Expanding our Nation's Infrastructure through Innovative Financing

U.S. Department of the Treasury
Office of Economic Policy

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I. Infrastructure Investment and Our Economy

On July 17, President Barack Obama launched the Build America Investment Initiative. The initiative is designed to expand private investment and collaboration in major infrastructure sectors. The President recognizes that high quality and reliable infrastructure is essential to our economy and our quality of life. A highly interconnected and dependable transportation network helps commuters get to work, moves consumer goods to market at a lower cost, and enables U.S.-based firms to sell goods competitively both domestically and internationally. A reliable electrical grid powers our factories and offices and keeps the lights on so city streets are safer and students can study at night. Well-run and maintained water infrastructure gets healthy drinking water into American homes at low cost and prevents rainwater from flooding our streets.

Our nation needs to continually modernize and maintain our infrastructure to make the United States an attractive place for businesses to operate and for people to live. When CEOs are deciding where to locate new operations, they need to have the confidence that roads are efficient, railways can move their products, and ports are deep enough to meet the requirements of today's global economy. They need reliable power and broadband, and want their employees to have access to services that are essential to a high quality of life. If we fail to provide and maintain adequate infrastructure, the consequences will be severe: fewer jobs will be created, and some may be lost; paychecks will not go as far because Americans will pay more for goods and services; and traffic jams, potholes, and water main breaks will lead to longer commutes, higher greenhouse gas emissions, and lower quality of life.

The costs of underinvestment in infrastructure are massive. Drivers in the United States annually spend 5.5 billion hours in traffic resulting in costs of $120 billion in fuel and lost time.[1] U.S. businesses pay $27 billion in additional freight costs because of the poor conditions of roads and other surface transportation infrastructure.[2] The electric grid's low resilience leads to weather-related outages that cost the U.S. economy between $18 billion and $33 billion each year, on average.[3] Due to continuing deterioration of water systems throughout the United States, each year there are approximately 240,000 water main breaks resulting in property damage and expensive service interruptions and repairs.[4]

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[1] National Economic Council and President's Council of Economic Advisors. *An Economic Analysis of Transportation Infrastructure Investment*. Washington, D.C.: The White House, 2014. http://www.whitehouse.gov/sites/default/files/docs/economic_analysis_of_transportation_investments.pdf.

[2] Ibid.

[3] President's Council of Economic Advisors, U.S. Department of Energy, and White House Office of Science and Technology. *Economic Benefits of Increasing Electric Grid Resilience to Weather Outages*. Washington, D.C.: The White House, 2013. http://energy.gov/sites/prod/files/2013/08/f2/Grid%20Resiliency%20Report_FINAL.pdf.

[4] "Aging Water Infrastructure," United States Environmental Protection Agency: Science Matters Newsletter, http://www.epa.gov/sciencematters/april2010/scinews_aging-water-infastructure.htm.

Despite the high costs imposed by insufficient or rundown infrastructure, outlays for both capital investment and operations and maintenance (measured as a percent of GDP) made by all levels of government in transportation and water infrastructure have declined sharply in recent decades.[5] The decline became sharper in recent years, particularly in public spending on drinking and wastewater projects, which declined by 23 percent from 2006 to 2013.[6]

Infrastructure investment not only creates jobs and economic growth over the longer run; it creates jobs in the near-term in the construction sector and beyond. In an economy that is producing at less than full potential, infrastructure related jobs represent a net increase in employment rather than a reallocation of labor across industries. A recent analysis by the President's Council of Economic Advisors and the National Economic Council suggests that investment in transportation infrastructure would lead to strong job growth in the construction industry – where the July unemployment rate of 7.5 percent was well above the national rate – as well as in manufacturing, retail trade, and professional and business services.[7]

But not every infrastructure investment offers the same long-term economic gains. Just as a company carefully selects business investments, we should consider the economic returns when selecting our infrastructure investments and prioritize high return investments, as well as new projects projected to have substantial regional and national impact. Recent economic research argues that transportation investment should focus on increasing capacity on routes with persistent congestion, surface connections to international ports and airports, and commuter corridors into our cities. All of these improvements would move people to work and goods to market faster and at lower cost.[8] Research also emphasizes the importance of investments to keep our existing infrastructure stock in a good state of repair.[9]

Historically, U.S. road and water infrastructure[10] has predominately been supplied by state or local governments because of their abilities to raise revenue and spend it on overcoming market failure, in this case a suboptimal level of infrastructure financing.[11] Public water systems arose to address waterborne diseases in the interest of public health. The benefit to a city of reducing the incidence of cholera, for example, exceeds the cost of the water system. If the cost of the system, however, exceeds the aggregate willingness or ability of private citizens to pay for it, it

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[5] Bosworth, Barry and Sveta Milusheva. "Innovations in U.S. Infrastructure Financing: An Evaluation," *The Brookings Institution and the Nomura Foundation Conference on the Global Economy after the Tohoku Earthquake* (2011), http://www.nomurafoundation.or.jp/data/20111107_Barry_Bosworth-Sveta_Milusheva_000.pdf.

[6] Authors' calculations using Census Bureau data.

[7] National Economic Council and President's Council of Economic Advisors. *An Economic Analysis of Transportation Infrastructure Investment*. Washington, D.C.: The White House, 2014. http://www.whitehouse.gov/sites/default/files/docs/economic_analysis_of_transportation_investments.pdf.

[8] Eddington Transport Study, volume 3. http://webarchive.nationalarchives.gov.uk/20090104005813/http:/www.dft.gov.uk/about/strategy/transportstrategy/eddingtonstudy/.

[9] Gramlich, Edward, "Infrastructure Investment: A Review Essay," *Journal of Economic Literature*, Vol. 32, No. 3 (1993), pp. 1176-1196.

[10] Water infrastructure is local primarily because these are utilities that have local water and sewer rate bases.

[11] Jacobson, Charles D. and Joel A. Tarr, "Ownership and Financing of Infrastructure: Historical Perspectives," World Bank Policy Research Working Paper 1466, 1995.

would not be built in the absence of government intervention.[12] Moreover, government has a cost advantage in building roads as it can use eminent domain to secure rights-of-way. Nevertheless, despite state and local government provision of infrastructure, underinvestment still persists.

The need to reverse years of this underinvestment in infrastructure, despite tighter budgets at every level of government, calls for us to rethink how we pay for and manage infrastructure. As a starting point, in some instances, one response is to increase investment in our nation's public infrastructure. With respect to surface transportation infrastructure, for example, the Administration proposes to increase investment over current levels through a $302 billion, four-year reauthorization package that will provide funding certainty to communities across the country; support millions of American jobs repairing and modernizing our roads, bridges, and transit systems; help ensure that American businesses can compete effectively in the global economy; and pave the way forward by increasing access to the ladders of opportunity that help Americans get ahead.

While private investment is not a substitute for government spending on infrastructure, we can better achieve a state-of-the-art infrastructure network by expanding the sources of investment and using those dollars, whether public or private, as effectively as possible. That's why President Barack Obama announced the Build America Investment Initiative. The initiative calls for the Secretaries of the Treasury and Transportation to lead a working group to analyze how to increase public and private sector collaboration in infrastructure development; expand appropriate use of private sector infrastructure financing; and achieve gains in productivity, efficiency, and resilience. Today, the Department of the Treasury, in collaboration with the Department of Transportation, is hosting an infrastructure summit to discuss challenges and opportunities in infrastructure with state and local government officials; private investors in infrastructure; representatives from labor organizations, public pension funds, and other institutional investors; and other relevant experts and stakeholders.

II. Public and Private Infrastructure Co-Exist in the United States

Many Americans associate the word "infrastructure" with an interstate highway or bridge, paid for and maintained by government, yet we also rely on privately-owned infrastructure every day. Nearly three-fourths of households in the United States are supplied with electricity by private, investor-owned utilities whose rates are regulated by public utility commissions. Likewise, the landline and cellular telecommunications networks in the United States are owned by private firms regardless of whether the services provided are local, long distance, mobile, or broadband. Private companies also own interstate oil and natural gas pipelines in the United States, although the rates they set, among other practices, are regulated by the Federal Energy Regulatory Commission (FERC). Finally, the railroad freight industry is privately owned and operated; however, recently there has been increased public-private cooperation in freight rail investment.

[12] Glaeser, Edward, *Triumph of the City: How our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier and Happier* (New York: Penguin Press, 2012).

These sectors illustrate that private ownership of infrastructure assets in the United States is not new.

Americans have become accustomed to government provision of our roadway, transit, water supply, and wastewater treatment systems, and private sector provision of electrical power, telecommunications, and freight rail. In fact, international experience demonstrates that many kinds of infrastructure that are publicly provided in the United States can be privately owned or managed. For example, in the United Kingdom (UK), all of the urban water supply infrastructure is owned by the private sector and all three major London airports- Heathrow, Gatwick, and City Airport- are privately owned and operated. Privately managed highways are common in Canada and Europe,[13] and Hong Kong's transit system is likewise privately managed.

The line separating public from private infrastructure is not always clear. Even for infrastructure projects like roads and schools, which are traditionally owned by the public sector, state and local governments have long obtained private debt financing through a well-developed municipal bond market that is unique to the United States. More recently, some state and local governments have entered into public-private partnerships (PPPs) to provide and manage infrastructure which has traditionally been supplied solely by the public sector. PPPs bring private sector capital and management expertise to the challenges of modernizing and more efficiently managing such infrastructure assets. Under a PPP, a government contracts with a private firm to design, finance, construct, operate, and maintain (or any subset of those roles) an infrastructure asset on behalf of the public sector. When the private sector takes on risks that it can manage more cost-effectively, a PPP may be able to save money for taxpayers and deliver higher quality or more reliable service over a shorter timeframe. Just as there is a range of roles that a private firm or firms can take on in a PPP, the nature of risk-sharing and compensation arrangements for bearing and managing risk can vary substantially from project to project and is governed by contract.

While other advanced economies, including Australia, Canada, and the UK already rely heavily on PPPs to secure private financing for infrastructure, the role of PPPs in the U.S. market is limited but growing. One reason for the limited PPP market is a well-developed municipal bond market that is unique to the United States. Access to low cost, tax-exempt bond financing for projects exclusively owned and operated by state and local governments has discouraged those governments from seeking private equity financing. Examples of PPPs in the United States include the Denver FasTracks commuter and light rail project in Colorado, the Goethals Bridge reconstruction project linking New York City and New Jersey, and the Bayonne Water Joint Venture LLC project, a water and wastewater PPP in New Jersey.

[13] Library of Congress, *National Funding of Road Infrastructure: Canada*, by Tariq Ahmad. (Washington, D.C.: 2004) http://www.loc.gov/law/help/infrastructure-funding/canada.php#Public.

III. U.S. Market for Infrastructure Finance

Infrastructure in the United States is funded by a combination of tax revenue and user fees. The great majority of publicly owned infrastructure assets are currently financed by i) federal grants and loans, state and local expenditures, and municipal bonds, and are therefore ultimately funded by *tax revenues*;[14] and ii) revenue bonds backed by *user fees*, such as tolls, fees and charges, generated by enterprise systems such as toll roads, water and sewer systems, airports and public power utilities. Generally, financing is shared across levels of government, with the relative size of the federal, state, and local governments' role varying by infrastructure sector.

The federal government funds highway construction primarily with grants, while it subsidizes drinking water and wastewater projects with low-interest loans. The Federal-Aid Highway Program (FAHP) funds 80 percent of the costs for Interstate System and non-Interstate System projects, approximately, with states covering the remaining costs. On Friday, August 8, President Obama signed a $10.8 billion measure that will keep the Highway Trust Fund authorized through May 2015.[15] Without this short term "patch", the Department of Transportation estimated that the Highway Account of the Highway Trust Fund would have become insolvent by the end of August.[16] While this measure maintains funding through the coming months, there remains significant long-term uncertainty about future surface transportation funding levels. Administered at the state level, the EPA's Drinking Water State Revolving Fund (DWSRF) and Clean Water State Revolving Fund (CWSRF) provide low interest loans for drinking water and wastewater infrastructure projects, respectively.

State and local governments in the United States have used municipal bonds to finance infrastructure for nearly two centuries. Since enactment of the first modern federal income tax in 1913, interest on municipal bonds has been exempt from federal income tax. The interest income is also exempt from state and local income taxes in the jurisdiction where issued.[17] This tax-advantaged debt instrument, together with equity contributed in the form of government grants, state and local expenditures, or some combination, translates to a lower cost of capital compared with private debt and equity. While access to financing at the state or local level exists in certain forms among some countries internationally, the U.S. municipal market is by far the most developed of its kind in the world. It facilitates easy access to decentralized capital planning, financing, and execution in our federal system of government.

Municipal debt outstanding currently totals $3.7 trillion.[18] While this debt is widely dispersed among nearly 44,000 distinct state and local government issuers,[19] the largest 50 issuers account

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[14] Greater reliance on innovative financing through PPPs and other methods will likely shift more of the funding burden from taxpayers to users of infrastructure services.

[15] Justin Sink, "Obama signs $10.8B highway bill," The Hill, August 8, 2014. http://thehill.com/blogs/blog-briefing-room/news/214755-obama-signs-highway-bill.

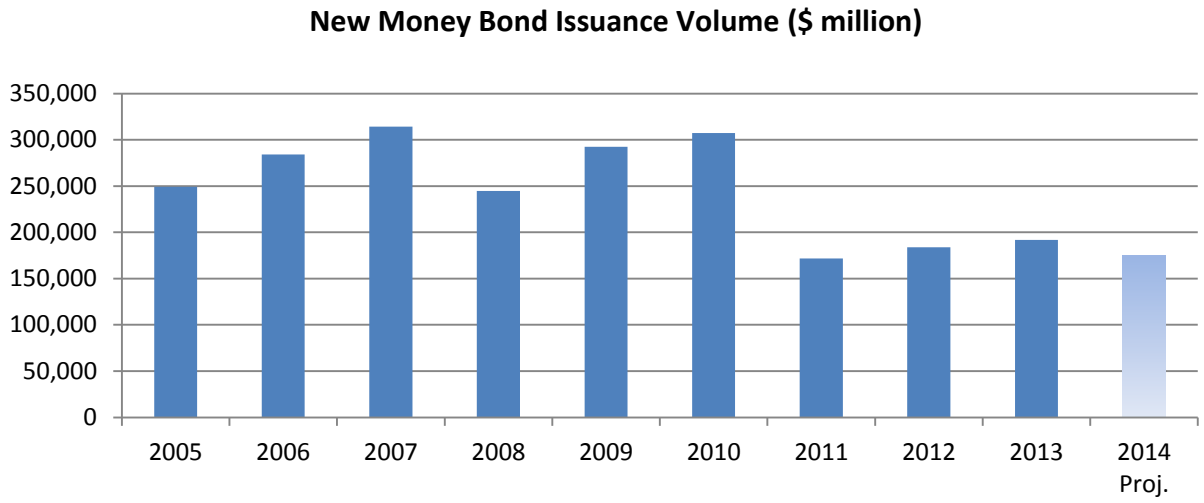
[16] United States Department of Transportation: *Highway Trustfund Ticker*. http://www.dot.gov/highway-trust-fund-ticker

[17] Furthermore, some state tax laws also exempt interest from municipal bonds issued in other states.

[18] This includes borrowing by non-governmental entities, such as 501(c)(3) hospitals. http://www.sec.gov/news/studies/2012/munireport073112.pdf.

for 25 percent of par outstanding.[20] The vast majority of issuers have relatively small amounts of debt outstanding and issue debt in small lots. For example, the average municipal bond issuance in 2013 was less than $25 million.

Consistent with trends in the nation's overall infrastructure spending, municipal bond issuance to finance new projects has generally declined over the past decade, with the exception of the 2006-2007 credit bubble and 2009-2010, when American Recovery and Reinvestment Act (ARRA) incentives and programs caused issuance to increase temporarily.



Note: 2014 projected issuance is annualized figure based on first 7 months of issuance.

Increasing fiscal pressures at all levels of government have led to reduced commitments for infrastructure and a greater reliance on debt financing which, in turn, has contributed to increased debt ratios and reduced debt service coverage levels for certain issuers. At the same time, stagnant economic growth and absence of support for new or increased user fees have curtailed increased debt capacity among many issuers. In aggregate, these trends present challenges to increasing infrastructure investment at all levels of government.

Infrastructure is typically financed in the municipal market on a "balance sheet" rather than a "project finance" basis. In other words, state or local governments use government-wide taxes, fees, or charges to provide repayment for infrastructure projects. For municipal enterprises that generate user fees, such as toll facilities, water and sewer systems, and airports, new projects are effectively subsidized by the revenues of the entire system. Equity contributions financed by taxing power, grants, budget appropriations, or the municipal enterprise's own net revenues

[19] U.S. Securities and Exchange Commission. *Report on Municipal Securities Market.* (July 2012). http://www.sec.gov/news/studies/2012/munireport073112.pdf.

[20] Data according to Bloomberg data, as of August 22, 2014. Bloomberg figure for total municipal debt outstanding is $3.5 trillion, slightly lower than previously cited $3.7 trillion.

effectively serve as credit enhancement and account for much of the higher credit quality of most municipal issuers compared to privately financed infrastructure assets.

Overall credit quality in the municipal market is very strong, with more than 95 percent of the rated outstanding state general obligation debt in the "AA" category or higher and only a small percentage of governmental purpose debt rated below "A."[21] With the exception of several notable recent examples, municipal defaults are rare compared to the corporate market. In 2013, only 0.107 percent of issuers defaulted, compared to 2.1 percent of corporate issuers.[22] Historically, this differential has been even higher: roughly 12 percent on the corporate side versus approximately 0.3 percent for municipal debt.

Unlike corporate debt, which is typically structured so that all principal is due on a single maturity date, municipal debt is almost always structured with annual principal repayments. Amortization schedules are generally structured with equal annual principal and interest payments over the useful life of the asset, which is typically 20 to 30 years. This structure is often dictated by state constitutional or statutory requirements, bond indenture covenants, rating agency credit standards, or several of the above. There is very little investor demand for tax-exempt debt with maturities beyond 35 years despite much longer asset lives for certain public infrastructure assets, including roads and water and sewer systems.

Municipal credit standards, covenants, disclosure obligations, and available financing terms are typically more flexible and advantageous to issuers than corporate and project finance requirements. Municipal debt is not subject to regulation by federal securities laws, except for anti-fraud provisions.

Because the interest is exempt from federal income tax and state and local income taxes, at least where issued, the universe of eligible municipal investors is generally limited to those who have U.S. income tax liabilities. For this reason, approximately three-fourths of all municipal bonds are held either directly by individual household investors or through their conduits, including bond funds, separately managed accounts, and trust departments. The remainder of the investor base is made up of property and casualty insurance companies and commercial banks (though tax rules limit holdings by these sectors). Cross-over buyers—investors that cannot benefit from tax exemption but, nevertheless, purchase municipal bonds when technical supply-demand conditions are attractive— represent a small but important pocket of the investor base. Many large, traditional investors in U.S. corporate and credit markets generally do not participate in the municipal market, including pension funds, life insurance companies, institutional money managers, and sovereign wealth funds.

Municipal debt offers states and local governments of all sizes reliable access to low-cost capital. However, there are certain limitations to the use of municipal bonds as a mechanism for investing in infrastructure.[23] Tax law limits private sector participation in public infrastructure

[21]Moody's Rating Methodology.
[22]Standard & Poor's Ratings Global Fixed Income Research.
[23] In general municipal debt is made up of governmental bonds, the proceeds of which are primarily used to finance governmental functions or which are repaid with governmental funds, and private activity bonds. Bonds can qualify

assets that will be financed with tax-exempt bonds. For example, an asset generally cannot be financed with municipal bonds if it has a private equity ownership component.[24] In addition, infrastructure assets that are financed with tax-exempt bonds are subject to significant limitations on the use of private sector maintenance and operation contracts. The finite investor base for tax-exempt bonds can contribute to illiquidity and a less efficient form of subsidy. As demonstrated by the Build America Bond program from 2009-2010, taxable bonds with a federal interest subsidy paid directly to issuers could offer an effective complement to the tax-exempt bond market by expanding the investor base and increasing the efficiency of the tax-exempt bond market.

IV. Innovative Infrastructure Financing

Notwithstanding the United States' deep municipal bond market, innovative financing for infrastructure investment is becoming increasingly important as public budgets continue to tighten at all levels of government. This section outlines the main methods of alternative financing today: PPPs, the Transportation Infrastructure Finance and Innovation Act (TIFIA), the Railroad Rehabilitation and Improvement Financing Program (RRIF), direct pay taxable bonds (such as Build America Bonds), tax-exempt qualified private activity bonds (PABs), and credit enhancement. PPPs can make use of many of the other alternative financing options, including using some combination of those resources.

In **public-private partnerships**, private equity investors fund a project, in whole or in part, in exchange for a return while also taking on some of the project's risks and responsibilities. PPP contracts allow governments to introduce private sector capital, management, and technical expertise into the project. When a PPP transfers risks to the private sector that it can manage more cost effectively, it creates value for taxpayers by lowering long-term project costs, improving the quality of services, or both. PPP investment remains a small part of total U.S. infrastructure investment, however. For example, between 2007 and 2013, $22.7 billion of public and private funds were invested in PPP transportation projects, but this amount represents only 2 percent of overall capital investment in the nation's highways during that same period.[25]

Private partners form a project company[26] to manage some combination of the infrastructure asset's design, construction, financing, operations, and maintenance. The project company receives equity investment from one or more of its own members, private equity infrastructure funds, or institutional investors. It may also finance capital outlays and operating expenses

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as tax-exempt governmental bonds if, despite significant private business use, the bonds are payable predominately from state or local governmental sources of payment, such as generally applicable taxes.

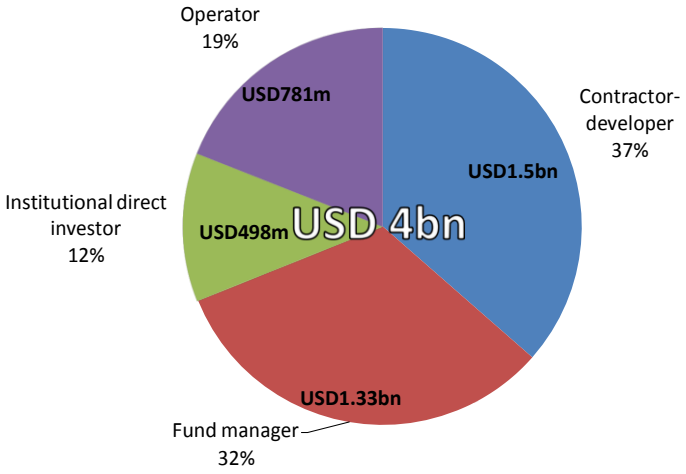
[24] State and local governments can also issue tax-exempt bonds to finance certain categories of privately used facilities. Generally, qualified private activity bonds (PABs) are subject to a number of restrictions that do not apply to governmental bonds, including annual volume caps and alternative minimum tax treatment.

[25] Fierce, Richard. Statement to the House, Committee on Transportation and Infrastructure. *Overview of Public and Private Partnerships in Highway and Transit Project,* Panel. March 5, 2014. http://transportation.house.gov/uploadedfiles/2014-03-05-fierce.pdf

[26] The project company is generally organized as a Special Purpose Vehicle.

through debt, either by obtaining a bank loan, issuing bonds, or seeking federal, state, or local funding subsidies or credit assistance. The figure below illustrates the shares of equity investment from different sources in recent U.S. PPPs.

Equity Committed by Investor Type in U.S. PPP Market (2008-2013)[27]



The **Transportation Infrastructure Finance and Innovation Act (TIFIA)** provides long-term, flexible financing to highway and transit projects that feature dedicated revenue sources. Each dollar of Federal TIFIA funding can support about $10 in loans, loan guarantees, or lines of credit.[28] TIFIA plays a significant role in financing surface transportation projects, including highway, transit, railroad, intermodal freight, and port access. The program focuses on attracting substantial private and other non-federal co-investment by providing supplemental and subordinate capital, and plays a significant role in transport PPP investment. In many cases, the lower cost of capital and flexible terms offered by TIFIA are critical factors in determining whether a PPP is a viable and cost-effective option for a project. For example, from 2008 to 2013, TIFIA accounted for about 23 percent of total PPP project value (and 35 percent of PPP debt).[29] With a recently expanded budget, the program can support approximately $9.2 billion in lending capacity in FY 2014, which translates into approximately $20 billion to $30 billion in total project value.[30] Eligible applicants for this credit assistance include state and local governments, transit agencies, railroad companies, as well as private entities.

[27] Peter Allison, InfraAmericas Managing Director. Welcoming remarks at InfraAmericas US P3 Infrastructure Forum, June 2013, New York.
[28] TIFIA also provides stand-by lines of credit that can cover up to 33 percent of project costs.
[29] Peter Allison, InfraAmericas Managing Director. Welcoming remarks at InfraAmericas US P3 Infrastructure Forum, June 2013, New York. About 45 percent of total TIFIA assistance during this period was PPP-related.
[30] MAP 21 legislation raised TIFIA's investment share from 33 percent to 49 percent, but the actual share financed by TIFIA will depend on the individual project. As a matter of policy, USDOT continues to use the 33 percent threshold.

The **Railroad Rehabilitation and Improvement Financing Program (RRIF)** provides direct loans or loan guarantees for the acquisition, improvement, rehabilitation, or development of intermodal, freight, or passenger rail equipment or facilities. It can lend to public or private entities which own or operate railroads. The program has $35 billion in authorized lending capacity. Unlike the TIFIA program, which allocates federally-appropriated risk subsidies, RRIF requires borrowers to pay the credit subsidy cost. This makes the loan attractive only under certain circumstances.

Direct pay bonds are taxable bonds issued by state and local governments for which interest expense is directly subsidized by the federal government. These bonds are designed to attract investment in U.S. infrastructure from banks and insurance companies, as well as public pension funds and foreign investors that are not subject to U.S. income tax, and so are unlikely to invest in traditional tax-exempt municipal debt. From 2009-2010, as part of ARRA, over $185 billion of Build America Bonds (BABs) were issued by state and local governments. A 2011 Department of the Treasury analysis found that issuers of BABs achieved approximately $20 billion in savings relative to what their borrowing costs would have been from issuing tax-exempt debt.[31] The President's FY 2015 Budget would make direct pay bonds a permanent option for state and local governments by allowing them to issue America Fast Forward Bonds (AFFBs), which would subsidize 28 percent of coupon interest.

Qualified **private activity bonds** (PABs) are tax-exempt bonds issued by state or local governments on behalf of private developers of a project. PABs are a significant component of many PPP arrangements; from 2008 to 2013 PABs accounted for 17 percent of total PPP project value and 25 percent of project debt.[32] To be eligible for tax-exempt status, 95 percent or more of the bond's net proceeds must be used for a qualified purpose, such as surface transportation projects that receive federal funding or credit assistance. Highways, airports, ports, mass commuting facilities, and high-speed intercity rail facilities are all eligible, as are public works (sewage, solid waste, and water), health (hospitals), and education (universities, private schools) projects.[33] Depending on the qualified purpose, state-level caps may limit the volume of PABs which can be issued any given year. In the case of qualified highway and surface transportation facilities, there is a fixed nationwide volume cap which is allocated by the Secretary of Transportation. The President's FY 2015 Budget proposes to expand the total volume cap for transportation PABs projects from $15 billion to $19 billion, an important change given the recent expansion of TIFIA budget authority. Transportation PPPs are increasingly pursuing PABs as a senior debt vehicle for their project financing. In FY 2014 alone, almost $3 billion in PABs authority has been allocated to public-private partnership projects while nearly $500 million in bonds have been issued. In many cases, project sponsors are pursuing PABs in

[31] Savings are expressed in terms of present value.
U.S. Department of the Treasury. *Treasury Analysis of Build America Bonds and Issuance and Savings* (May 2011), http://www.treasury.gov/initiatives/recovery/Documents/BABs%20Report.pdf.
[32] Peter Allison, InfraAmericas Managing Director. Welcoming remarks at InfraAmericas US P3 Infrastructure Forum, June 2013, New York.
[33] Limited to activities of 501(c)(3) organizations.

conjunction with TIFIA. The Administration's proposal would also make PAB issuers eligible to issue AFFBs.

Last, **credit enhancements such as TIFIA** can make project debt more attractive to investors by reducing their risk exposure. Credit enhancements may take several forms: loan guarantees, loss reserves on the project company's balance sheet to insulate investors in the case of lower-than-expected project cash flows, and public project sponsor guarantees for debt issued by the project company.

Nearly all PPP projects today combine traditional financing with multiple forms of alternative financing. For example, Texas Department of Transportation funds were used to co-finance the North Tarrant Express Segments 1&2 with a combination of PABs, a TIFIA loan, and private equity injections from consortium members (Cintra Infraestructuras, S.A (Spain), Meridiam Infrastructure Finance S.A.R.L (France), and the Dallas Fire and Police Pension System). The project is scheduled to become operational in 2015.

V. Alternative Ways to Organize Public-Private Partnerships

While PPPs typically bear higher financing costs than municipal bond financing, in some instances, properly structured projects have been demonstrated to lower total costs—including operation and maintenance—for taxpayers. PPPs benefit taxpayers when the private partner is able to manage the project risks so much more cost-effectively than the public sector that the cost savings more than offset the higher cost of private finance, compared to traditional tax-exempt public debt. But a PPP is not necessarily the best choice for every project, and governments can evaluate whether a PPP or traditional procurement will provide more "Value for Money" (VfM) to taxpayers using public sector comparator analysis.[34]

Moreover, no two PPPs are precisely identical—they vary in the amount of risk transferred from the public to the private sector, and the extent of potential efficiency gains. For example, in a Design-Build (DB) contract, the government transfers project design and construction responsibilities to a private partner, which then has an incentive to make the project design as robust as possible because it assumes the risk of cost overruns and design flaws. A Design-Build-Operate-Maintain (DBOM) contract adds operations and maintenance to the private partner's responsibilities, providing the added incentive to employ high quality construction methods and materials to lower future maintenance expenses. A Design-Build-Finance-Operate-Maintain (DBFOM) contract also assigns financing responsibility to the private partner, therefore maximizing the incentive to be cost and schedule efficient so that cash flows begin as quickly as possible for servicing debt and providing adequate returns to equity investors.

[34] "The VfM analysis process is utilized on a case-by-case basis to compare the aggregate benefits and the aggregate costs of a P3 procurement against those of the conventional public alternative."
U.S. Department of Transportation: Federal Highway Administration. *Value for Money Assessment for Public-Private Partnerships: A* Primer, pp1-2. Washington, D.C. : 2012
http://www.fhwa.dot.gov/ipd/pdfs/p3/p3_value_for_money_primer_122612.pdf.

Colorado FasTracks Project

Denver, Colorado is a community that has shown how transformative, multi-modal public infrastructure projects can be brought to fruition by integrating multiple financing sources. Denver was able to utilize a PPP as part of the FasTracks development – combining light rail, bus rapid transit, development of Denver Union Station, parking, and other improvements – alongside state and federal funding.

The FasTracks Eagle project in Denver is a $2.2 billion public-private partnership to construct two new commuter rail lines. The project combined several DOT funding and financing mechanisms – Federal Transit Administration's New Starts grants, PABs, and a TIFIA loan – in addition to other Federal, State, and local resources and private investment.

The Eagle project is using a "design-build-finance-operate-maintain" contract under a 34-year concession. Denver will retain ownership of the assets, set fares and fare policies, and keep all project revenues. Denver will make payments to the private investor and operator ("concessionaire") based on performance metrics.

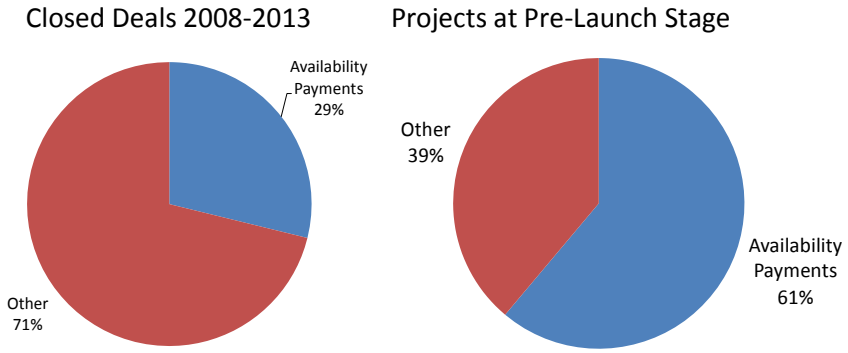
A financially viable PPP requires dedicated revenue, whether from user fees or the government. For projects constructing or rehabilitating a transportation, water, or wastewater asset, the PPP can collect user fees directly from consumers of the service, e.g. highway or bridge tolls and water service bills. Alternatively, the government sponsor can agree to make availability payments to the private partner: periodic payments if the provided service meets contracted quality standards. Unlike user fees, availability payments are fixed recurring payments and do not vary with usage of the infrastructure asset and may be employed when user fees are not appropriate, such as in PPP contracts for maintenance of social infrastructure, like schools or hospitals. Ultimately, the public sponsor must finance availability payments with taxes, fees that it collects from users of the infrastructure asset, or a combination of both; if these financing sources prove to be insufficient the public sponsor is still obligated to make fixed availability payments to the PPP as long as performance standards are met. For example, the PPP consortium managing a highway may receive a share of gas and sales taxes from sales at the highway's rest stops. Even for projects for which user fees are feasible, availability payments are popular with some private sector partners[35] because they eliminate the private firm's exposure to demand-driven revenue volatility.[36] The trend toward availability payments in transportation projects has been driven in part by the loss of the bond insurance markets and a newfound conservatism among senior debt lenders that has led public agencies to find new ways to structure PPPs to mitigate or retain risks that private investors no longer find acceptable (see

[35] U.S. Department of Transportation: Federal Highway Administration. *Challenges and Opportunities Series: Public Private Partnerships in Transportation Delivery*. "Financial Considerations." http://www.fhwa.dot.gov/ipd/forum/challenges_and_opportunities/financial_considerations.aspx.

[36] FHWA – Federal Aid Funding and Availability Payments, 2012. If performance standards are not met, availability payments can be reduced or eliminated.

figure below[37]). Of course, to the extent that availability payments reduce the risk transfer benefit of PPPs, their overall cost-benefit advantage may be lower than the traditional municipal bond model.

Availability Payment Projects as Share of Total U.S. PPP Deals



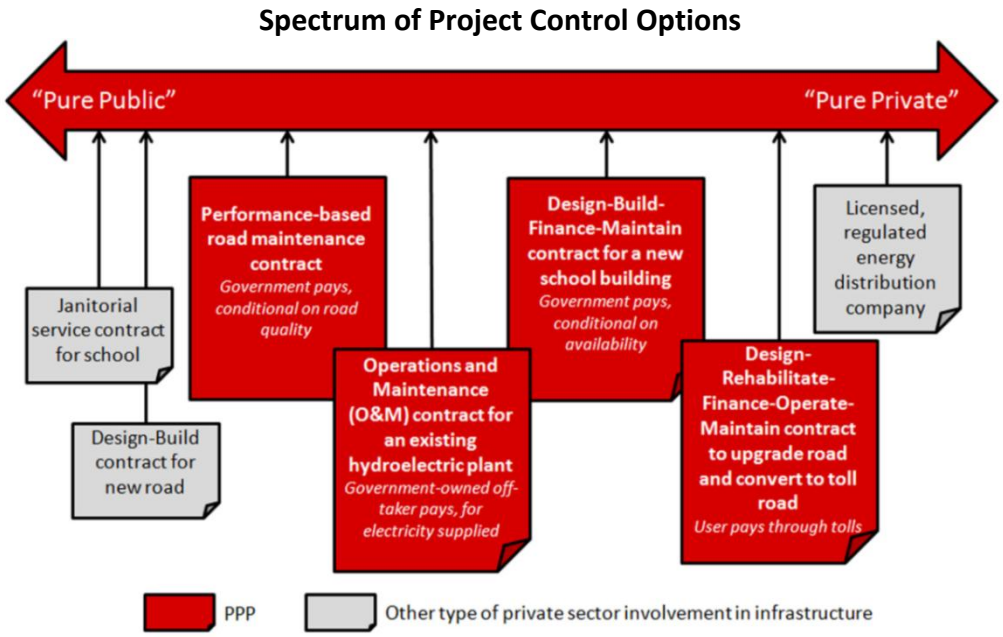
Some recent PPP contracts balance public and private sector interests by incorporating measures designed to protect consumers from sharp rate or toll increases while providing market-based returns and predictability to equity investors. For example, the 40-year concession agreement between the Bayonne New Jersey Municipal Authority (BMUA) and Bayonne Water Joint Venture LLC avoids windfall profits by setting fixed, predictable, annual rate increases for the rate payers and a known annual revenue path for the concessionaire, while allowing the concessionaire to draw on a rate stabilization fund to offset demand shortfalls, and to pass on certain uncontrollable costs to rate payers.[38]

In certain cases it might make the most sense to completely privatize an infrastructure asset by selling it outright to the private sector. Of course, the decision to privatize a historically public asset would depend on an evaluation of public safety and security concerns, the price impact on consumers of the infrastructure service, as well as the price its sale could command in the market. The figure below illustrates a spectrum of project control options.[39]

[37] Peter Allison, InfraAmericas Managing Director. Welcoming remarks at InfraAmericas US P3 Infrastructure Forum, June 2013, New York. Moving left-to-right on the spectrum, the proportion of the responsibilities undertaken by the private entity for managing the infrastructure asset is increasing in exchange for the public sector taking on demand risk.

[38] The Horinko Group, *Proposed Public-Private Partnership Projects for U.S. Inland Waterways Infrastruction Financing, Operations, and Governance.* December 2013. http://unitedsoybean.org/wp-content/uploads/Proposed-Public-Private-Partnership-Projects-for-Inland-U-S-Waterways-Infrastructure.pdf.

[39] Public Private Partnerships Reference Guide. World Bank, Public Private Infrastructure Advisory Facility, 2012.



VI. Modernizing Infrastructure Permitting to Increase Certainty for Investors

Project sponsors and investors often cite federal permitting processes as a source of delay and uncertainty in planning for the delivery and financing of infrastructure projects, noting that predictability in permitting requirements is essential to mitigating risk. Over the past three years, federal agencies have worked to expedite the review and permitting of over 50 major infrastructure projects, including bridges, transit, railways, ports, roads, and renewable energy projects while protecting communities and the environment, and over 30 of those projects have completed the permitting process. For example, federal agencies completed the permitting and review for the Tappan Zee Bridge in 1.5 years for a process that normally takes three to five years.

Over the course of work on those projects, agencies have developed a plan[40] to accelerate and expand permitting reform government-wide and have identified a number of key areas where focused effort has the potential to expedite the development and delivery of infrastructure projects and increase certainty for investors. These areas include:

Improving interagency coordination to increase decision making speed. Major infrastructure projects often require multiple permits and reviews from federal agencies and bureaus responsible for approving the use of or impacts to protected resources. Early coordination between the project sponsor and these agencies is vital, as is identifying a lead federal agency

[40] Steering Committee on Federal Infrastructure Permitting and Review Process Improvement, *Implementation Plan for the Presidential Memorandum on Modernizing Infrastructure Permitting.* May 2014. http://www.permits.performance.gov/pm-implementation-plan-2014.pdf.

and key project partners, developing a single coordinated project plan, and establishing clear procedures to resolve disputes quickly.

Synchronizing reviews. Federal agencies are moving from separate, consecutive reviews to synchronized, simultaneous reviews. For example, the U.S. Coast Guard, the Army Corps of Engineers, and the Department of Transportation have launched a new partnership to synchronize their reviews for transportation projects. By developing one environmental analysis that satisfies all three agencies, project timelines can be significantly reduced.

Increasing transparency and accountability. For example, the Administration's Federal Infrastructure Projects Permitting Dashboard supports coordination and synchronization of projects among federal agencies, and can also help create a more predictable process for project applicants. The Administration is expanding the Dashboard to include additional projects, as well as new capabilities to track project schedules and metrics, increasing overall accountability and transparency.

Implementing more comprehensive environmental analyses and approaches to mitigation. Rather than conducting environmental reviews on a project-by-project basis, many federal and state agencies are shifting to programmatic analyses providing a structure to move many similar projects through the compliance process more efficiently. In a similar vein, better and more comprehensive regional analysis of environmental mitigation needs can also help facilitate project planning and appropriate siting that avoids sensitive resources, but can at the same time increase efficiency and streamline project review.

VII. PPP-Enabling Legislation

Among the impediments to a more robust PPP market in the United States are the need for greater financial expertise in many state agencies and legislatures and a related need for better coordination across states to disseminate PPP-related information. One of the most significant obstacles to developing the PPP market in the United States is a patchwork of legal environments and procurement practices across states. For seasoned infrastructure investors considering long-term commitments to PPP projects, this fragmentation increases uncertainty and transaction costs. For less experienced investors, because knowledge of an infrastructure market is not necessarily transferable across jurisdictions, there is less incentive to become a sophisticated investor. These hurdles offset the stable cash flows and low correlation with other asset classes that can make infrastructure investment appealing to institutional investors.[41]

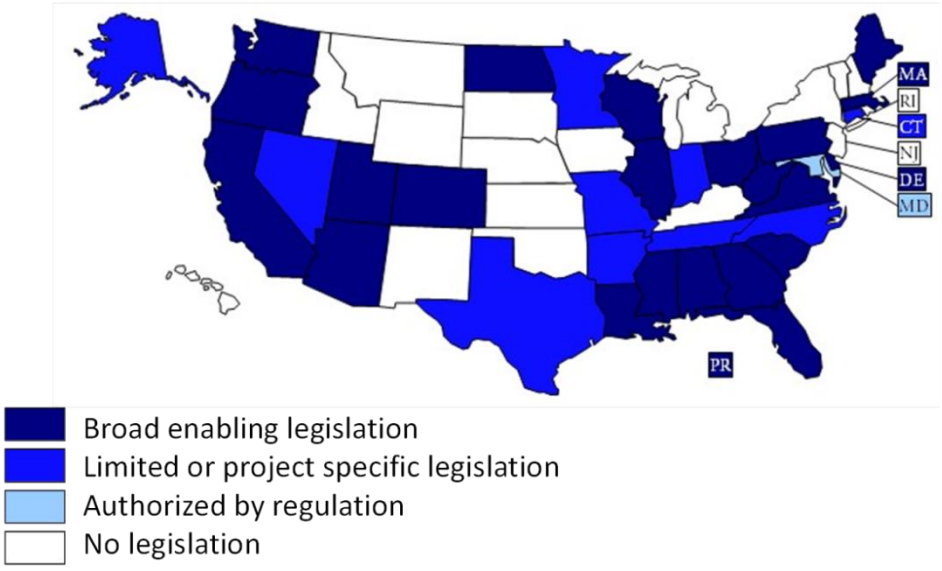
As of February 2014, 33 states and Puerto Rico had enacted laws authorizing PPPs for highway and bridge projects[42] (see map below). The presence of PPP legislation sends a strong signal to investors that a state is open to private involvement in infrastructure financing and delivery, while the absence of such laws deters the development of the PPP market. An established legal

[41] An Introduction to Infrastructure as an Asset class, UBS.
[42] National Conference of State Legislatures.

framework increases predictability and reduces transaction costs by specifying the rules and principles governing public-private collaboration.

Even among states that have passed PPP enabling legislation, the legal frameworks in some states are more effective in supporting PPPs than in others. About 18 states have broad enabling legislation, while the rest have more limited or project-specific legislation. For example, Florida has a comprehensive statute that authorizes Florida's Department of Transportation to enter into agreements with private entities to build, operate, own, or finance transportation facilities and also exempts private entities from certain taxes. In contrast, the Missouri Transportation Commission is authorized to enter into agreements with private partners to finance, develop and/or operate any pipeline, ferry, river port, airport, railroad, light rail, or other mass transit facility; however, a private sector role in any other type of transportation project requires voter approval.

States with Transportation PPP Enabling Legislation as of February 2014



Even in the presence of broad PPP enabling legislation, an investor's willingness to participate in projects will be affected by the flexibility of the legal framework. For example, the ability to exit a project and redeploy funds to alternative uses may be an important consideration for investors, especially as sources of financing may change over a project's lifecycle. Moreover, it is important that PPP contracts clearly define the terms and conditions of exit for a private investor, including the transfer of ownership to a new investor or the sale of shares to secondary specialist equity funds. Terms and conditions should also identify the necessary waiting period before an investor can exit a project once commercial operations have begun, as a waiting period that is perceived as being too lengthy might deter prospective investors from participation.

VIII. Conclusion

The economic case for expanding infrastructure investment is clear, yet public investment has been declining as part of a long-term trend toward fiscal consolidation and lower public investment. Innovation in financing, technology, and management can help reverse this decline and speed the modernization of our infrastructure networks. PPPs can infuse projects with private capital, management, and expertise to bolster total infrastructure investment while also exploiting untapped efficiencies in infrastructure provision. Other innovative financing mechanisms can also help attract private investment from new sources to invest in U.S. infrastructure. However, public funding will continue to be a critical infrastructure resource.

At the direction of President Obama, Secretary of the Treasury Jacob J. Lew and Secretary of Transportation Anthony Foxx are leading the Infrastructure Finance Working Group to explore innovative and effective infrastructure financing and development. On November 14, the Working Group will deliver recommendations to the President on how to promote awareness and understanding of innovative financing at the state, local, tribal, and territorial levels and among Federal infrastructure financing programs, and increase effective public-private collaboration in infrastructure development, including the appropriate use of private financing in key infrastructure sectors. These recommendations shall also include an action plan for the coming two years.

Today's Infrastructure Investment Summit at the Department of the Treasury will bring together a wide range of stakeholders and experts to discuss challenges and opportunities in this critically important space. We look forward to productive discussions on questions including:

- How can innovative financing approaches help attract more private investment in infrastructure?

- How can new revenue and risk sharing models make PPPs more attractive to both investors and state and local governments?

- How can smaller projects be effectively bundled together to create projects that are more attractive for investment?

- How best do we capture efficiencies and encourage collaboration in cross jurisdictional infrastructure projects?

- How can we make more productive use of existing federal credit programs to support infrastructure investment?

The input we receive at the Summit and subsequent public engagements will be critical to the recommendations we deliver to the President on November 14.