. Sale of naming rights can provide a direct source of private funding for infrastructure projects as private companies and high-net-worth individuals are often willing to pay for the visibility. Naming rights have been used to raise revenue for a variety of infrastructure projects, with some of the revenue supporting construction of a new project, while others support operations and maintenance of an existing project.

Stadiums have been the most common beneficiaries of naming agreements<sup>84</sup>, but rail stations, bridges, highway rest stops, and other infrastructure assets can also benefit from naming agreements. In 2010, Philadelphia's regional rail system sold naming rights for one of its stations to AT&T for \$5 million in operating revenue over five years.<sup>85</sup> Other transit agencies are considering plans to sell station or route naming rights, including Dallas Area Rapid Transit, Chicago Transit Authority, and the Denver Regional Transit District. In 2012, Virginia's legislature approved the concept of selling naming rights for state roads, bridges, and rest stops, and other states, including Washington and New Hampshire, are also considering the approach.

With proactive engagement of potential private sector contributors, naming rights could become an increasing share of infrastructure funding, further lessening the burden on public budgets, and helping to leverage additional private financing.

## Crowdfunding

An emerging discussion among infrastructure practitioners is the potential of crowdfunding to help pay for projects. Crowdfunding, in which individuals throughout the world can contribute to projects or causes through an online platform, has been successfully used for many projects in the private sector,<sup>86</sup> but has rarely been tapped for infrastructure. However, there have been a few examples in which a local project with community appeal has received funding from this approach.

Memphis, Tennessee used crowdfunding to raise the last \$75,000 of the \$4.5 million needed for a bikeway through a developing downtown arts district.<sup>87</sup> The sponsors of that project saw benefit in the crowdfunding

approach not just as a revenue raiser, but as a powerful way to demonstrate the extent of public support for the project. Other places have funded community gardens or parks. The state of Hawaii is exploring the use of crowdfunding to help pay for maintenance in public schools.<sup>88</sup>

Thus far, crowdfunding has been used successfully only for small-scale infrastructure projects with clear community appeal. Whether this tool can be expanded to address larger needs is not yet clear. However, for certain types of projects, public sponsors would do well to consider the potential of crowdfunding not only to bring in revenue, but also to establish a platform for stakeholder engagement around infrastructure needs, which ultimately could engender more support for infrastructure investment generally.

## Private Development Capital

A fourth emerging model for funding infrastructure taps into nontraditional sources such as philanthropic foundations, high-net-worth individuals, and corporations that are interested in the economic development potential of an infrastructure project for a particular community or region. While these donors are also potential buyers for naming rights, as discussed above, they may be willing to invest their own capital without a naming agreement.

Private corporate and individual contributions helped support the design and construction of two bridges in Dallas, the Margaret Hunt Hill Bridge and the Margaret McDermott Bridge, both of which cross the Trinity River.<sup>89</sup> In the case of the Margaret Hunt Hill Bridge, private donations covered \$12 million of the \$182 million cost.

Another project in Texas is being funded entirely from private sources. The Texas Central Railway, a high-speed rail line between Dallas and Houston, has so far raised more than \$200 million in funding from primarily Texas-based investors and has begun the process of designing the route. The project is currently undergoing an environmental review. While the project sponsors may pursue financing from the federal Railroad Rehabilitation and Improvement Financing Program (RRIF), no public funding is envisioned for this project.

In Detroit, Michigan a new streetcar line along Woodward Avenue in the downtown area is under construction, a unique example of the role that philanthropic and corporate sponsors can play in addressing infrastructure needs. Detroit-area companies and foundations have committed \$100 million to build the new line and operate it for ten years. While Quicken Loans has purchased naming rights for the new “Q Line,” Quicken and other funders are also motivated by the economic development potential of the streetcar which will further catalyze redevelopment of underutilized land in the downtown area.

Value capture, naming rights, crowdfunding, and private development capital have the potential to raise millions of dollars for infrastructure. Public officials must embrace these emerging revenue sources and maximize their use in order to fully capture all available funding for infrastructure needs.

**Table 4.7 Menu of Revenue Options**

Leading revenue options to fund U.S. infrastructure investment include options for federal, state, and local governments to implement. The options laid out in this chart are largely based on two commission studies, the Policy and Revenue Study Commission and the Finance Commission, established in the 2005 SAFETEA-LU legislation that presented reports to Congress on how America should proceed regarding surface transportation policy.

TYPE	PRO	CON
<b>FUEL BASED TAXES</b>		
Gas Tax	<ul style="list-style-type: none"> <li>Mechanism exists; Incentivizes efficient vehicles. Potential to quickly raise large amounts. Quicker to implement than alternative.</li> </ul>	<ul style="list-style-type: none"> <li>Short term solution due to the inevitability of falling gasoline usage as cars become more efficient.</li> </ul>
Crude Oil Windfall Profit Tax	<ul style="list-style-type: none"> <li>Depressed domestic production with dependence on imported oil.</li> </ul>	<ul style="list-style-type: none"> <li>Unreliable.</li> <li>Increased dependence on foreign oil.</li> </ul>
Upstream Taxes (e.g. petroleum franchise tax)	<ul style="list-style-type: none"> <li>Shifts the collection of motor fuel taxes from the retail level to the wholesale level.</li> </ul>	<ul style="list-style-type: none"> <li>Requires new mechanisms for collection.</li> <li>Weakens the user fee connection.</li> <li>Offers no advantages over the existing retail structure.</li> </ul>
Imported Oil Tariff	<ul style="list-style-type: none"> <li>Ability to raise significant amounts.</li> <li>Promotes oil independence</li> </ul>	<ul style="list-style-type: none"> <li>Potential for international trade issues.</li> <li>Unreliable funding source.</li> </ul>
<b>USER BASED FEES</b>		
Vehicle Miles Traveled (VMT)	<ul style="list-style-type: none"> <li>Leading choice for surface transportation.</li> <li>Different VMT fee schemes could be created to maintain levels of equity across the facility or user classes. Realigns the consumers' usage with the cost of infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>Requires a long implementation process. Concerns of privacy issues. Requires adjustments based on a variety of measures (ex. fuel efficiency, rural vs. urban driving patterns).</li> </ul>
Carbon Tax	<ul style="list-style-type: none"> <li>Could be used to both reduce carbon emissions and generate revenue.</li> </ul>	<ul style="list-style-type: none"> <li>Politically divisive.</li> </ul>
Tolling	<ul style="list-style-type: none"> <li>Only users of the road pay for upkeep.</li> <li>Can be used to price out congestion. Leads to a more efficient road system.</li> </ul>	<ul style="list-style-type: none"> <li>Public opposition to tolling can be fierce, strong sentiment among drivers that roads should be free.</li> </ul>
Driver's License Surcharge	<ul style="list-style-type: none"> <li>Only direct users pay.</li> </ul>	<ul style="list-style-type: none"> <li>Very unfeasible at the federal level; social equity issue of charging for IDs.</li> <li>Weak relation between fees and usage.</li> </ul>
Passenger Facility Charge	<ul style="list-style-type: none"> <li>Usually included in the cost of a ticket, so absorbed as part of overall travel costs.</li> </ul>	<ul style="list-style-type: none"> <li>Not transparent and can be raised without passenger knowledge; competing interests between facilities owners and users. Can be viewed as a straight transfer from airlines to airports if you assume airlines are optimizing pricing of tickets; in any case has not been increased since 2000 with consequent impact on the condition of airports.</li> </ul>
Payroll Deductions	<ul style="list-style-type: none"> <li>Broad base of payers.</li> </ul>	<ul style="list-style-type: none"> <li>Does not account for an individual's usage.</li> </ul>

TYPE	PRO	CON
<b>SALES TAXES</b>		
General Sales Tax	<ul style="list-style-type: none"> <li>• Lucrative option.</li> </ul>	<ul style="list-style-type: none"> <li>• Equity issues as sales taxes are naturally more regressive in nature; federal sales taxes impede on local/state abilities to raise revenue; new implementation mechanism.</li> </ul>
Vehicle Sales Tax	<ul style="list-style-type: none"> <li>• Could raise significant revenue at a small annualized cost to consumers. Indexed to GDP growth. Paid back over multiple years. Less regressive, only taxing those purchasing.</li> </ul>	<ul style="list-style-type: none"> <li>• Political unwillingness to tax a specific good like cars. May be difficult to implement.</li> </ul>
Motor Fuels Sales Tax	<ul style="list-style-type: none"> <li>• Shifts the collection of motor fuel taxes from the retail level to the wholesale level.</li> </ul>	<ul style="list-style-type: none"> <li>• Equity concerns, limitations on state taxing abilities, and implementation challenges. Volatile, following gas prices that change regularly, and only be sustainable in the short term.</li> <li>• Significant public resistance.</li> </ul>
Item Specific Tax	<ul style="list-style-type: none"> <li>• Easily incorporated into existing state sales tax. Provide revenue without raising taxes on the entire population.</li> </ul>	<ul style="list-style-type: none"> <li>• Significant social equity issues with sales taxes, highly dependent on the item they are applied to.</li> </ul>
<b>INNOVATIVE METHODS</b>		
Value Capture	<ul style="list-style-type: none"> <li>• Most successful in situations where the real estate market responds positively to the new infrastructure investment; when the infrastructure investment creates value for the surrounding property owners.</li> </ul>	<ul style="list-style-type: none"> <li>• Competing demands for public funds from other city programs and services, which may try to lay claim to the increased tax revenues generated from the investment.</li> </ul>
Asset Sales or Lease	<ul style="list-style-type: none"> <li>• Provide fast infusions of cash for vendors. Can incorporate upside sharing to align interests. Can result in better life-cycle maintenance and asset being handed back to the vendor at the end of a concession in a better state than if it had remained in public hands.</li> </ul>	<ul style="list-style-type: none"> <li>• Conflicts of interest, decreased control, citizen dissatisfaction, and imprecise performance measurement. Sensitivity is often around whether sale/lease proceeds are used to fund new infrastructure or to plug operating deficits.</li> </ul>
Naming Rights	<ul style="list-style-type: none"> <li>• Stability of the revenue through long-term contracts and reliable private industry partners. A good avenue for operations and maintenance expenses.</li> </ul>	<ul style="list-style-type: none"> <li>• Contracts must protect the government from fallback if the namesake becomes an unpopular brand. Public backlash from the perceived selling of a piece of the public identity like a transit line or iconic station.</li> </ul>
Cordon Pricing	<ul style="list-style-type: none"> <li>• Tool to combat congestion and environmental concerns.</li> </ul>	<ul style="list-style-type: none"> <li>• No scenario in which cordon pricing could be implemented nationally.</li> </ul>
Crowdfunding	<ul style="list-style-type: none"> <li>• Directly invest the public in a specific project.</li> </ul>	<ul style="list-style-type: none"> <li>• Unreliable. Limited to projects based on budgets and public appeal.</li> </ul>

TYPE	PRO	CON
<b>FREIGHT-BASED TAXES</b>		
Container Fees	<ul style="list-style-type: none"> <li>• Not be too difficult to implement and administer, and is directly justifiable to be used towards transportation infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>• A hard sell to levy the fee on exports, and removing it would raise 1/3 less revenue. Issue of international trade agreements and laws that could be complicated by levying new fees on imports.</li> </ul>
Freight Waybill Tax	<ul style="list-style-type: none"> <li>• Large potential revenue yield.</li> </ul>	<ul style="list-style-type: none"> <li>• Very difficult to implement. Does little to promote efficient investment or system use. Flawed in tie to the value of goods rather than the weight of the shipment.</li> </ul>
Harbor Maintenance Tax	<ul style="list-style-type: none"> <li>• Tax is already in place, little difficulty in implementation.</li> </ul>	<ul style="list-style-type: none"> <li>• Legal challenges in the past; taxes on shipping could divert cargo onto coastal highways. Point of contention for the shipping/port industry.</li> </ul>
Customs Duties	<ul style="list-style-type: none"> <li>• Strong correlation between who pays and where the funds are used.</li> </ul>	<ul style="list-style-type: none"> <li>• Could limit Congress's ability to raise the duties later for General Fund.</li> </ul>
<b>VEHICLE-BASED TAXES</b>		
Heavy Vehicle Use Tax	<ul style="list-style-type: none"> <li>• Strong tax: it equitably distributes costs to use, it already exists, and it is a national tax that doesn't create interstate competition.</li> </ul>	<ul style="list-style-type: none"> <li>• Viewed negatively by industries relying on trucks, needs to be indexed; relies on self-reporting that leads to non-compliance.</li> </ul>
Auto-Related Tax	<ul style="list-style-type: none"> <li>• Raise a moderate amount of revenue without significantly raising the cost of tires.</li> </ul>	<ul style="list-style-type: none"> <li>• Carries limited downsides; however, concern of safety implications.</li> </ul>
Truck Tire Tax	<ul style="list-style-type: none"> <li>• It is equitable, it currently exists and has been easy to administer, is a national tax that doesn't create interstate competition.</li> </ul>	<ul style="list-style-type: none"> <li>• Push back from the small set of interests that have to pay.</li> </ul>
Bicycle Tire Tax	<ul style="list-style-type: none"> <li>• Optimal mechanism that charges users in order to fund further improvements and maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>• Would not raise a significant amount of revenue. Issues of equity;</li> <li>• Difficult to sell a tax that dis-incentivizes a preferred mode of transit.</li> </ul>

# Recommendation 7: Create New and Leverage Existing Financial Tools



<p><b>Aim</b></p>	<p>A range of financial tools that appeal to a broader set of investors, many of whom are not currently invested in U.S. infrastructure.</p>	
<p><b>Recommendations</b></p>	<p>Activate new investment vehicles: REITs, MLPs, asset-backed securities, regional infrastructure funds, and pension pools.  Expand and streamline TIFIA, BABs, and PABs.  Create a benchmarkable, tradable infrastructure asset class.</p>	
<p><b>Roles</b></p>	<div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>Public and private sectors work together to create new investment vehicles.</li> </ul>	<div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>Create new products and tools within existing law to expand investment.</li> </ul>
	<ul style="list-style-type: none"> <li>Responsible for amending tax code or other laws to incorporate new vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>Create new products and tools within existing law to expand investment.</li> </ul>

Private capital is diverse; investors have different desires in terms of risk tolerance, duration of investment, preference for debt or equity, capacity for internal due diligence, and, of course, expected return. Current infrastructure investment options are limited in the types of investors they attract. A broader suite of investment products would bring additional investors to the table, generating more capital to build additional infrastructure.

As discussed in Chapter 2, there are currently two primary ways in which private capital is matched to infrastructure projects: direct investments and privately-managed listed and unlisted infrastructure funds (holding aside the general support private capital provides the municipal debt market). These two methods have had some success, but they are

**potential infrastructure asset classes: Real Estate Investment Trusts (REITs), Master Limited Partnerships (MLPs), asset-backed securities, regional infrastructure funds, and pension pools.** The federal government also has several existing tools that have been important for P3s and should be expanded, as well as promising new proposals that should be adopted.

### *Infrastructure Asset Class: State of Play*

Most infrastructure in the United States is financed through tax-exempt debt issued by states, cities, counties, and other public authorities. Because the interest earned on that debt is exempt from federal taxation, and generally also state and local taxes in the location where it was issued, it is attractive to investors who

## **Tax-Exempt Debt Remains Essential for Infrastructure**

A large percentage of public infrastructure in the United States is funded through tax-exempt municipal bonds. According to the National League of Cities, 87 percent of utilities, 65 percent of schools, 40 percent of healthcare facilities, and 35 percent of transportation projects are financed by tax-exempt bonds. These are mostly held by private individuals who can take advantage of the favorable tax treatment such debt provides.

This form of private investment in infrastructure remains a vital part of solving America's infrastructure challenge. Our recommendations are intended to provide additional tools to attract private investment in infrastructure that will be complementary to the existing tax-exempt bond market.

Source: National League of Cities [http://www.nlc.org/Documents/Influence%20Federal%20Policy/Advocacy/Legislative/MuniBondsIB\\_2015.pdf](http://www.nlc.org/Documents/Influence%20Federal%20Policy/Advocacy/Legislative/MuniBondsIB_2015.pdf)

not attractive to all types of investors. To bring more private capital to infrastructure projects, we need to create and utilize new and improved instruments which will make it easier for capital markets participants to invest. Ultimately, we can build infrastructure as an investible asset class.

**We recommend building on successful existing financing tools with new alternatives to attract additional capital. We propose five new investment vehicles that could stimulate the development of a project pipeline across the broad range of**

have current and future income tax liabilities. This tax-free status allows states and municipalities to issue debt at a lower interest rate than comparable private companies. The value of this tax-exemption varies with the marginal tax rate faced by investors. Recent estimates placed it somewhere between 25 and 35 percent of the total interest payment. For example, if a taxable debt would require 5 percent interest, a tax-free municipal debt would only need to pay between 3.25 and 4 percent.

**Table 4.8 - Variety of Global Private Capital**

Institutional Investor	Description	Investor Requirements (Risk/Return)	Global Investment in Infrastructure
<b>Pensions</b>	<ul style="list-style-type: none"> <li>• May be tax-exempt</li> <li>• May be limited in types of investments they can make</li> <li>• Tend to invest relatively conservatively</li> <li>• Wide range of internal staff capacity</li> </ul>	<ul style="list-style-type: none"> <li>• Fiduciary board typically sets risk tolerance and desired rate of return</li> <li>• Desire to match investment returns to long-term liabilities</li> </ul>	<ul style="list-style-type: none"> <li>• <b>\$80 billion</b><sup>93</sup></li> <li>• 1% of total assets<sup>94</sup></li> </ul>
<b>Insurance companies</b>	<ul style="list-style-type: none"> <li>• Invest mostly in bonds, common stock, and first-lien mortgages</li> <li>• Tend to invest conservative</li> </ul>	<ul style="list-style-type: none"> <li>• Desire to match returns to liabilities</li> <li>• Regulated by government</li> </ul>	<ul style="list-style-type: none"> <li>• <b>\$271 billion</b><sup>95</sup></li> <li>• 1.9% of total assets</li> </ul>
<b>Family offices</b>	<ul style="list-style-type: none"> <li>• Family may be hands-on or hands-off in setting investment strategies</li> </ul>	<ul style="list-style-type: none"> <li>• Investments may be mission-oriented or guided by risk/return</li> <li>• Risk tolerance varies by office, some offices are more risk-averse than others</li> </ul>	<ul style="list-style-type: none"> <li>• Not readily available</li> </ul>
<b>Sovereign wealth</b>	<ul style="list-style-type: none"> <li>• Investment funds owned by governments, funded by foreign exchange and reserve assets</li> <li>• Have shown serious interest in the infrastructure asset class</li> </ul>	<ul style="list-style-type: none"> <li>• Long-term outlook</li> <li>• Lack of liabilities to meet</li> </ul>	<ul style="list-style-type: none"> <li>• 14% of all investments (as of 2010)<sup>96</sup></li> <li>• <b>\$883 billion</b> if total assets are assumed at \$6.31 trillion<sup>97</sup></li> <li>• 57% invest in infrastructure to some degree (as of 2013)<sup>98</sup></li> </ul>
<b>Endowments</b>	<ul style="list-style-type: none"> <li>• Donations to non-profit groups</li> <li>• Tend to invest in alternative assets (which includes infrastructure)</li> </ul>	<ul style="list-style-type: none"> <li>• Have varying rules regarding investment, withdrawal, and fund usage policy</li> </ul>	<ul style="list-style-type: none"> <li>• <b>\$15 billion</b><sup>99</sup></li> <li>• 4.3% of total assets</li> </ul>
<b>Banks</b>	<ul style="list-style-type: none"> <li>• May act as an intermediary account manager.</li> <li>• May act as a loan provider.</li> </ul>	<ul style="list-style-type: none"> <li>• Regulated by government.</li> <li>• Prohibited from taking on high-risk or doing anything that constitutes a conflict of interest.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>\$55 billion</b> total capital formed by bank-affiliated funds in 2012.<sup>100</sup></li> </ul>

America has a long history of retail investment in municipal debt. Approximately three-quarters of tax-exempt debt is held by individual investors, either on their own or as part of a mutual fund or trust.<sup>90</sup> Most of the remainder is held by different industry investors, with a heavy concentration by insurance companies and commercial banks. While the municipal debt market has been and will continue to be an incredible source of capital for public infrastructure, it also excludes a number of investors who are not currently participating in a significant way in U.S. infrastructure — entities that are exempt from taxation at the federal, state and local levels such as: domestic and global pension funds, university endowments, personal trusts, and sovereign wealth funds. These are very large sources of private capital. Globally, institutional investors represent about \$90 trillion.<sup>91</sup> S&P Global estimates that these investors currently have less than 1 percent of their assets invested in infrastructure, representing an enormous untapped potential.<sup>92</sup>

Ironically, infrastructure is an attractive asset class for these exact investors. Pension funds and life insurance companies with liabilities that span many decades are seeking long-duration, safe, stable assets, such as infrastructure. Infrastructure assets are ideal hedged against inflation, as revenues from infrastructure can easily be tied to economic conditions; tolls or rates may even be directly linked to inflation through an automatic adjustment mechanism.<sup>101</sup> Over the long term, default rates on infrastructure bonds are lower than those for other types of corporate bonds.<sup>102</sup> The value of long-duration investments with protection from inflation is substantial and relatively unique. Additionally, because infrastructure investment is backed by long-term and generally stable assets, residual values tend to be high relative to other asset classes, which allows higher recovery rates in rare case of default. This can help explain the continued demand by private investors to unlock U.S. infrastructure markets to allow for greater private investment.

Infrastructure does create certain unique challenges for investors, however. New construction (greenfield) projects carry greater risk than acquisition or maintenance of existing assets (brownfield) with a track

record of usage and performance. For many infrastructure projects, cash flows do not begin right away, but may take years as the project is being built. Public data on the performance of existing infrastructure is often lacking.

### *Existing Financial Tools*

There are two primary ways in which private financing currently makes its way to an infrastructure project: either as a debt or equity investment. Debt can come in the form of bonds, such as a municipal or private activity bond (see Table 4.12), a taxable capital markets bond issuance, or loans from commercial banks or direct investors, including infrastructure funds. Equity investment typically comes either as direct investment in a project from sponsor groups (a strategic investor and/or a mix of infrastructure funds, sovereign wealth funds, pension funds and insurance companies). Strategic equity investors tend to be construction firms and concessionaires. The transaction is usually set up as a standalone special purpose vehicle into which all the debt and equity capital is injected and which holds the concession from the public partner in the event of a default or failure of the project to perform, the debt holders are repaid first from any proceeds. As a result of their more risky position, equity investors tend to require a higher return on their investment, however, they can also provide more value to the public sector as they are taking on a greater share of the project risk than debt investors. In addition, equity is better situated to take advantage of the broader set of benefits created by an infrastructure project that may exist beyond a dedicated stream of revenue from users. For example, equity can take the form of aerial rights to build on top of a transit station or joint development of land around a new exit. (See Table 4.7)

Among institutional investors, direct investors are typically large pension funds or sovereign wealth funds which have in-house staff to conduct the needed due diligence prior to investing. The LBJ Express road project in Texas is an example in which a pension fund, the Dallas Police & Fire Pension System, was a direct investor.<sup>103</sup> For smaller investors, it is more typical to participate in an infrastructure fund, where fund managers decide on the investments in accordance with agreed-upon guidelines.

However, these existing tools — direct investment and infrastructure funds — do not appeal to the full universe of potential investors.

**We recommend development of new financial tools to attract additional private capital to U.S. infrastructure projects.**

### *New Tools: REITs and MLPs*

REITs and MLPs are business structures that hold promise as vehicles for more significant investment — by both individual and institutional investors — in all types of infrastructure. Both structures are already widely used to enhance investment in real property and assets, and were granted certain tax advantages by the government to help them attract investment. They can also already invest in certain segments of the infrastructure market, but changes to the law are needed to expand the universe of projects that qualify. Table 4.9 highlights some of the basic similarities and differences between REITs and MLPs.

REITs are companies that own or finance income-producing real estate in a variety of sectors (See Chart 4.10). Legally, MLPs are mostly limited to operating in the energy sector, particularly oil and gas storage, transportation, and distribution (See Chart 4.11).

Current tax and accounting rules that govern REITs and MLPs constrain their operations and affect their practical appeal to investors as a vehicle for investment in infrastructure.

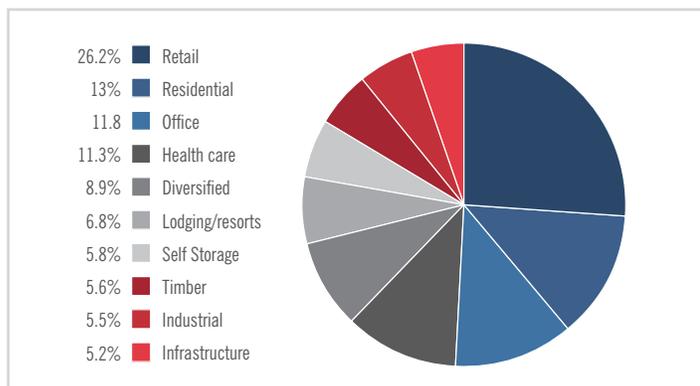
For a company to maintain REIT status, it must adhere to a series

**Table 4.9 - Characteristics of REITs and MLPs**

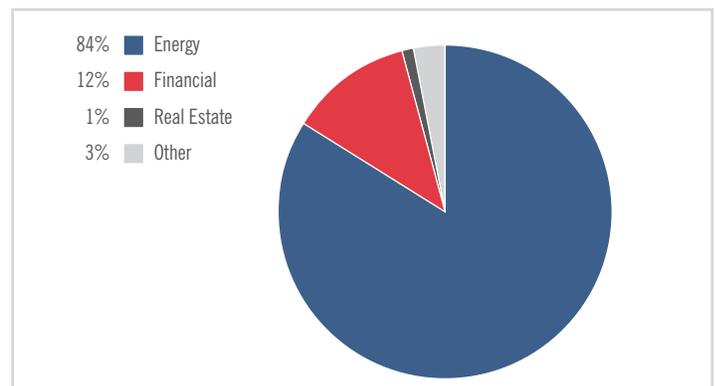
	REITs	MLPs
<b>Legal Structure</b>	Corporations required to hold mostly real estate assets (generally real estate and mortgages) and earn mostly passive income (rent) to maintain tax-advantaged status.	Unincorporated entities treated as partnerships for tax purposes that operate active businesses in certain sectors as restricted by law.
<b>Market Capitalization</b>	Over \$900 billion. <sup>104</sup>	Over \$400 billion. <sup>105</sup>
<b>Qualifying Infrastructure Assets</b>	Already permissible infrastructure assets include railroad lines, pipelines, communications towers, storage facilities, and prisons, though commercial and residential real estate are the most common holdings.	Generally limited to energy sector infrastructures.
<b>Can Be Publicly Traded</b>	Yes.	Yes.
<b>Nature of Distributions</b>	To maintain their status, REITs typically pay out all of their taxable income in the form of dividends to shareholders.	Investors in MLPs are partners or unitholders - not shareholders - buying partnership "units" and receiving cash distributions.
<b>Tax Advantages</b>	Taxed only at the level of the individual shareholder.	Taxed only at the level of the individual partner.
<b>Tax Requirements</b>	Series of requirements relating to type of assets held, the revenue derived from those assets, and distribution of income.	90 percent of income from "qualified sources."
<b>Federal Tax Reporting</b>	Form 1099.	Schedule K-1.

of income and asset tests and other qualifications. In 2014, the Internal Revenue Service (IRS) published proposed regulations clarifying the definition of "real property," which governs allowable assets and the income derived from them.<sup>108</sup> Until then, some

**Chart 4.10 - Property Sectors for Listed Equity REITs**



**Chart 4.11 - Property Sectors for MLPs**



Source: NAREIT<sup>106</sup>; Vanguard<sup>107</sup>

types of infrastructure investment had been largely, if unclearly, permissible as the definition had evolved through private letter rulings (PLRs). Such PLRs and recent changes have sparked interest in other types of infrastructure investment, such as utility transmission and distribution assets. Generally though, a critical legal barrier to REITs being a vehicle for infrastructure investment more broadly is what qualifies as income — currently limited to dividends, interest, rents from real property, and gains from sale or disposition of certain assets (among a few others). That definition may not allow for alternative sources of revenue such as tolls or availability payments that would come from infrastructure assets. This distinction is arbitrary and frankly prejudices private capital toward buildings as opposed to roads, for example. In terms of a stream of income derived from real property, rent paid from a building and tolls paid from a motorist should be treated the same.

Similarly, under §7704 of the Internal Revenue Code, 90 percent or more of a MLP's gross income must adhere to a limiting definition of qualifying income, including “income and gains derived from the exploration, development, mining or production, processing, refining, transportation (including pipelines transporting gas, oil, or products thereof), or the marketing of any mineral or natural resource (including fertilizer, geothermal energy, and timber).” Congress expanded this definition in the Emergency Economic Stabilization Act of 2008 to include industrial source carbon dioxide, biofuels, and other alternative fuels.<sup>109</sup> A bipartisan group in Congress has also introduced legislation to further expand this definition to promote greater investment in renewable energy infrastructure.<sup>110</sup> But for MLPs to serve as an attractive investment vehicle outside of the energy sector, Congress must build on these efforts and incorporate other types of infrastructure.

If these impediments were addressed, REITs and MLPs would offer a number of advantages for infrastructure investors. In particular, these investment vehicles:

- Are liquid and often publicly listed and traded;
- Have the transparency and governance of public markets;
- Are capable of delivering both income and long-term growth;
- Allow capital for projects to be raised incrementally; and
- Offer daily market pricing.

REITs and MLPs also have a number of tax and accounting advantages already established in law. Both allow income to pass-through without being taxed at the corporate level, generally providing higher yields to investors. MLPs generally distribute all free cash flows to unitholders, which — unlike REITs — can often be treated as non-taxable income; as such, MLP distributions are considered reductions in an investment's cost basis with taxes deferred until units are sold. Additionally, in differing ways these structures can take advantage of depreciation and other tax deductions. These characteristics make infrastructure investment through REITs or MLPs attractive to new groups of investors. In particular, the liquidity, capital market access, and tax benefits of these vehicles could also attract new institutional investors or new sources of capital from existing investors in the space.<sup>111</sup>

**For REITs, we recommend Congress expand the governing definition of real estate to include infrastructure broadly and allow alternative revenue streams to be counted as qualifying income. For MLPs, we recommend Congress expand the governing definition of allowable income sources to facilitate infrastructure investment beyond the energy sector.**

### ***New Tool: Infrastructure-Backed Securities***

Another option that could increase the flow of private capital into infrastructure is the creation of securities backed by pools of infrastructure assets (infrastructure-backed securities or “IBS”). Creation of infrastructure-backed securities would solve several key challenges that currently limit private investment. First, an IBS

would solve the concentration of risk presented by single project investment. Investing in any sort of project finance is inherently more risky because of the concentration of risk that something goes wrong in that particular project. By creating a security that is backed by multiple projects, risk is diversified.

A second advantage of an IBS would be to allow for investors to better match their risk profile with that of the investment. One of the limitations in the current marketplace is that it is difficult to create infrastructure investment vehicles that are tailored to investors with different risk appetites. However, by pooling projects, a broader continuum of risks is created. Securities are then separated (or “tranching”) into different slices of risk paired with corresponding rates of return. Investors can then better match their desires along the risk spectrum, making for a more efficient market. These efficiencies would be seen both in terms of broadening the demand by increasing the flow of private capital into infrastructure, and by lowering the rate paid, thereby making it possibly cheaper to build infrastructure.

Another potential advantage of an IBS structure would be enhanced liquidity. Infrastructure investments, particularly project-specific investments, often suffer from being relatively illiquid. While some “buy and hold” investors are unconcerned about the illiquidity of direct infrastructure investments and infrastructure funds, many investors are concerned about tying up their capital and are looking for something more liquid. An IBS structure would address this concern as the securities themselves would be easily tradable.

Creating a tradable class of infrastructure investment would have value beyond just increasing investment in infrastructure. It would allow market participants to more easily understand changes in valuation of infrastructure assets in real-time. This would provide feedback to infrastructure operators, providers, governments, and fellow investors about market perceptions on the valuation of infrastructure investments.

There are many challenges to creating an infrastructure-backed

securities market as well as the creation of a secondary market to trade these securities. Perhaps the greatest impediment for an IBS structure today is the lack of enough projects with dedicated repayment streams (such as tolls, user fees, dedicated sales taxes, value capture districts, or “availability payments”, which are contractual commitments from the public partner to pay the private partners as long as certain conditions — such as adequate service levels or state of repair — are met) to create a sufficiently diverse asset pool. As the other recommendations in this report are implemented and the pipeline grows, that challenge will hopefully be addressed. However, work can be done today on securitization that could help to stimulate the pipeline, rather than simply waiting for it to emerge. Potential securitizers (investment banks, regional infrastructure funds, state infrastructure banks, etc.) can determine the characteristics of projects they would look to include in their asset pools. They could also develop standard documents and reporting that would be required for secondary market transactions.

Another substantial problem to the creation of an IBS structure for the existing tax-exempt market in infrastructure is accounting for the tax-exempt nature of municipal debt. As discussed earlier, while interest on an entire class of municipal debt is free of federal taxes, most municipal debt is given additional tax preferences only for investors who live in that jurisdiction (for example, if you own bonds from the state you live in, you do not have to pay state income taxes on interest payments). Tranching that debt and selling across the market would create at best an accounting challenge and at worst an actual uncertainty as to what amount of taxes would be due on that asset class. This problem would not exist for IBS backed by equity in projects or by taxable municipal debt. But it would exist for traditional municipal debt that was securitized in a pool with debt from multiple jurisdictions.

There are several solutions to this potential problem. First, a group of states could agree to reciprocity on tax exemption for debt placed into these securities. This makes particular sense for states that share economic zones and regional infrastructure projects. For

example, infrastructure projects in Pittsburgh can benefit not only Pennsylvania but also West Virginia and Ohio. Likewise Philadelphia projects can benefit New Jersey, Delaware, and Maryland. Similar reciprocity could exist at the municipal level. Second, if the federal government were to resume the Build America Bond program or a similar structure (as recommended on p. 75), municipal debt issuers would be incentivized to issue taxable debt, which overcomes many of these challenges. Finally, states that are large enough to have internal geographic diversity and enough of a project pipeline (e.g. California, Texas, and Florida) may be able to institute an IBS market internally. Simply launching these securities, possibly through their state infrastructure banks, would go a long way to testing investor demand for these securities.

### ***New Tools: Regional Infrastructure Funds and Pension Pools***

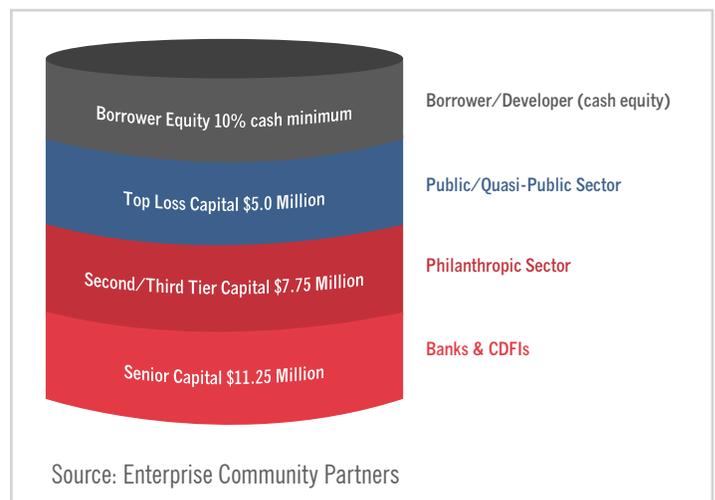
Another emerging model that could be used to attract private investment to infrastructure is the structured fund, in which a small public investment can leverage significant private dollars. These funds would be organized as nonprofit organizations with a mission to support infrastructure projects within a certain region, either within a state or across state lines. Investors in the fund could take on different levels of risk, according to their desired risk/return ratio. In many cases, the public sector would likely take the first-loss position, with private capital taking the next tranches. An illustration of this concept, from the Denver Transit-Oriented Development Fund, is shown in Graphic 4.12.

This approach has several advantages over existing structures. The regional infrastructure fund would be able to accept not just public dollars, as State Infrastructure Banks (SIBs) do, but also private dollars. Moreover, multistate regional infrastructure funds would be able to invest in projects that cross state lines or otherwise serve a larger region, something that is often difficult for a SIB to do. For investors looking to support local economic growth and job creation, the regional nature of this type of fund would be a benefit. Finally, due to the nonprofit structure, regional infrastructure funds would have reduced management fees.

Another alternative to private infrastructure funds is pension pools, in which a larger pension fund manages investments from smaller funds. The advantage for the smaller pensions is a higher level of confidence that the fund managers will have the same investing incentives they do, since they are also pensions. In the UK, the Pensions Investment Platform was recently established on behalf of about 1,200 pension entities with the slogan “for pension [funds], by pension [funds]” to make coordinated investments in infrastructure.<sup>112</sup> In the United States, a similar rationale underlies the infrastructure fund offered by Ullico, a labor-oriented life insurance and financial services company.

These tools can be developed by the private sector or in partnership with the public sector. Both regional infrastructure funds and pension pools can offer attractive options for investors whose interests do not align well with existing investment vehicles.

**Figure 4.12 - TOD Fund Structure**



### ***Federal Financing Programs***

The federal government has an important role in providing dedicated revenue for infrastructure. The federal government also provides a benefit to infrastructure through the tax exemption for interest on municipal debt. Interestingly, the value of this benefit (which is not accounted for anywhere in the federal budget) is that its value rises when taxes are increased and falls when taxes are cut. In addition to direct funding and the tax exemption for municipal debt, there are a small but growing number of federal

financing programs that help certain infrastructure projects address credit needs.

## TIFIA

One of the most well-known is the Transportation Infrastructure Finance and Innovation Act (TIFIA). The TIFIA program offers loans, loan guarantees, and standby letters of credit to surface transportation projects. Created in 1998, the program has financed about \$21.8 billion in loans and other credit assistance. The loans have an enviable credit history with current estimates projecting that the federal government will receive 99.9 percent of its money back over time.<sup>113</sup> Despite this fantastic track record, the federal government remains surprisingly conservative in treatment of future projects, assessing an average loss of 10 percent on loans (compared to the likely 0.1 percent loss on loans made to date).

**We recommend the federal government better align their credit scoring with actual experience.** Even reducing the expected loss by half — still a very conservative measure — would allow TIFIA to support four times more infrastructure than it does today.<sup>114</sup>

P3s have been among the recipients of TIFIA financing.<sup>115</sup> Because TIFIA offers loans at favorable rates, the program's financing can help to reduce the cost of capital for project sponsors. This is particularly beneficial for P3s, which, as discussed, often have higher upfront capital costs than publicly financed projects. For most of its history, TIFIA was authorized to provide federal credit support at about \$100 million per year. This figure would support actual infrastructure investment on the order of \$2 to \$4 billion. This leverage is achieved as the \$100 million appropriated by Congress is projected to cover 10 percent of losses of \$1 billion in federal lending (even though, as stated above, the actual loss rate is less than 1 percent). But federal lending is capped under TIFIA at no more than 50 percent and usually closer to 33 percent of the total project cost, thus resulting in \$2 to 4 billion in actual infrastructure for \$100 million in federal funds. Under MAP-21, in effect from 2012 to 2014, TIFIA grew to \$1 billion in federal funding that could have supported \$20 to \$40 billion in

actual infrastructure. However, the recently passed FAST Act cut it back substantially to \$275 million in 2016 and 2017, \$285 million in 2018, and \$300 million in 2019 and 2020. Given TIFIA's importance in P3 projects, and what the market is able to bear, **we recommend that Congress reverse course and expand TIFIA.**

Congress should also take action to reduce duplication and redundancy in federal financing programs. For example, in separate legislation, Congress created a TIFIA-like approach for water projects, known as WIFIA. Despite Congress creating WIFIA in 2014, no funds have been appropriated other than for initial start-up costs, and WIFIA has not yet begun to make loans. Railroads have access to yet another financing program, the Railroad Rehabilitation & Improvement Financing (RRIF) program, that provides direct loans and loan guarantees up to \$35 billion. Since its inception in 1998, the program has provided around \$2.7 billion in loans to 35 different railroad projects. Eligible entities can finance up to 100 percent of project costs with a repayment period structured over 35 years, but lack of flexibility in the terms and a costly credit fee has led RRIF to be underutilized. Rather than continue to recreate the wheel and authorize separate infrastructure programs in separate agencies, **we recommend that Congress merge TIFIA, WIFIA, RRIF, and any future “-IFIA” into a single infrastructure loan provider.** Doing so would reduce bureaucracy, make government more efficient, encourage infrastructure providers to be more efficient, and possibly encourage the standardization of documents, loan structures, data reporting, and so on.

## Private Activity Bonds

Private activity bonds (PABs) are another federally-supported program that can catalyze infrastructure P3s. PABs are issued by a public issuer, typically a state or local government, on behalf of a private partner. Interest on PABs issued for the purpose of financing public infrastructure is exempt from federal income taxes, making them more attractive to potential buyers than privately-issued bonds. Thus, the cost of capital for the private sector is

reduced to an amount closer to what a publicly-financed project could expect. There is a cap on the amount of PABs that may be issued in each state, and, for qualified transportation projects, DOT can only offer up to \$15 billion in borrowing authority. As of January 2016, 21 P3 projects have made use of, or are planning to make use of, PAB allocations from DOT.

In its proposed budget for FY2016, the Obama administration proposed a modified version of PABs, known as a Qualified Public Infrastructure Bond (QPIB). QPIBs would differ from existing PABs because they would not be subject to any volume cap, nor would interest on QPIBs be subject to the alternative minimum tax. Also, QPIBs would be available for a broader range of infrastructure projects than current PABs.<sup>116</sup>

Congressional leaders have made other proposals for federally-supported innovative financing mechanisms. Sens. Ron Wyden (D-OR) and John Hoeven (R-ND), for example, introduced S. 1186, the Move America Act of 2015, which not only would create Move America Bonds (an expanded form of PABs), but would also authorize a new tax credit for infrastructure investment. The tax credit would be modeled on the successful Low Income Housing Tax Credit, but would not require the beneficiary to have an ownership interest in the infrastructure, thereby making the credits usable to support publicly-owned as well as privately-owned infrastructure.<sup>117</sup>

**We recommend action to expand PABs in accordance with the QPIB proposal and the Move America Bond proposal introduced by Wyden and Hoeven.** A bond program combining the most promising aspects of each proposal (e.g. QPIBs’ lack of a volume cap, Move America Bonds’ availability for more types of infrastructure and flexibility to be converted to tax credits) would open up an important new financing source for P3 projects.

**Build America Bonds**

Build America Bonds (BABs) provide another useful option for federal financing of infrastructure. Authorized from just 2009 to

**Graphic 4.13 - Private Activity Bond Pipeline**

Bonds Issued	
Project	PAB Allocation (\$ in millions)
Capital Beltway HOT Lanes, Northern Virginia	\$589
North Tarrant Express, Fort Worth, Texas	\$400
IH 635 Managed Lanes (LBJ Freeway), Dallas, Texas	\$615
Denver RTD Eagle Project (East Corridor & Gold Line), Denver, Colorado	\$398
CenterPoint Intermodal Center, Joliet, Illinois	\$150
CenterPoint Intermodal Center, Joliet, Illinois	\$75
Downtown Tunnel/Midtown Tunnel/MLK Extension, Norfolk, Virginia	\$675
I-95 HOV/HOT Lanes, Northern Virginia	\$253
Ohio River Bridges East End Crossing, Louisville, Kentucky	\$677
North Tarrant Express Segments 3A & 3B, Fort Worth, Texas	\$274
Goethals Bridge, Staten Island, New York	\$461
U.S.36 Managed Lanes/BRT Phase 2, Denver Metro Area, Colorado	\$20
I-69 Section 5, Bloomington to Martinsville, Indiana	\$244
Rapid Bridge Replacement Program, Pennsylvania	\$722
Southern Ohio Veterans Memorial Highway	\$227
I-77 Managed Lanes, Charlotte, North Carolina	\$100
<b>Subtotal</b>	<b>\$5,879</b>
Allocations	
Project	PAB Allocation (\$ in millions)
Knik Arm Crossing, Anchorage, Alaska	\$600
CenterPoint Intermodal Center, Joliet, Illinois	\$700
SH-288, Houston Metro Area, Texas	\$600
Purple Line, Maryland	\$1,300
All Aboard Florida	\$1,750
I-70 East Reconstruction (CO)	\$725
<b>Subtotal</b>	<b>\$5,675</b>
<b>Grand Total</b>	<b>\$11,554</b>
SOURCE: <a href="https://www.fhwa.dot.gov/ipd/finance/tools_programs/federal_debt_financing/private_activity_bonds/">https://www.fhwa.dot.gov/ipd/finance/tools_programs/federal_debt_financing/private_activity_bonds/</a> January 12, 2016	

2010, BABs utilized the existing structure of the tax-exempt debt market but offered a new product — a taxable bond for which the issuer received a direct payment of 35 percent of interest costs or the buyer received a 35 percent tax credit in lieu of interest. The appeal of this “direct-pay” approach was dramatic — in the roughly 20 months of the program, \$181 billion worth of BABs were issued.<sup>118</sup> Unlike traditional municipal debt, BABs are attractive even to investors who do not have federal tax liability, such as pension funds. Moreover, by providing the payment directly to the issuer, BABs

reduced borrowing costs for public entities. The BAB program served as an effective mechanism for bringing new capital to states, cities, and counties beyond what the traditional debt market could provide.

The short-term nature of the BAB program made it difficult for more conservative investors to take advantage of the program, however. For those, like some pension funds, whose investment options are strictly defined either in law or in guidance, it simply was not possible to amend those requirements quickly enough to purchase the bonds before the program was over. **We therefore recommend that BABs be reauthorized for an indefinite period, rather than on a short-term basis, to maximize the number of investors able to participate.** To make BABs revenue neutral, as compared to municipal debt, the subsidy should be at a lower rate than 35 percent.

Federal credit programs serve an important role in leveraging private dollars for infrastructure. All of these programs should remain available to the full range of projects, including both those that are conventionally delivered and those that involve participation by the private sector. In some cases, the federal subsidy provided by these programs can make the difference between a project happening or not. By reducing the differential between the cost of public capital and private capital, these programs allow the private sector to participate in projects that otherwise may not pencil out as an attractive investment, helping to get more projects completed.

### **Audit Federal Tax Rules and Other Infrastructure-Related Guidance**

The federal tax code can also impact private investment in infrastructure. The federal government should conduct an audit of its existing tax regulations to identify those that create unneeded barriers to private investment. For example, under today's rules, a municipality that enters into a sale or lease agreement with a private partner for an infrastructure asset that was originally financed with tax-exempt debt must "defease," or repay, the remaining debt so that the benefits of the tax-exemption for

municipal debt do not transfer to the private partner. The cost of defeasance is essentially a function of the cost to repay the stream of principal and interest at the original fixed rate at which the debt was issued, which does not allow investors to take advantage of today's low interest rate environment. Options for defeasance are currently limited and can be costly. More flexibility in those rules would empower the public and private sectors to develop solutions to infrastructure challenges that meet local needs.

Similar constraints limit the utility of the most widely used federal programs for financing water projects: the State Revolving Funds (SRFs) authorized under the Clean Water Act and the Safe Drinking Water Act. Currently, in cases where a water system is transferred to a private provider, it is often the case that any grants or loans from the SRFs need to be repaid (at least partially), instead of being assumed by the new private owner and thus continuing to benefit the rates of the system's customers. Allowing for more flexibility in the disposition of SRF funds in a transfer situation would help to provide communities with a full range of options for addressing their water needs.

More flexibility in federal budgeting for leases on real property could also help to address some of the inefficiencies in real property management by federal agencies. OMB Circular A-11, adopted with the intention of bringing additional transparency to federal property management practices, has yielded an unintended consequence that may actually be costing the federal government more and inhibiting partnerships with the private sector. By requiring the full net present value of certain long-term leases to be recorded on agency budgets in the year in which they are entered — a cost that few agencies can absorb in a single year — the circular has led to increased use of less efficient short-term operating leases. The federal government should include modernization of OMB Circular A-11 in its review of relevant regulations to ensure that federal agencies have a full range of options for managing their real property.

State-level regulators should also review their own requirements and guidance to ensure that they are encouraging, rather than inhibiting,

private investment in infrastructure. For example, as private investment in infrastructure increases under the New American Model, insurance regulators should consider the performance history of those investments in setting capital requirements for insurance companies participating in this asset class.

### **Create a Benchmarkable Asset Class**

Benchmarks provide so much value and are so prevalent that they are often taken for granted. The S&P 500 and Dow Jones indexes are often used as short hand for the entire stock market, when they are in fact benchmarks. Benchmarks exist for most classes of investment and help investors better judge the performance of an existing investment strategy within that asset class or establish risk/return expectations for that asset class. In many cases there have been too few infrastructure investments to generate a reliable benchmark. As a result, potential infrastructure debt investors can be unsure of how to judge future investment performance. Current investors may have difficulty knowing whether their investment is performing well, without an overall benchmark for the infrastructure asset class. Having an infrastructure benchmark would be useful for attracting pension funds and other investors that need to show performance against an established benchmark. Transparency and benchmarking have traditionally opened up investments in asset classes.<sup>119</sup>

Infrastructure as an asset class has heretofore been challenging to benchmark, due to the fact that performance data on private infrastructure investments is limited. Most infrastructure equity investments are privately held, and available performance data is not standardized. Similarly, most debt issued to support infrastructure is not project-specific, but rather has been financed through the entire balance sheet of a municipality, state, or infrastructure operator. It is hard to know if a given toll road has performed well if the debt backing it was guaranteed by the full faith and credit of an entire state.

**We recommend the creation of benchmarks for infrastructure investment.** Given the diversity of infrastructure investment, a single benchmark may not be appropriate. However, benchmarks for more common subcategories of infrastructure investment, such as toll roads, drinking and wastewater systems, and airport or port improvements, should be achievable. As the recommendations in this report are implemented, more projects will be completed, with more standardized and transparent data, which should facilitate the development of a reliable set of infrastructure benchmarks.

**Table 4.14 - Side-by-Side of Federally Subsidized Bonds**

	TAX EXEMPT OR MUNICIPAL BONDS	BUILD AMERICA BONDS	PRIVATE ACTIVITY BONDS	QPIBS <sup>a</sup>	MOVE AMERICA BONDS <sup>b</sup>
<b>HOW THEY WORK</b>	<ul style="list-style-type: none"> <li>American households and some companies hold debt through municipal bond funds.</li> </ul>	<ul style="list-style-type: none"> <li>Taxable municipal bonds with tax credits and federal subsidies.</li> <li>Available for same purposes as municipal bonds.</li> <li>No longer available.</li> </ul>	<ul style="list-style-type: none"> <li>Issued by state or local government on behalf of a private partner.</li> </ul>	<ul style="list-style-type: none"> <li>Special form of Private Activity Bonds.</li> <li>Available for airports, docks/wharves, mass transit, surface transportation, solid waste disposal, water/sewage.</li> </ul>	<ul style="list-style-type: none"> <li>Special form of Private Activity Bonds.</li> <li>Airports, docks/wharves, mass transit, surface transportation, rail, flood diversion, inland &amp; costal waterways.</li> </ul>
<b>SUBSIDIES / INCENTIVES</b>	<ul style="list-style-type: none"> <li>Tax-exempt municipal bonds allows bond owners to earn interest without being taxed.</li> </ul>	<ul style="list-style-type: none"> <li>Either a 35% direct federal subsidy (direct payment BABs)<sup>c</sup> or a federal tax credit worth 35% of the interest owed to the investor (tax credit BABs).</li> <li>The subsidy rate could be lowered.</li> </ul>	<ul style="list-style-type: none"> <li>Interest can be tax-exempt if issued for an infrastructure project owned by a state or local government with a public purpose.</li> </ul>	<ul style="list-style-type: none"> <li>Not subject to any state borrowing caps.</li> <li>Interest exempt from alternative minimum tax in addition to federal income tax.</li> </ul>	<ul style="list-style-type: none"> <li>Interest exempt from alternative minimum Tax as well as federal income tax.</li> <li>Can exchange for "Move America Credits": transferable tax credits.</li> </ul>
<b>ADVANTAGES</b>	<ul style="list-style-type: none"> <li>Issuing government pays a lower premium.</li> <li>Can be used for all types of public infrastructure.</li> <li>Highly liquid.</li> </ul>	<ul style="list-style-type: none"> <li>Broadens investor pool for municipal bonds due to taxable designation.</li> <li>Can be used for all types of public infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>Allows private company to lower its cost of capital.</li> </ul>	<ul style="list-style-type: none"> <li>Can be used for P3s.</li> <li>Advantages of federally subsidized debt.</li> </ul>	<ul style="list-style-type: none"> <li>Private partners can own the project, taking advantage of tax credits and depreciation.</li> <li>Relaxes limitations on acquiring existing property.</li> </ul>
<b>DRAWBACKS</b>	<ul style="list-style-type: none"> <li>Cannot be used for projects that directly benefit private sector.</li> <li>Only benefit is a tax exemption, so not effective for individuals and organizations not greatly affected by taxation.</li> </ul>	<ul style="list-style-type: none"> <li>No longer available since the program's conclusion at the end of 2010.</li> <li>Original program was subject to sequestration.</li> <li>Not available for privately-owned projects.</li> </ul>	<ul style="list-style-type: none"> <li>Volume that can be issued is limited.</li> <li>Subject to alternative minimum tax.</li> <li>Only benefit is a tax exemption, so not attractive for individuals and organizations not greatly affected by taxation.</li> </ul>	<ul style="list-style-type: none"> <li>Currently only a proposal, and faces congressional opposition.</li> <li>Not available for privately-owned projects.</li> </ul>	<ul style="list-style-type: none"> <li>Proposal currently stalled in Senate Finance Committee (since 05/04/2015).</li> <li>Volume cap set at 50% of a state's PAB volume cap<sup>d</sup>.</li> <li>Does not cover social infrastructure, or water/sewage.</li> <li>Not attractive to tax exempt investors.</li> </ul>

<sup>a</sup> As proposed in Obama administration Budget for FY2016. | <sup>b</sup> As proposed by Senators Wyden and Hoeven in S. 1186

<sup>c</sup> This subsidy was later reduced by 7.3% during the sequester. | <sup>d</sup> Move America Bonds would not count toward the PAB volume cap.

Information cited from Brookings (<http://www.brookings.edu/research/papers/2015/04/22-building-better-infrastructure-with-better-bonds-sabol-puentes>), US Department of Transportation, the Internal Revenue Service, Bloomberg (<http://www.bloomberg.com/news/articles/2015-01-16/obama-proposes-new-muni-bonds-for-public-private-infrastructure>), and Squire Patton Boggs, the Public Finance Tax Blog, (<http://www.publicfinancetaxblog.com/2015/05/move-america-bonds-close-enough-for-government-work/>).

# Conclusion: A Call to Action



The time to act is now. With every day of inaction, our infrastructure needs only grow more urgent and costly. The private sector stands ready to help, but the conditions must be created to facilitate greater involvement. It is incumbent upon all stakeholders — federal, state, local, and private actors — to make solving our infrastructure crisis a priority.

This is our call to action: We need to advance a **New American Model for Investing in Infrastructure** that is transparent and takes into account full life-cycle costs of assets, evaluates and allocates risks, and emphasizes the critical role of partnership between public and private actors. Implementing the recommendations discussed in this report will move this New American Model from concept to reality.

Under the New American Model, the United States will see more and better quality infrastructure projects getting done more quickly and efficiently. As more projects are completed, supported by transparent financial and performance data, U.S. infrastructure will become an attractive asset class for a broader and deeper range of investors, making it competitive in the search for investment capital.

The path forward is clear. The responsibility for delivering the New American Model does not rest with any single actor. On the contrary, the success of our recommendations rests on shared responsibility and close coordination among multiple players. We have identified priority actions for each level of government, as well as the private sector, that should be taken now to implement the recommendations in this report.

## Immediate Action: Creation of a Center of Excellence for the New American Model for Investing in Infrastructure

To jumpstart the process of moving to the **New American Model for Investing in Infrastructure**, there is an immediate need for the creation of a center of excellence to take the lead on developing the expedited processes, evaluation methodologies, and educational materials called for in this report. The center should be jointly funded by the public and private sectors and should act as an impartial third party to facilitate the rapid development of the templates and tools needed under the New American Model. The center should engage with experts from all aspects of infrastructure development and financing, in both the public and private sectors, to ensure that its products will meet the needs of a variety of stakeholders.

In addition to convening and participating in educational efforts, the center of excellence should focus on three main tasks in order to stimulate the adoption of the New American Model: (1) data collection and analysis, (2) standardization of tools and methodologies, and (3) financial innovation.

- (1) Data collection should focus on addressing the gaps identified in this report, relating to the relative performance of various methods of infrastructure delivery, the time and cost of infrastructure permitting, and the economic and fiscal benefits of the life-cycle approach. Results should be clearly articulated and made available to the public.
- (2) Standardization work should include the project term sheets and contract language necessary to simplify the project development process (described on p.55), as well as development of a standard methodology for value for money analysis that can be applied nationally (as called for on p.49).
- (3) Financial innovation should focus on moving toward implementation of the new financial tools described on p.69, including real estate investment trusts (REITs),

master limited partnerships (MLPs), infrastructure-backed securities, regional infrastructure funds, and pension pools. The center should conduct a market analysis to craft the financial tools that have the greatest potential for attracting new capital to U.S. infrastructure, and should develop specific legislative proposals for infrastructure REITs and MLPs, and design an infrastructure-backed security and a pilot regional infrastructure fund.

While the center of excellence is conducting its work, states, localities, the private sector, and the federal government should also take action to put the New American Model into effect.

## Priority Actions for State and Local Governments

State and local governments must lead the way by creating the conditions necessary to attract private capital to their infrastructure needs.

- All states should adopt broad enabling legislation to allow for the full range of partnerships between the public and private sectors for all types of infrastructure. Seventeen states do not allow public-private partnerships for infrastructure at all, and those that do have P3 laws typically limit the use of P3s in some way.
- States should establish expert offices to provide technical assistance and serve as a one-stop shop for private investment in infrastructure for the state.
- All public infrastructure owners should develop a complete list of infrastructure assets owned, the condition of the assets, cost of maintaining over remaining useful life, cost of replacement, and the potential impact of a failure. Lack of information about the full scope of future costs and risks is skewing decision-making toward short-term projects, not long-term needs.
- Public agencies should prioritize infrastructure needs and match projects with the most cost-effective delivery and financing options. States and localities should make strategic

choices in project delivery to maximize long-term value and save public dollars.

- Project sponsors should maximize the use of emerging funding sources that directly engage the private sector: value capture, naming rights, crowdfunding, and private development capital. Failure to embrace these options leaves dollars on the table.

## Priority Actions for the Private Sector

The private sector will be instrumental in bringing new financial tools to market and providing the data and analytical tools required to develop infrastructure into a tradable asset class.

- Private sector financial experts should assist the center of excellence in crafting attractive structures for infrastructure REITs, MLPs, infrastructure-backed securities, and regional infrastructure funds.
- Private companies involved in infrastructure projects should publish financial and other performance data for P3 projects so that benchmarks can be developed.
- Private sector stakeholders should work with the center for excellence to develop customized training and technical assistance tools for understanding and participating in public-private partnerships.

## Priority Actions for the Federal Government

The federal government has a critical role to play as both a funding and financing source for infrastructure.

- Congress should take immediate action to provide long-term, stable funding for infrastructure. Bringing private capital into U.S. infrastructure projects does not eliminate the need for robust public funding.
- Congress should consolidate existing infrastructure financing programs — TIFIA, WIFIA and RRIF — into a single

infrastructure loan program with terms modeled on TIFIA and credit scoring based on actual experience.

- Congress should authorize a suite of bond programs — without a sunset date — to attract new investors, including Build America Bonds and private activity bonds such as Qualified Public Infrastructure Bonds (QPIBs) and Move America Bonds.
- The administration should aggressively implement and publicly report on the FAST Act’s provisions related to environmental review and permitting, adopt simultaneous permitting processes, and designate a lead agency for multi-agency reviews.
- The administration should conduct an audit of tax regulations and other guidance that inhibits private financing of infrastructure.

These recommendations will not be accomplished overnight, but we must begin now. The way we built and paid for infrastructure in the past is no longer enough. Following these recommendations will reduce risk and increase returns from infrastructure investments for both the public and private sectors. Local officials will find that they have new tools at their disposal to bring needed improvements to their communities.

At the same time, the private sector will begin to see the United States as a more transparent, open, and predictable place to do business, bringing dollars into U.S. projects that otherwise would have gone elsewhere. As projects are completed, more Americans will have access to clean and safe water, affordable goods, and safe and reliable ways to get where they need to go — the fundamental elements we need for a strong economy and a first-class quality of life.

The 21st century holds great promise. Life-changing innovations are on their way, and America must be ready to make the most of them. By working together, the public and private sectors can address our shared challenges, leading the way to a brighter future.

# Appendix A. Research Questionnaire

BPC staff conducted outreach to many stakeholders in an effort to inform the work of the Executive Council on Infrastructure. This questionnaire was designed to help maintain a consistent structure for discussions with policy experts, practitioners, and academics in the meetings held.

1. Do you think American infrastructure is accessible for private sector investment? Do you believe it is a good idea, bad idea, or makes no difference, for American infrastructure to become more open to private sector investment?
2. Of the following list, which do you think are the most and least important barriers to private sector investment in infrastructure?
  - a. Difficult to Assess Project Quality and Predict Performance
  - b. Limited Track Record of New Financing Mechanisms
  - c. No Project Pipeline
  - d. Demand Risk for New Projects
  - e. Complicated Regulatory Environment
  - f. Political Uncertainty
  - g. Risk of Permitting and Construction Delays
  - h. Other (please specify)
3. What recommendations do you have for addressing the barriers you think are most problematic? What are the most promising ideas/practices you have seen for addressing them? What attempted solutions have you seen that have failed? Are there any case studies illustrating the best practices for breaking down these barriers?
4. What are the biggest mistakes you have seen in public-private partnerships or other private investment in infrastructure, and what lessons can we draw from them? Can you provide specific examples?
5. Who do you think the primary audience should be for efforts to increase private investment in infrastructure?
6. Do you believe that having a developed and identified pipeline of projects would make a significant difference in increasing private investment for infrastructure? If so, how should that pipeline be developed, and what public or private entity or entities should be responsible for developing and maintaining it?
7. What types of projects should be included in a project pipeline? For example, should there be a minimum cost threshold? Should both greenfield and brownfield projects be included? Should it include projects that do not generate a direct return but are backed by such things as property taxes, dedicated sales taxes, general government revenues or non-governmental private revenues?
8. Are there enough existing and planned projects in the U.S. that could generate a high-enough return for private investors to create a long-term project pipeline? How high do you think the returns need to be? What other factors besides potential return could make a project appropriate for private capital?
9. Is quality data about the performance of existing assets and the expected outcomes from planned projects available to investors, or is there a need for greater data reporting or more standardization? If so, what specific types of data would be most valuable? If not, where does one find the quality existing data?
10. Would you support a goal of creating a tradable asset class for American infrastructure investments? If so, why? If not, why not?

- 11.** One class of investors that are frequently discussed is institutional investors. Are there specific types of institutional investors that would be most compatible with infrastructure investing? Any suggestions for ways to make it more appealing to them? Are there structures to specifically avoid for this group?
- 12.** High risks, low returns, and high due diligence costs have been cited as reasons why institutional investors have limited their investments in infrastructure. Do you believe all of these factors are important? Which is the most important to address? What suggestions do you have for addressing them?
- 13.** Private investors are global players, but some have said that the U.S. does not always welcome foreign investors. How significant a barrier is resistance to foreign (particularly non-western) investment in our critical infrastructure? What are specific barriers (tax structures, CFIUS reviews, etc.)?
- 14.** There are a small number of infrastructure funds today. If there were more such funds, or other ways to aggregate or bundle projects, do you believe that would lead to greater, less, or no change in investment by the private sector?
- 15.** How effective are existing financing programs, such as TIFIA, State Infrastructure Banks, Private Activity Bonds, and P3s? How could they be made more effective? Can these mechanisms fully capture the private capital that is on the sidelines, or are new financing tools — such as a national infrastructure bank, social impact bonds, new types of securities, or other tools — needed?
- 16.** We have seen greater success in attracting private capital to infrastructure overseas. What are the best examples that you have seen internationally? What lessons can we learn from other countries that are applicable within the United States? What systems do you think are not really applicable — in practice or in theory — for the U.S.?

# Appendix B. P3-Enabling Model State Legislation

The U.S. faces a growing need to build and maintain critical infrastructure — everything from airports to wastewater treatment plants — but with limited government funding to do the job. Encouraging private sector investment in infrastructure is part of the solution. But one promising tool — public-private partnerships or “P3s” — is currently limited or unavailable in most states due to lack of enabling legislation.

33 states (along with the District of Columbia and Puerto Rico) have enacted by statute some sort of P3-enabling legislation—a patchwork of laws met with varying degrees of success and public support. The following model legislation is the product of review of best practices nationwide. While drafted with the intention of having each state tailor the legislation according to its needs and circumstances, states considering adopting P3-enabling legislation for the first time or updating their existing laws may want to use this model as a tool.

## Legislative Findings & Purpose

It is the intent of this act, by encouraging public-private partnerships, to:

- Promote the development and operation of quality infrastructure projects that provide economic and social value;
- Provide a well-defined mechanism to facilitate collaboration between public and private entities in infrastructure development and operation and enable increased investment of private capital;
- Bring innovative thinking to public projects;
- Provide flexibility in contracting and delivering infrastructure projects;
- Reduce total life-cycle costs of public infrastructure; and
- Allow for cost and risk sharing between public and private partners.

## Section 1. Definitions

“Affected Jurisdiction” means any county, municipality, city, town, or special district in which all or a portion of a qualifying project is located.

“Develop” means to plan, design, develop, finance, lease, acquire, install, construct, or expand a qualifying project.

“Comprehensive Agreement” means an agreement between one or more private partners and one or more responsible public entities contractually providing for the responsibilities of all parties in developing or operating a qualifying project in a public-private partnership. “Concession” means any lease, license, franchise, easement, or other binding agreement transferring rights for the use or control, in whole or in part, of a qualifying project by a responsible public entity for a definite term during which the private partner will provide services in return for the right to receive all or a portion of the revenues of the qualifying project.

“Fees” means rates, tolls, fees, or other charges imposed by the private partner or responsible public entity for use of all or a portion of a qualifying project pursuant to a comprehensive agreement.

“Material Default” means any default by private partners in the performance of its duties as outlined in a comprehensive agreement that jeopardizes adequate service to the public from a qualifying project and is not remedied following notice and a reasonable cure period.

“Operate” means to finance, maintain, improve, equip, modify, repair, or operate a qualifying project.

“Private Partner” means any natural person, corporation, general partnership, limited liability company, limited partnership, joint venture, business trust, public benefit corporation, nonprofit entity, other private business entity, or combination thereof.

“Proposal” means a plan for a qualifying project submitted by a

private partner with detail beyond a conceptual level for which all terms determined to be necessary by the responsible public entity, including costs, payment schedules, financing, deliverables, and project schedule, are defined.

“Qualifying Project” means any public facility or infrastructure or improvement to any public facility or infrastructure that is used or will be used by the public at large or in support of a public purpose or activity including, but not limited to, civic or education facilities; surface transportation facilities such as roads, bridges, public transit systems, ferry and port facilities, airports, and intermodal systems; cultural or recreational facilities; medical facilities; utility facilities; and telecommunications facilities.

“Responsible Public Entity” means the state or any agency or authority thereof; a county, municipality, school board, or any other political subdivision of the state or combination of entities; a public body corporate and politic; or a regional entity that serves a public purpose and is authorized to develop or operate a qualifying project.

“Revenues” means all revenues including income; earnings; dedicated tax revenues; fees; lease payments; federal, state, and local appropriations or the appropriations of other funds available to any political subdivision, authority, or instrumentality thereof; bond proceeds; equity investments, service payments, or any combinations thereof arising out of or in connection with supporting the development or operation of a qualifying project, including money received as grants or otherwise from the United States of America, from any public entity, or from any agency or instrumentality of the foregoing in aid of such a qualifying project.

## **Section 2. Office of Infrastructure Investment**

**A.** There shall be established an Office of Infrastructure Investment reporting to the Governor and independent of other agencies and departments of the state. The Office shall be headed by an

Executive Director, appointed by the Governor for a fixed term of five years, who shall have demonstrated knowledge, training, or experience in one or more of the following areas:

1. Infrastructure development or operation;
2. Capital markets and finance, including municipal finance;
3. Public-sector planning; or
4. Procurement.

**B.** The Office shall:

1. Assist responsible public entities with identifying projects, including opportunities for project aggregation, for which a public-private partnership may be appropriate;
2. Provide technical assistance and expertise to responsible public entities on using public-private partnerships to develop or operate infrastructure projects, including analyzing their benefits and costs and the innovative financing options available to support them;
3. Supply template contracts;
4. Track proposed, ongoing, and completed private-public partnerships;
5. Identify methods of encouraging competition for the development or operation of infrastructure projects;
6. Serve as a liaison to federal government officials charged with promoting public-private infrastructure partnerships, other state Executive Directors of Infrastructure Investment and regional or metropolitan public-private partnership offices;
7. Conduct public and stakeholder engagement and outreach, including efforts to encourage transparency and information-sharing regarding public-private partnerships;

8. Create a process for updating, as necessary, the recommendations made by the task force pursuant to Subsection (D), including a public comment period;
9. Promote best practices, including standardized methodologies and processes; and
10. Attract private investment in infrastructure to the state

**C.** The Executive Director shall provide to the standing committees of the Legislature having jurisdiction over transportation or infrastructure and post online a report annually within six weeks of the end of each fiscal year that:

1. Lists those public-private partnerships that —
  - a. are expected to be soliciting bids within the next fiscal year
  - b. are in progress,
  - c. were completed during the prior fiscal year, or
  - d. were removed from consideration during the prior fiscal year; and
2. Summarizes actions taken by the Office to fulfill its duties pursuant to Subsection (B) of this section.

**D.** The Executive Director, within three months of appointment by the Governor, shall convene a task force, which is directed to:

1. Make recommendations within one year of the task force convening, and following a period of public review, to responsible public entities on a uniform process for the review, solicitation, evaluation, award, and delivery of public-private partnerships, including:
  - a. A process for acceptance of unsolicited proposals by a responsible public entity;

- b. A specific schedule for review of unsolicited proposals by the responsible public entity that shall include public solicitation of additional proposals prior to entering a comprehensive agreement; and
- c. Timeframes and requirements for public outreach prior to entering into a comprehensive agreement on a selected proposal, whether solicited or unsolicited. Such timeframes and requirements shall provide for a reasonable period of public review and comment;

2. Determine a cost threshold for qualifying projects, depending on type of project and type of responsible public entity, to merit standardized screening pursuant to Subsection (H) of this section and independent audit pursuant to Subsection (D) of Section 4;
3. Make any recommendations to the Legislature and Governor on any changes to this act deemed necessary to carry out the purposes of this act; and
4. Terminate following public release of final recommendations required under this subsection.

**E.** The task force convened pursuant to Subsection (D) shall be composed of nine members, as follows:

1. The head of the department of the state with primary jurisdiction over economic development, who shall serve with the Executive Director as co-chairs of the task force; and
2. Seven members appointed by the Governor having expertise, knowledge, or experience in infrastructure development or operation, capital markets and finance, public-sector planning, or procurement, including:
  - a. One county government official,
  - b. One municipal government official,
  - c. One regional or district official,

d. Two representatives of the public interest, and

e. Two representatives of the business community.

3. Not more than five members of the task force shall be members of the same political party. Members of the task force shall represent geographically diverse regions of the state.

**F.** A responsible public entity shall follow the final recommendations of the task force with regard to any public-private partnership subject to this act, except that a responsible public entity may adopt guidelines for public-private partnerships other than those pursuant to Subsection (D)(1) of this section so long as such guidelines are not inconsistent with this act.

**G.** The Office shall coordinate with responsible public entities on state environmental reviews and permitting for all qualifying projects subject to this act. As soon as practicable, and not later than the commencement of a comprehensive agreement, the responsible public entity shall identify all necessary state permits, and in consultation with the Office and relevant state offices and departments, shall create a timeline for review and issuance of such permits. The Office shall maintain on its website a listing of projects under this section for which state permits are delayed more than 90 days past the deadline specified in the timeline and post an official explanation for the delay which shall come from the office in charge of approving the permit, or link to public websites containing such information.

**H.** For qualifying projects with an estimated cost meeting the threshold determined by the task force pursuant to Subsection (D) (2) of this section, the Office, in coordination with the responsible public entity, must assess through a standardized screening process whether a public-private partnership may provide a greater value added than traditional procurement.

### **Section 3. Government Agreements**

**A.** The responsible public entity may, either separately or in combination with any other public entities, enter into working agreements, coordination agreements, or similar implementation agreements, including the formation of bi-state or multistate organizations, to develop or operate a qualifying project subject to the requirements of this act. These agreements must conform to any relevant state laws.

### **Section 4. Procurement**

**A.** The responsible public entity may request proposals from private partners for the development or operation of a qualifying project under one or more of the project delivery methods described in Section 8. The responsible public entity shall not charge a fee to cover the costs of processing, reviewing, and evaluating proposals received in response to such a request.

**B.** A private partner may request approval by a responsible public entity of an unsolicited proposal using one or more of the project delivery methods described in Section 8 and in conformance with all recommendations made by the task force under Subsection (D)(1) of Section 2 or any alternative guidelines adopted by a responsible public entity pursuant to Subsection (F) of Section 2. A responsible public entity may charge a reasonable fee to cover its costs to process and review unsolicited proposals.

**C.** Upon submitting a proposal, a private partner shall identify those portions of a proposal that the partner considers to be a trade secret or confidential commercial, financial, or proprietary information and provide any justification as to why these materials, upon request, should not be disclosed by the responsible public entity. A private partner shall fully comply with any applicable state laws for such materials to be exempt from disclosure. Patent information will be covered until the patent expires. Other information such as originality of design or records of negotiation may only be protected under this section

until a comprehensive agreement is reached. Projects under federal jurisdiction or using federal funds must conform to federal regulations under the Freedom of Information Act.

- D.** For any selected proposal for a qualifying project with an estimated cost meeting the threshold determined by the task force pursuant to Subsection (D)(2) of Section 2, the responsible public entity shall obtain an independent audit of the proposed private-public partnership, including an assessment of projected usage and public costs, before the comprehensive agreement is executed. The analysis shall be disclosed to the public prior to execution of a comprehensive agreement, subject to the limitations described in Subsection (C).
- E.** The responsible public entity may apply for local, state, or federal credit assistance, or endorse such applications submitted by private partners, for qualifying projects to be developed or operated pursuant to a comprehensive agreement.
- F.** Consultants and experts may be engaged at any point to assist in the evaluation, negotiation, development or operation of qualifying projects.

### **Section 5. Finding of Public Interest**

- A.** The responsible public entity may enter into a comprehensive agreement for the development or operation of a qualifying project only after the chief executive officer of the responsible public entity makes a finding of public interest and regional plan compatibility. Such a finding shall, at a minimum, consider the following:
  1. Benefits to the public;
  2. Advantages or disadvantages of developing or operating the qualifying project as a public-private partnership versus a traditional procurement, including the anticipated cost over the project life-cycle, adjusted for risk and risk transfers;
  3. Sources of funding and financing for the qualifying project;

4. General reputation, qualifications, industry experience and financial capacity of the private partners;
5. Proposal's compatibility with regional infrastructure plans; and
6. Other criteria that the responsible public entity deems appropriate.

- B.** The responsible public entity shall publicly disclose all findings of public interest and regional compatibility made pursuant to the requirements of Subsection (A) in a public report, which shall include a detailed discussion of all considerations on which the findings are based subject to the limitations outlined in Subsection (C) of Section 4 and be followed by a reasonable period of public comment before execution of a comprehensive agreement.

### **Section 6. Notice to Affected Jurisdictions Regarding Unsolicited Proposals**

- A.** Prior to entering into a comprehensive agreement resulting from an unsolicited proposal, the responsible public entity shall notify affected jurisdictions by furnishing a copy of the proposal to each affected jurisdiction.
- B.** Each affected jurisdiction that is not the responsible public entity may, within 60 days after receiving the notice, submit in writing any comments on the project's potential impact or compatibility with local and regional budgets and infrastructure plans to the responsible public entity.
- C.** The responsible public entity shall consider the comments of the affected jurisdictions before entering into a comprehensive agreement with a private partner.

### **Section 7. Public-Private Partnership Agreements**

- A.** Interim Agreements. Before or in connection with the negotiation of a comprehensive agreement, the responsible public entity may

enter into an interim agreement with the private partner that submitted the selected proposal. An interim agreement shall not obligate the responsible public entity to enter into a comprehensive agreement. The interim agreement is discretionary with the parties and is not required on a qualifying project for which the parties may proceed directly to a comprehensive agreement without the need for an interim agreement. An interim agreement shall only:

1. Authorize the private partner to commence activities for which it may be compensated related to the proposed qualifying project, including, but not limited to, project planning, advance right-of-way acquisition, design and engineering, environmental analysis and mitigation and ascertaining the availability of financing for the proposed facility; and
2. Establish the process and timing of the negotiation of the comprehensive agreement.

**B.** A responsible public entity may enter into an interim agreement with multiple private partners if the responsible public entity determines in writing that it is in the public interest to do so.

**C.** Comprehensive Agreements. Prior to developing or operating a qualifying project, the private partner that submitted the selected proposal shall enter into a comprehensive agreement with the responsible public entity. Comprehensive agreements, in addition to other contract terms stipulating the obligations of the parties, must include:

1. Descriptions of which party will assume responsibility for specific project elements and when;
2. How the parties will share management of the risks of the project;
3. How the parties will share costs of development or operation of the project;
4. How the parties will allocate financial responsibility for cost overruns;

5. Any safeguards to mitigate additional costs or service disruptions to the public in the event of material default or cancellation of the agreement;
6. Performance standards and any damages for nonperformance;
7. Any performance incentives;
8. Accounting and auditing standards to be used to evaluate work on the project;
9. For a project that reverts to public ownership, the responsibility for reconstruction or renovations required for a qualifying project to meet all applicable government standards upon reversion to the state; and
10. Such other terms and conditions agreed to mutually by the responsible public entity and private partner.

**D.** The comprehensive agreement shall provide for such fees as may be established by agreement of the parties.

**E.** The comprehensive agreement shall contain a provision by which a private partner expressly agrees that it is prohibited from seeking injunctive or other equitable relief to delay, prevent or otherwise hinder the responsible public entity or any jurisdiction from developing or operating any project that was planned and that may impact the revenue that the private partner may derive from the qualifying project under a public-private partnership, except that the comprehensive agreement may provide for reasonable compensation to the private partner for the adverse effect on revenues resulting from an unplanned revenue impacting project.

## **Section 8. Project Delivery Methods**

**A.** Subject to the requirements of this act, the responsible public entity may utilize any project delivery method or agreement or combination of methods or agreements to develop or operate

a qualifying project including but not limited to: a design-build agreement; a design-build-maintain agreement; a design-build-finance-operate agreement; a design-build-operate-maintain agreement; a design-build-finance-operate-maintain agreement; and a concession providing for the private partner to design, build, operate, maintain, manage, or lease a qualifying project.

## **Section 9. Eligible Funding and Financing**

**A.** Any financing of a qualifying project may be in such amounts and upon such terms and conditions as may be determined by the parties to the interim or comprehensive agreement. The private partner and responsible public entity may utilize any and all revenues that may be available to them for the purposes of this act and may, to the fullest extent permitted by applicable law:

1. Issue debt, equity, or other securities or obligations;
2. Enter into leases, concessions, and grant and loan agreements;
3. Access any designated state funds;
4. Borrow or accept grants from any state infrastructure bank; and
5. Secure any other financing with a pledge of, security interest in, or lien on any or all of its property, including all of its property interests in the qualifying project.

**B.** The responsible public entity may take any action to obtain federal, state, and/or local assistance for a qualifying project that serves the purpose of this act and may enter into contracts required to receive such federal assistance. To the fullest extent allowed by law, federal, state, and local monies may be combined with any private sector monies for any project purposes.

**C.** The private partner and responsible public entity are authorized to acquire right-of-way by any means allowable under applicable federal and state constitutional, legal and regulatory requirements.

# Appendix C. Highlighted Infrastructure Case Studies



## Chicago Skyway Bridge

The Chicago Skyway Bridge is a 7.8-mile toll road built in 1958 to connect the Dan Ryan Expressway to the Indiana Toll Road. In 2013, it recorded an average daily traffic of 41,249 vehicles. It was privatized in 2005, the first privatization of an existing toll road in the U.S. It is currently owned and operated by the private consortium “Skyway Concession Company, LLC” which consists of a partnership between Cintra Infraestructuras S.A. and Macquarie Group.



## Dulles Greenway

The Dulles Greenway is a 14-mile toll road connecting Washington Dulles International Airport with Leesburg, Virginia. The toll road opened in 1995 and is still operational today. The road is the result of a design-build-finance-operate-manage agreement between the private partner, Macquarie Group Limited, who will cede control of the Greenway back to the public partner in February 2056, and the state government of Virginia. Toll increases are regulated by Virginia’s State Corporation Commission and subject to annual increases as prescribed in the Virginia Highway Corporate Act of 1988.



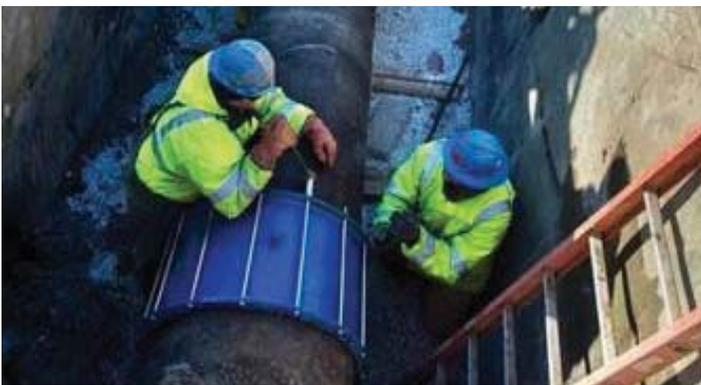
## Fairview Township Wastewater System

In late 2015, Fairview Township sold its wastewater system to Pennsylvania American Water (a subsidiary of American Water Works) for \$16.8 million. This decision helped to pay off \$21 million in existing sewer debt, avoided additional debt (approximated at \$14 million), and allowed property taxes to be cut by 50%. Pennsylvania American Water will invest \$13 million in capital improvements, as well as up to \$1 million in reimbursement for the relocation of a sewer line. The system serves approximately 4,000 customers in Pennsylvania.



### **Goethals Bridge Replacement**

The current Goethals Bridge connects Staten Island, New York to Elizabeth, New Jersey and is a critical access point for commuters and freight carriers alike as one of the three bridges connecting Staten Island to the mainland. The bridge is 85 years old and functionally obsolete. The lanes were built to a 10-foot standard (versus today's 12-foot standard) and there are only two lanes of traffic in each direction with no pedestrian or bicycle access. The replacement bridge will have six 12-foot lanes, outer and inner shoulders, a pedestrian/bike path, and accommodations for future public transit. The replacement bridge will also have new structural standards, seismic protections, and smart bridge technology. The project delivery method is a design, build, finance, and maintain structure. Construction began in May 2014, and projected completion is for late 2018. The new bridge will be constructed alongside the old one, and the project will conclude with the demolition of the old Goethals Bridge.



### **Haddonfield Water and Wastewater System**

On May 21, 2015, New Jersey American Water (a subsidiary of American Water) formally acquired Haddonfield Borough's water and wastewater system for \$28.5 million. The decision was approved by public referendum. The private company intends to invest \$16 million into system modernization by 2025.



### **I-35W St. Anthony Falls Bridge**

The new St. Anthony Falls Bridge is a 1,216-foot-long, 10-lane concrete bridge in downtown Minneapolis. Following the deadly collapse of the old I-35W Mississippi River bridge in August 2007, the Minnesota Department of Transportation (MnDOT) used design-build procurement to contract with a Flatiron/Mason joint venture for a \$234 million replacement bridge. The new bridge, designed for a 100-year life span, was completed three months ahead of schedule in September 2008.



### **Indiana Toll Road**

Located on the northern edge of the state, the Indiana Toll Road was privatized in an agreement between the state of Indiana and the ITR Concession Company LLC., owned by Spanish infrastructure company Ferrovial SA and Australian investment bank Macquarie Group Ltd. In the agreement, the ITR, a 157-mile East-West Toll Road that directly connects the Chicago Skyway to the Ohio Turnpike was leased to the concessionaire for a period of 75 years.



### **Indianapolis Justice Center**

The proposed Indianapolis Justice Center would have consolidated county jails, courts, and administrative offices. The procurement process was run by the city under the leadership of Mayor Greg Ballard. In December 2014, after an 18-month procurement process, the city selected a team led by Meridiam Infrastructure to design, build, finance, operate, and maintain the justice center in exchange for a fixed annual payment from the city. All that was needed to move forward was sign-off from the city council, assumed by many to be a pro forma step. But in a stunning move a committee of the council voted 6-2 against the project, raising questions about the financial package. A team of private companies had spent months preparing bids and millions of their own dollars, only to be sent packing.



### **Long Beach Courthouse**

The Long Beach Courthouse, named after Governor George Deukmejian, was the first major civic building in the U.S. to be delivered through a performance-based infrastructure P3, in which the developer makes the initial investment and the public sector makes payments once the building is occupied. The major stakeholders were the Administrative Office of the Courts and Long Beach Judicial Partners, the parent company of the consortium of companies involved in the design and construction process. The new building, opened in September 2013, is 531,000 square feet and houses 31 courtrooms. It also achieved LEED Gold Certification, despite only initially planning for Silver, with no additional costs.



### Maryland Purple Line

The Purple Line, a 16-mile light rail line from Bethesda to New Carrollton in the Maryland suburbs of Washington, D.C., will be designed and constructed from 2016-2021, with service projected to begin in 2022. Maryland Department of Transportation and Maryland Transit Administration will partner with Purple Line Transit Partners, a joint venture between Meridiam, Fluor, and Star America. These partners will provide the equity investment for the project, and will be paid availability payments over an approximately 30-year term of operation and maintenance.



### Metro Region Freeway Lighting

As of August 2015, less than 70 percent of freeway lights in the Detroit metro area were properly functioning, a serious safety and visibility concern. Additionally, 87 percent of the old freeway lights were high-pressure sodium or metal halide fixtures, which are not energy efficient. To solve this problem, the Michigan Department of Transportation entered into a 15-year public-private partnership with Freeway Lighting Partners to replace approximately 15,000 lights in the Detroit metro area with energy-efficient LEDs, and maintain 98 percent functionality of the lights after two years. This is the first public-private partnership on a freeway lighting project in the U.S.



### Northwest Corridor

The Northwest Corridor project will expand 29.7 miles of I-75 in the Atlanta region. This is Georgia's first P3 and the most expensive highway project in the state's history, at \$900.6 million. Construction began in 2014 and the roadway is projected to open in 2018. The project is a design-build-finance agreement facilitated by Georgia's P3 Program. The Northwest Corridor roadway will remain owned and operated by the state. The private partner, Northwest Express Roadbuilders, fulfils design, construction, and limited financing.



### **Oakland Airport Connector**

The Oakland Airport Connector is a 3.2-mile extension of the Bay Area Rapid Transit system that travels from Coliseum Station to Oakland International Airport via a new, driverless, Automated Guideway Transit system. Planning for the project began in 1970, with planning and authorization continuing until 2009, when the design-build contract was approved. The purpose of the OAC is to link the BART system with the Oakland International Airport with the intent of making the area more desirable for business and travel. The OAC opened in November 2014.



### **Pennsylvania Rapid Bridge Replacement**

In 2012, the state of Pennsylvania enacted Act 88 for P3s to be used to help fulfill transportation infrastructure projects. This Act created the P3 Board of the Department of Transportation, which signed the contracts for the Rapid Bridge Replacement Project. The project will rebuild 558 small bridges throughout the state starting in 2015 and finishing by the end of 2017. The major parties to this contract are PennDOT and the master contractor, Plenary Walsh Keystone Partners, a consortium of companies specializing in big infrastructure projects that are delivering financing and long-term project management while contracting with local construction companies.



### **Phoenix Water Treatment Plant**

The Lake Pleasant Water Treatment Plant in Phoenix, Arizona is the largest Design-Build-Operate water project in North America, and has the capacity to serve 400,000 homes. The City of Phoenix partnered with American Water Enterprises, Inc. (subsidiary of American Water), and a design-build joint-venture of Black & Veatch and McCarthy. The public-private partnership model saved the city an estimated \$30 million. Construction lasted from 2003-2007, and American Water professionals will continue to operate and maintain the plant until 2022, with the option for a five-year extension.



### **Port of Miami Tunnel**

The Port of Miami Tunnel was built through a public-private partnership that includes the design, construction, finance, operation, and maintenance of the project. The Florida Department of Transportation (FDOT) is the owner and worked with Miami Access Tunnel Concessionaire (MAT), the private consortium partner led by Meridiam Infrastructure. FDOT named MAT the Best Value Proposer in 2007 and the partners closed the deal in October 2009. Construction began in May 2010 and tunnel mining began in November 2011. The project was open to the public in August 2014.



### **Portland Airport MAX Red Line**

The Portland Airport MAX Red Line, located in Portland, Oregon, is a light rail line that connects Downtown Portland to the Portland International Airport. It was financed and constructed through a P3 agreement, and is operated by TriMet, Portland's regional transit agency. It opened to the public in September 2001, and now provides more than 8 million trips per year, with 3,200 people getting on or off at the Portland Airport stop each weekday.



### **Rialto Water Utility**

The City of Rialto, California and Rialto Utility Authority entered into a 30-year public-private water and wastewater concession with Rialto Water Services, LLC, jointly owned by Table Rock Capital and an affiliate of Ullico. Veolia Water North America (a subsidiary of Veolia Water) will manage the city's water and wastewater systems. Veolia had already been operating Rialto's wastewater systems for the past decade. The 30-year lease was valued at approximately \$300 million for Veolia Water. The City of Rialto received an upfront payment of \$35 million for economic development projects, in addition to a \$41 million capital improvement program to update aging facilities.



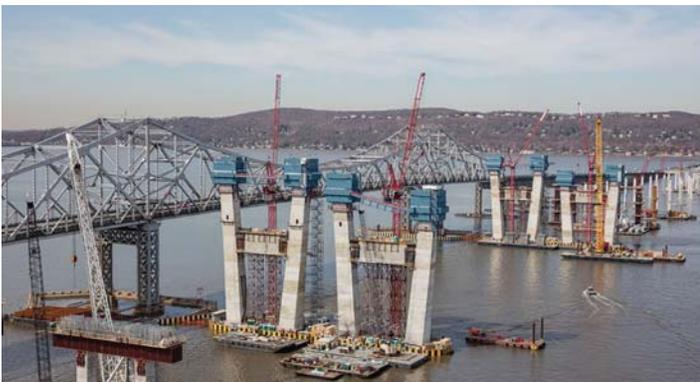
### San Juan Airport

Luis Muñoz Marín International Airport (SJU) in San Juan, Puerto Rico, was privatized in 2013 through the U.S. Federal Aviation Administration Airport Privatization Pilot Program. The partners involved included the public airport owner, Puerto Rico Ports Authority, the Puerto Rico P3 Authority, and Aerostar — a 50-50 venture between Highstar Capital, an infrastructure investor, and Grupo Aeroportuario del Sureste SAB de CV, which operates nine airports in Mexico. The process took four years to complete and resulted in a 40-year lease under the Aerostar name.



### Seagirt Marine Terminal

The Port of Baltimore is ranked 9th in the U.S. for total foreign import/export value at \$52.4 million. In 2014, the port moved 9,676,355 tons of cargo, well above pre-recession levels. In mid-2014, the Panama Canal was set to expand, allowing passage of bigger, Super-Post-Panamax cargo ships, and a berth expansion would make the Port of Baltimore one of only two East Coast ports that could handle the new ships. However, Maryland's State Transportation Trust Fund was depleted, and so private capital was sought. The P3 agreement to lease the 284 acre Seagirt Marine Terminal was entered into in 2010, and the cranes and deep berth construction were delivered by 2012, two years ahead of schedule.



### Tappan Zee Bridge Replacement

In 2013, a consortium of firms including Fluor and American Bridge began construction on the new Tappan Zee Bridge, under the terms of a design-build contract. The existing bridge was built in 1955 and increasingly costly to maintain. The new 3.1-mile toll bridge, which will carry I-87/287 over the Hudson River 20 miles north of New York City, is expected to cost \$3.98 billion. Apart from toll revenue bonds and notes, the project received a \$1.6 billion TIFIA direct loan. The environmental approval process took about 11 months instead of the usual multi-year process in part because it was fast-tracked as a “High Priority Project” by the Obama Administration.



### **US-36 Express Lanes**

Connecting Denver and Boulder, the section of US-36 first opened as a toll road in 1951. Its tolls paid back its construction and the toll booths were removed in 1968. In the decades since, the highway has carried increasing numbers of cars as the region grew. The Colorado Department of Transportation improved the roadway using a P3 approach. Phase 1, which covered the first ten miles of project, was completed using a design-build contract and opened in summer 2015, and Phase 2, which covered five more miles and used a DBFOM model, was completed at the end of that year. Improvements included an HOV-toll lane in each direction, multiple bridge replacements, BRT accommodations, and a bikeway.

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