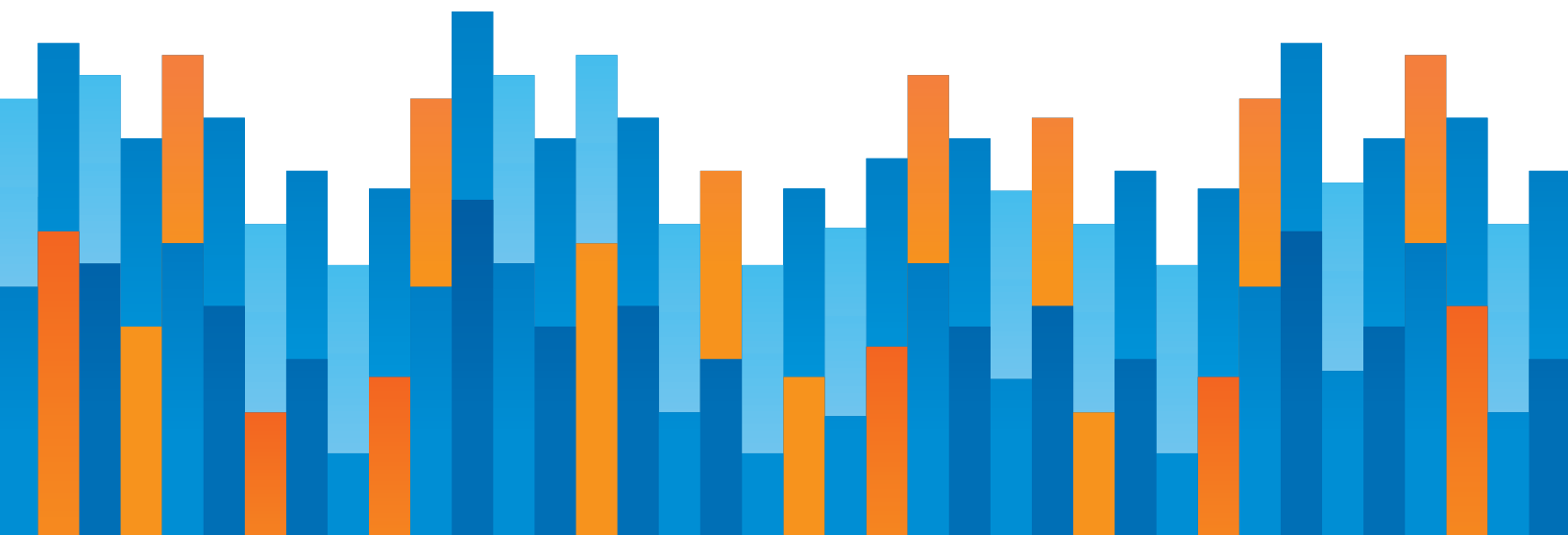




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ASSET RECYCLING TO REBUILD AMERICA'S INFRASTRUCTURE

by Robert W. Poole, Jr.
November 2018





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EXECUTIVE SUMMARY

Infrastructure asset recycling is a means of increasing investment in infrastructure, both existing and planned. The basic idea calls for long-term leasing of aging existing facilities to well-qualified private partners and “recycling” the lease proceeds into new (but currently unfunded) infrastructure.

In typical long-term leases, most or all of the lease payments are provided up-front. These proceeds are dedicated to investment in needed, but currently unfunded, infrastructure projects. Provisions in the long-term lease of an existing facility include performance requirements, which in most cases of aging infrastructure, will require significant additional private investment to refurbish and modernize the facility. Hence, asset recycling is intended to fix both of America’s serious infrastructure problems: aging and inadequate *existing* facilities and lack of funding for a large array of *new* infrastructure facilities.

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Infrastructure asset recycling is being discussed today for several reasons. First and foremost, there is national concern about the poor condition and/or inadequate capacity of much U.S. infrastructure, which relates in part to a lack of readily available funding.

Second, there is a growing track record of state and local governments (which own nearly all U.S. non-military infrastructure) making use of long-term public-private partnerships (P3s), in which investors and well-qualified developer/operators design, build, finance, operate, and maintain (DBFOM) infrastructure facilities under long-term contractual agreements (35 to 70 years, typically). Most uses of this kind of long-term P3 have been to develop new (“greenfield”) facilities, but there are also cases of using this kind of agreement to refurbish aging existing (“brownfield”) infrastructure, such as the Indiana Toll Road and the San Juan International Airport.

Third, private capital is increasingly available for infrastructure projects of this kind. Global infrastructure funds have amassed hundreds of billions of dollars in equity to invest in DBFOM infrastructure, both greenfield and brownfield. Insurance companies and sovereign wealth funds are also starting to make equity investments of this sort. A newer player is public-sector pension funds, led by those of Australia and Canada. These investors and a growing number of U.S. pension funds are primarily interested in brownfield refurbishment, which is lower risk than greenfield projects.

Fourth, the White House infrastructure proposal is based largely on private-sector investment, for both aging existing infrastructure and new facilities. It includes important policy reforms that would widen the market for asset recycling of the kind discussed in this study. The U.S. DOT’s February 2018 document on how this policy would apply to transportation infrastructure devotes several pages to explaining asset recycling.

Australia’s federal government was the first to implement a policy to encourage state and local governments to engage in infrastructure asset recycling. It offered those governments grants of up to 15% of the proceeds from leasing existing facilities if the state or local government committed to using those proceeds for new infrastructure. Four of Australia’s states and territories took part, realizing a net A\$20 billion from leases of existing infrastructure and garnering an additional A\$6 billion in federal incentive grants.

U.S. experience with infrastructure asset recycling is more limited. The purest example is the long-term P3 lease of the Indiana Toll Road, which generated a \$3.8 billion up-front

lease payment. After paying off toll road bonds, the state funded a 10-year highway investment plan called Major Moves as well as creating a \$500 million trust fund to maintain the new infrastructure. Other examples, not all of which used the proceeds for new infrastructure, include:

- Chicago Skyway lease
- San Juan International Airport lease
- Bayonne, NJ water/wastewater system lease
- Maryland's Seagirt Marine Terminal lease
- Ohio State University parking system lease.

How much potential is there in P3 leases of existing U.S. infrastructure? To illustrate this, the author estimated potential net lease proceeds from the 61 largest airports (\$250 billion–\$360 billion), the 42 largest toll systems (\$175 billion–\$230 billion), seaports (\$50 billion), water/wastewater systems (\$110 billion), and state university parking systems (\$60 billion). The total is \$720 billion–\$885 billion.



How much potential is there in P3 leases of existing U.S. infrastructure? The total is \$720 billion–\$885 billion.



Several federal policy changes would encourage infrastructure recycling by state and local governments. One would be an incentive-grant program similar to that used successfully by Australia's federal government. Another would be small grants that help those governments pay for financial and legal expertise to develop procedures to invite private-sector proposals and to negotiate long-term P3 lease agreements. And a third would reform the existing narrowly focused program of tax-exempt Private Activity Bonds (PABs) to apply to more categories of infrastructure and to include refurbishment of existing aging infrastructure as well as brand-new facilities.

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PART 1

INTRODUCTION

1.1

WHAT IS INFRASTRUCTURE ASSET RECYCLING?

Recycling entails reusing or making something available for reuse. Applying the recycling concept to infrastructure “unlocks” the value of an existing infrastructure facility via a long-term lease to a qualified private-sector partner—and uses the proceeds to invest in new infrastructure.

Asset recycling is coming into vogue partly due to the existence of private capital that is eager to invest in existing (and new) infrastructure. Public-private partnerships (P3s) channel new capital and private-sector expertise to revitalize existing infrastructure as well as provide capital for governments to make new investments.

“

Applying the recycling concept to infrastructure “unlocks” the value of an existing infrastructure facility via a long-term lease to a qualified private-sector partner—and uses the proceeds to invest in new infrastructure.

”

Infrastructure asset recycling can therefore deliver a double benefit to the public, addressing both aspects of America's infrastructure problem. It generates new capital for investments to meet future needs, but also brings in a private partner who risks capital, creating incentives to properly maintain and rehabilitate aging infrastructure assets.

1.2**HOW DOES ASSET RECYCLING WORK?**

Once a government has identified a list of suitable assets, infrastructure asset recycling has three interrelated components that promote a virtuous cycle of investment and renewal. The first element “unlocks the trapped value” of an existing (brownfield) infrastructure asset by leasing the asset to private investors through a long-term P3.¹ The best candidates for these transactions are assets with an existing, self-generated revenue stream. It is the revenue stream that provides the resources and incentives for the private partner to invest in the rehabilitation and on-going maintenance of the brownfield asset. Public assets that do not have self-generated revenue streams, or those with limited operating history, are not good candidates for asset recycling.

The second component is that after the government has leased the asset, it “recycles” the proceeds from the transaction into new investments, ideally for other economically beneficial infrastructure. Some governments have used such proceeds for other balance-sheet purposes, such as shoring up underfunded public employee pension systems. But the emphasis in this study is recycling the net proceeds to other needed infrastructure investments. To increase the impact of those investments, governments could use the proceeds to procure new infrastructure development through “greenfield” (new construction) P3s.

The third component is that as the new assets mature and become good candidates for recycling (or as their long-term lease agreements end), government can repeat the process to enable continuous infrastructure investment and renewal.

¹ While it is common in much of the world for public assets to be sold, in the U.S. context public assets are generally leased under long-term P3 agreements.

PART 2

WHY INFRASTRUCTURE ASSET RECYCLING NOW?

2.1

AGING INFRASTRUCTURE

The opportunity for infrastructure asset recycling stems from America's current fiscal straits, coupled with the current condition of the nation's infrastructure. There is broad consensus that America's infrastructure needs significant investment across all sectors. In its 2017 report on the condition of America's infrastructure, the American Society of Civil Engineers (ASCE) graded the condition of our infrastructure a D+.² While some individual sectors fared better (freight rail received a B), others did worse (transit got a D-).³ Perhaps the lone bright spot from the report is that several categories saw slight improvements in their grades from the 2015 report card, while only three saw declines.⁴ Further, ASCE

² American Society of Civil Engineers, "2017 Infrastructure Report Card: Making the Grade." <https://www.infrastructurereportcard.org/> Accessed 9 Feb. 2018.

³ Ibid.

⁴ The seven categories that saw improvements are: Hazardous Waste, Inland Waterways, Levees, Ports, Rail, Schools and Wastewater. The three categories that saw declines are: Parks, Solid

estimates that \$2 trillion will be needed over the next 10 years to close the gap, meeting current and future needs while bringing existing infrastructure into good repair.

The ASCE's estimates do not include a benefit/cost analysis of whether all the desired investments make good economic sense. But even more-conservative estimates agree that the challenges are large.⁵ The U.S. Department of Transportation (DOT) estimates that over \$800 billion could be wisely invested in roads and bridges, including nearly \$500 billion in critical repair work.⁶ Further, McKinsey & Company research suggests that additional infrastructure investment of \$120 billion a year in 2017 (growing to an additional \$150 billion a year by 2030) will be required to sustain U.S. economic growth.⁷



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The debate isn't so much about how much investment is needed, but rather on how to pay for the investment. Fiscal pressure on the federal government in coming years will shift more of the burden onto state and local governments (which own nearly all the infrastructure discussed in this study). Many state and local governments are already struggling to adequately maintain their existing infrastructure, let alone find the resources to make new investments. And over the next several decades, fiscal pressures on state and

Waste and Transit. Six categories saw no change, those are: Aviation, Bridges, Dams, Drinking Water, Energy and Roads.

⁵ McBride, James. "The State of U.S. Infrastructure." *Council on Foreign Relations*. January 12, 2018. <https://www.cfr.org/backgrounders/state-us-infrastructure> Accessed 9 Feb. 2018.

⁶ U.S. Department of Transportation. "Making Critical Investments in Highway and Bridge Infrastructure." <https://www.transportation.gov/grow-america/fact-sheets/roadways> Accessed 9 Feb. 2018.

⁷ Rocca, Michael Della, Tyler Duvall and Rob Palter. "The Road to Renewal: How to Rebuild America's Infrastructure." McKinsey & Company, March 2017. <https://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/the-road-to-renewal-how-to-rebuild-americas-infrastructure> Accessed 9 Feb. 2018.

local governments will continue to grow, as an aging population places increasing demands on entitlement and social service programs. Most state and local governments also face the problem of under-funded employee pension systems. As House Speaker Paul Ryan commented about addressing America's infrastructure funding gap, "There's no way we can tax you to pay for all of it,"⁸ suggesting that more than traditional public funding will be needed.

Meanwhile, many entities in the private sector—including capital markets, banks, public and private pension funds, financial institutions, university endowments, and insurance companies—have become increasingly interested in the infrastructure sector. Indeed, as part of their broader portfolios, many of these institutions have allocated capital specifically to invest in infrastructure. In addition, the growing number of companies that specialize in developing and operating P3 infrastructure also typically invest equity in projects for which they are selected. They bring to bear considerable technical capabilities and operating experience, enhancing not just the asset value but also the facility's service to its customers.



Leasing a revenue-producing asset under a long-term P3 agreement unlocks the value of the asset, providing resources for new projects that can enhance economic growth and productivity.



Asset recycling is a way to capitalize on this interest. Leasing a revenue-producing asset under a long-term P3 agreement unlocks the value of the asset, providing resources for new projects that can enhance economic growth and productivity. Without "recycling," the public investment in existing assets would remain trapped, and substantial private-sector capital would remain on the sidelines unable to make new investments. In that case, providers of that capital would seek to invest it in other countries instead of the United States.

⁸ Gardner, Lauren. "Morning Transportation." *Politico*. March 3, 2018.

This point is especially relevant to pension funds and sovereign wealth funds. Their risk tolerance generally does not extend to greenfield infrastructure; they invest almost exclusively in existing, or “brownfield,” infrastructure with a long, proven record of users and revenues. Asset recycling therefore opens the door to whole new categories of infrastructure investors.

2.2

ESTIMATED OVERALL INFRASTRUCTURE ASSET VALUE

How much value might be tapped from existing public infrastructure? An August 2015 report from McKinsey & Co estimated that the *world's* infrastructure stock was valued at an estimated \$48 trillion.⁹ Certainly the U.S. share is a small fraction of that value, but the fact that state and local governments own valuable revenue-generating assets—whether currently profitable or not¹⁰—is very attractive to private investors. Jill Eicher of the Bipartisan Policy Center reports that “estimates of the potential value to be realized in the U.S. through recycling of existing revenue-generating assets exceed \$1 trillion.”¹¹

Infrastructure attorney John Schmidt of Mayer Brown estimates the realizable asset value of just toll roads and bridges could approach half a trillion dollars. He points out that the recent re-concessions of the Indiana Toll Road and Chicago Skyway (totaling over \$8.5 billion) were for toll roads representing less than 2% of all U.S. toll revenues. So toll facilities alone could yield \$450 billion. Adding airports, seaports, water systems and parking facilities could well yield a total exceeding \$1 trillion, he estimates.¹²

⁹ Duvall, Tyler. “New Horizons for Infrastructure Investing.” McKinsey & Company. August 2015. <https://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/new-horizons-for-infrastructure-investing> Accessed 9 Feb. 2018.

¹⁰ The assumption is that private investors could improve operations to make assets profitable—a bet they’re willing to make, and risk their capital to support.

¹¹ Eicher, Jill. “Is it Time for an Infrastructure Garage Sale?” *Governing*. June 1, 2017. <http://www.governing.com/gov-institute/voices/col-infrastructure-asset-recycling.html> Accessed 9 Feb 2018.

¹² Schmidt, John R., email to the author. August 9, 2018.



Infrastructure attorney John Schmidt of Mayer Brown estimates the realizable asset value of just toll roads and bridges could approach half a trillion dollars.



Of course, the true value of U.S. toll roads, ports, airports, bridges, water systems and parking facilities—to name a few asset classes—will depend on the assumptions used by investors and the governing policies established in the long-term P3 lease agreements.

2.3

BENEFITS OF P3 INFRASTRUCTURE REFURBISHMENT

Using long-term P3 lease agreements can yield important benefits in refurbishing and modernizing aging infrastructure. Major refurbishment often requires large-scale reconstruction, followed by long-term operating and maintenance of the rebuilt facility. In a typical P3 concession, the risks of cost overruns and late completion are borne by the company, not the government. That is also true of revenue risk; while pricing must comply with the terms negotiated in the long-term agreement, the number of customers and the amount of service they use is always somewhat uncertain. The company in a P3 lease also accepts those risks.

Public officials sometimes believe that because municipal bond financing is generally at lower interest rates than what is available to the private sector, P3s overall must be more expensive. But this ignores the different incentives that operate under P3 agreements. Private operators can often carry out major capital expenditures at lower cost than governments, which must comply with rigid public procurement regulations and various political constraints. Because the private partner is responsible for maintaining facility for the long term of the lease, it has strong incentives to minimize the *life-cycle cost* of the project. In order to do this, the private partner may invest somewhat more in design features that will make the facility easier and less costly to maintain. Thus, a slight difference in financing costs may well be offset by less-costly capital modernization and lower life-cycle costs of the facility over the long term of the P3 lease agreement.

These life-cycle costs often benefit by private sector procurement for more than just their face value. Since ongoing operations, maintenance, and periodic rehabilitation are usually costs borne by the facility's owner, governments can find them challenging to properly budget for—especially in tight fiscal times. In times of fiscal distress, it is tempting to defer maintenance in order to balance budgets. It's hard to even know the extent of the problem, since there is no standardized way of measuring deferred maintenance.¹³ One estimate pegs the nationwide total at \$3 trillion.¹⁴

Unfortunately, the longer the duration of deferred maintenance, the higher the cost of eventual “emergency” repairs (or replacement much sooner than planned). Former Treasury Secretary Lawrence Summers has suggested that deferred maintenance is a debt burden that compounds at 7% a year.¹⁵ These long-term costs are rarely fully understood and evaluated when considering public versus private operations. Under an asset recycling initiative, the long-term operating and maintenance costs and risks of the leased facility are transferred to the private partner, allowing the public partner to “no longer concern itself with paying for sudden and unpredictable cost increases associated with aging infrastructure assets.”¹⁶

2.4

AVAILABILITY OF PRIVATE CAPITAL

The next question is whether the private capital markets have the interest and the capacity to undertake a significant recycling initiative. Michael Decker at the Securities Industry and Financial Markets Association (representing municipal bond investors) has said that “There's no shortage of capital in the world, or in the country, to invest in infrastructure.”¹⁷ While Decker is likely speaking mostly about debt, other industry experts agree that there

¹³ Lucia, Bill. “Is Deferred Maintenance a Financial Time Bomb for State and Local Governments?” *Government Executive Route Fifty*. www.routefifty.com/finance/2017/03/deferred-maintenance-financial-time-bomb/135823/ Accessed 5 April 2018.

¹⁴ Paschich, Millen. “Is Deferred Maintenance Worth \$90 billion a Year?” *Gridium*. May 16, 2017. <https://gridium.com/deferred-maintenance-90-billion> Accessed 5 April 2018.

¹⁵ Summers, Lawrence. “Best Bets for Public Investment.” *Brookings Institution*. January 9, 2017.

¹⁶ Varn, Jake and Sarah Kline. “How Could ‘Asset Recycling’ Work in the United States?” Web blog post. Bipartisan Policy Center. 8 June 2017.

¹⁷ Lucia, Bill. “Private Investment in Public Infrastructure: Trust and Funding Present Obstacles.” <http://www.routefifty.com/2017/02/private-investment-public-infrastructure-trust-and-funding-present-obstacles/135396/>

is also plenty of private *equity* looking for infrastructure investment opportunities. Indeed, McKinsey & Co in a 2015 report entitled “New Horizons for Infrastructure Investing” found that:

There is no shortage of capital. Institutional investors are jumping in with both feet; indeed, infrastructure is now seen as an asset class in its own right. Limited partners and giant sovereign-wealth funds are putting money into play. Multilateral and development-finance institutions also are stepping up their efforts. Across all investor groups, we estimate that more than \$5 trillion a year is available [worldwide] to build airports, roads, ports, and so on.¹⁸



Geoff Segal at Macquarie Capital has likewise said that “there is no shortage of private capital looking to invest in U.S. infrastructure...there are billions upon billions literally available in ‘dry powder’ sitting in infrastructure funds waiting to be invested.”



Geoff Segal at Macquarie Capital has likewise said that “there is no shortage of private capital looking to invest in U.S. infrastructure...there are billions upon billions literally available in ‘dry powder’ sitting in infrastructure funds waiting to be invested.”¹⁹ Reese Tisdale of Bluefield Research agrees with this assessment: “There seems to be no shortage of interest, and capital, for that matter.”²⁰ Both suggest that if there were more opportunities, we would see more private capital being invested and raised to replace what was invested.

¹⁸ Duvall, Tyler. “New Horizons for Infrastructure Investing.” August 2015. <https://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/new-horizons-for-infrastructure-investing>

¹⁹ Siegel, Josh. “Trump Wants to Incentivize Partnerships to Rebuild Infrastructure.” *The Washington Examiner*. July 17, 2017. <http://www.washingtonexaminer.com/trump-wants-to-incentivize-partnerships-to-rebuild-infrastructure/article/2628472>

²⁰ Layne, Rachel. “Can the Private Sector Save America’s Aging Water Systems?” CBS News.com. November 20, 2017. <https://www.cbsnews.com/news/can-the-private-sector-save-americas-aging-water-systems/> Accessed 9 February 2018.

In its November 2017 issue, *Infrastructure Investor* released its eighth annual ranking of global infrastructure funds, the “Infrastructure Investor 50.”²¹ Over the most recent five-year period, these 50 large funds alone have raised a total of \$316 billion. Equity funds such as these typically provide between 20% and 33% of an infrastructure project’s cost, with the balance raised from various forms of debt (bank loans, revenue bonds, etc.). At a typical leverage multiple of four times the equity amount, the equity available from the top-50 funds alone would finance \$1.26 trillion worth of projects, while the total raised by all such equity funds would finance an even larger sum.

Pension funds are the newest category of infrastructure investor (along with insurance companies). Australian and Canadian public employee pension funds started this trend more than a decade ago, increasingly investing offshore after exhausting initial infrastructure opportunities in their relatively smaller home markets. Initially, U.S. pension funds were hesitant to do likewise, in part because most public employee unions were not supportive of public-private partnerships. However, this initial hesitance seems to be fading.²² The success of overseas pension funds’ infrastructure investments is leading to an increasing number of investments of this sort by major U.S. public-sector pension funds. As discussed below, in 2015, 70 U.S. public employee pension funds invested in the new P3 lease company for the Indiana Toll Road.

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The success of overseas pension funds’ infrastructure investments is leading to an increasing number of investments of this sort by major U.S. public-sector pension funds.

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²¹ Rodriguez, Daniel. “A Rising Tide: The Infrastructure Investor 50.” *Infrastructure Investor*. November 2017.

²² Poole, Robert W., Jr. “Annual Privatization Report: Transportation Finance.” Los Angeles: Reason Foundation, May 2018.

2.5 WHITE HOUSE INFRASTRUCTURE PROPOSAL

In October 2016, then-candidate Donald Trump announced an ambitious \$1 trillion infrastructure plan.²³ The plan that was later released relies largely on private capital to reach its goal, calling for only \$200 billion in new federal investment (over 10 years) to reach its \$1 trillion goal.²⁴ After Congress tackled tax reform, there seemed to be little political will among Republicans in Congress to support additional new spending. As this is written, a major new infrastructure bill is seen as unlikely.

Some of the Administration's proposals focus on addressing larger public policy questions that seemingly don't require new federal spending. Efforts to streamline environmental approval processes to allow large projects to move forward more quickly will save state and local governments time and money. Much of the White House proposal (e.g., the new INFRA competitive grant program) calls for encouraging and incentivizing state and local governments to take a larger responsibility for infrastructure funding and to raise new resources—taxes, fees, tolls, etc.—to support and maintain infrastructure.

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The U.S. Department of Transportation released a document in February 2018 spelling out how the White House proposals would affect transportation infrastructure: airports, highways, and seaports, in particular.²⁵ It explained the value of long-term P3 concession agreements, for both new (greenfield) transportation facilities and to refurbish and

²³ Slowley, Kim. "Trump Campaign Announces \$1T Infrastructure Plan Driven by Private Investment." *Construction Dive*. October 26, 2016.

²⁴ "Legislative Outline for Rebuilding Infrastructure in America." The White House. February 2018.

²⁵ Chao, Elaine L. "The President's Initiative for Rebuilding Infrastructure in America." U.S. Department of Transportation. February 2018.

modernize existing (brownfield) facilities. It devoted several pages to explaining asset recycling, and it spelled out proposed tax law changes aimed at making it easier to finance P3 projects, both greenfield and brownfield.

In 2018 House members Reps. Mike Kelly (R, PA), William Lacy Clay (D, MO) and Ted Budd (R, NC) introduced bipartisan legislation that would require the Department of Agriculture to sell certain distressed loan assets to private sector investors, with the proceeds being spent on deficit reduction and infrastructure. While the measure faces an uncertain future, it is noteworthy because it demonstrates some awareness of asset recycling within Congress. This legislation could be a test case for pursuing similar asset transactions across other government portfolios.

PART 3

AUSTRALIAN ASSET RECYCLING

Is asset recycling new? Over the years, governments in many countries have sold or long-term leased revenue-producing assets such as airports, toll roads, seaports, and water systems. In some cases, the proceeds have been invested in other infrastructure; in other cases, proceeds were used for strengthening the government's balance sheet by paying down debt or shoring up under-funded employee pension systems. In still other cases, some governments used the proceeds largely to balance current or near-term budgets. Financial experts consider the latter uses unwise, since they represent converting long-term gains into short-term budgetary relief. A balance-sheet windfall should be used to strengthen the government's balance sheet, instead of filling holes in near-term budgets.

What is new in public policy is a specific policy of "monetizing" existing infrastructure *in order to invest in other needed infrastructure*. The first government to adopt an explicit policy along these lines was the Australian federal government. In 2014 that government established a formal initiative encouraging Australia's state governments to pursue specific asset recycling efforts to generate new investment in infrastructure. Prime Minister Tony Abbott announced several major federal goals, including increased investment in infrastructure. His government recognized that existing infrastructure assets had significant value that was "trapped" and could be unlocked through a sale or long-term lease.

3.1

AUSTRALIA'S EARLY USE OF PUBLIC-PRIVATE PARTNERSHIPS

As in the United States, Australian states own most of the country's infrastructure. And those state governments had a long history with public-private partnerships. They undertook a large-scale round of P3 leases and sales during the 1990s. Federal and state governments generated about A\$85 billion, or roughly US\$65 billion at current exchange rates,²⁶ from these transactions in several main sectors: financial services, electric and gas utilities, transportation (airports, rail, ports) and telecommunications.²⁷ Proceeds from the sales and P3 leases were used to retire debt and finance unfunded pension liabilities, as well as to fund some targeted environmental initiatives.²⁸

TABLE 1: AUSTRALIAN P3 LEASES AND SALES IN THE 1990S

Australian P3 Leases and Sales in the 1990s		
AUSSAT	1991	Telecommunications
Loy Yang B Power Station I	1992	Electricity generation
Qantas I	1993	Airlines
SAGASCO	1993	Gas distribution, production and retail
Gladstone Power Station	1994	Electricity generation
Moomba Sydney Pipeline System	1994	Gas transmission and distribution
Citipower	1995	Electricity generation
Eastern Energy	1995	Electricity generation
Pipeline Authority of South Australia	1995	Gas transmission
Powercor	1995	Electricity distribution
Qantas 2	1995	Airlines
Solaris Power	1995	Electricity distribution
United Energy	1995	Electricity distribution
Collinsville Power Station	1996	Electricity generation
Hazelwood Power Station	1996	Electricity generation
Port of Geelong	1996	Ports

²⁶ "Privatisation in Australia." UN Public Affairs Network. 23 September 2013. <http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan005244.pdf> Accessed 9 Feb. 2018

²⁷ Reserve Bank of Australia Bulletin. "Privatisation in Australia." December 1997. 9. <<https://www.rba.gov.au/publications/bulletin/1997/dec/pdf/bu-1297-2.pdf>> and <<http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan005244.pdf>> Accessed 9 Feb. 2018.

²⁸ Reserve Bank of Australia Bulletin. 11.

Australian P3 Leases and Sales in the 1990s

Port of Portland	1996	Ports
State Gas Pipeline	1996	Gas transmission
Yallourn Energy	1996	Electricity generation
ANRC	1997	Passenger rail
Brisbane Airport	1997	Airports
Loy Yang A Power Station	1997	Electricity generation
Loy Yang B Power Station 2	1997	Electricity generation
Melbourne Airport	1997	Airports
Perth Airport	1997	Airports
PowerNet Victoria	1997	Electricity generation
Qantas 3	1997	Airlines
Southern Hydro	1997	Electricity generation
Telstra T1	1997	Telecommunications
Adelaide Airport	1998	Airports
Alice Springs Airport	1998	Airports
Archerfield Airport	1998	Airports
Canberra Airport	1998	Airports
Coolangatta Airport	1998	Airports
Dampier to Bunbury Natural Gas Pipeline	1998	Gas transmission
Darwin Airport	1998	Airports
Jandakot Airport	1998	Airports
Launceston Airport	1998	Airports
Moorabbin Airport	1998	Airports
Mount Isa Airport	1998	Airports
Parafield Airport	1998	Airports
Tennant Creek Airport	1998	Airports
Townsville Airport	1998	Airports
Victoria Electricity Generation	1999	Electricity generation
Electricity Trust of South Australia	1999	Electricity generation
Multinet/Ikon Energy	1999	Gas distribution and retail
Status Networks/Energy 21	1999	Gas distribution and retail
Telstra T2	1999	Telecommunications
Transmission Pipelines Australia	1999	Gas transmission
V/Line Freight	1999	Rail
Westar/Kinetik	1999	Gas distribution and retail

Source: "Infrastructure and Transport PPPs and Privatization in Australia." Australian Government. Department of Infrastructure and Regional Development. <https://bitre.gov.au/publications/2017/files/is_093.pdf> Accessed 9 Feb. 2018.

3.2

QUEENSLAND ENGAGES IN FURTHER ASSET DIVESTMENT

Between 2009 and 2011, the Queensland government transferred five state-owned assets that generated proceeds of A\$15 billion (including follow-on transactions in 2013). The plan used several forms of P3s—asset sales as well as long-term P3 leases where the government maintains long-term ownership—each catering to the specific needs and goals of the asset or opportunity. These were not aimed at reinvesting the proceeds in other infrastructure, but the proceeds were used largely to strengthen the government's balance sheet.

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Between 2009 and 2011, the Queensland government transferred five state-owned assets that generated proceeds of A\$15 billion (including follow-on transactions in 2013).

”

In 2010 the government sold a partial stake in QR National, the coal rail company, through an Initial Public Offering on the Australian Stock Exchange, raising A\$4.6 billion. Those proceeds were used to pay off debt in an effort to upgrade the state's credit rating. The state maintained a 34% ownership in the company to share in any long-term increase in value. Shares in the company rose from the IPO price of A\$2.54 to A\$4.68 by 2013. Because of the stock appreciation, the Queensland government sold its stake over three different follow-on offerings, decreasing its ownership to 5%. These sales realized an additional A\$2.7 billion in capital, with net proceeds of A\$900 million for investment in infrastructure and other state objectives.

Also in 2010, Queensland entered into a 99-year lease of its Forestry Plantation, raising A\$603 million. The lease provided the private operator the right to grow and harvest trees on the plantation. In a similar vein, the Port of Brisbane was leased for A\$2.3 billion in 2010. The lease included an A\$200-million upgrade to the Port of Brisbane motorway. The government used the proceeds for building programs and paying off debt. Another 99-year lease—of the Abbot Point Coal Terminal for A\$1.8 billion—was entered into in 2011. The proceeds were used to fund the unexpected recovery costs associated with massive floods and cyclones in the area.

Queensland also leveraged its existing state-owned toll motorways to boost its ailing pension system. In a unique chain of events, the government first transferred the Queensland Motorway system to the state's investment arm, Queensland Investment Corporation (QIC), at a value of A\$3.08 billion in May 2011. This way the Motorway became an asset of the state's defined benefit pension scheme, with an aim of eliminating existing unfunded liabilities and providing a solid revenue stream to keep pace with future pension obligations.

At the time of transfer, Queensland Motorways only consisted of the Gateway and Logan Motorways long-term lease agreements. Since the time of the transfer, Queensland Motorways underwent a significant improvement through both operational enhancements and the expansion of its network through the acquisitions of Go Between Bridge, Legacy Way and CLEM7 Tunnel. These improvements enhanced the efficiency, profitability and strategic attractiveness of Queensland Motorways, which positioned Queensland Motorways to capitalize on future growth opportunities in Southeast Queensland, including Gateway Upgrade North and AirportLinkM7.

By investing heavily in the asset in order to improve operations, and also expanding the network, QIC created significant investor interest in the Motorways system. To realize that benefit, and to further address long-term pension obligations, QIC initiated a process to divest the asset in 2014 and generated a long-term P3 lease concession for A\$7.1 billion, nearly double what the initial value was and providing even more stability to the pension system.

3.3

FEDERAL ASSET RECYCLING INCENTIVES

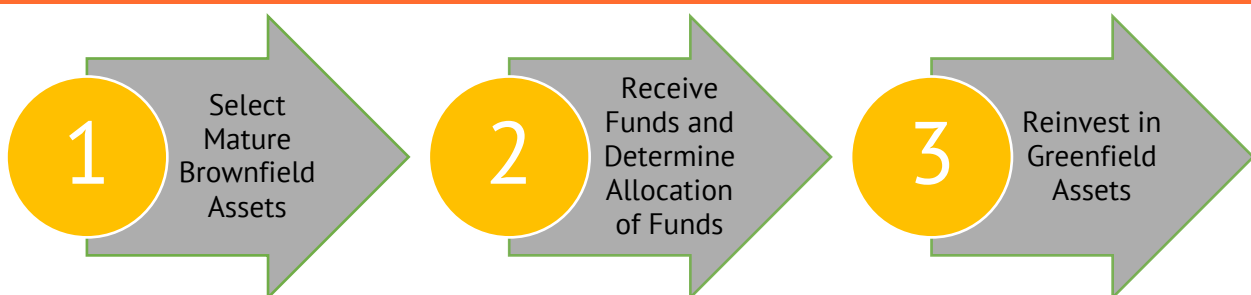
Queensland's success with P3s and asset divestitures may have given the federal Abbott administration the idea of encouraging asset recycling by the states nationwide. Federal officials realized that if they could replicate Queensland's divestiture experience, states could unlock capital to make strategic infrastructure investments, furthering the federal government's goals. The idea was to incentivize states to move in that direction. Also, the government knew that Australian pension funds had indicated interest in expanding their investments in long-term infrastructure enterprises. Pension funds and other infrastructure investors like the stable return and lower risk profile of commercially proven operational assets, further validating the initiative's purpose. This gave the federal government confidence that the initiative would enable federal funding of infrastructure needs and simultaneously reduce debt, freeing government revenue streams for other purposes.

“
Federal officials realized that if they could replicate Queensland’s divestiture experience, states could unlock capital to make strategic infrastructure investments, furthering the federal government’s goals.
 ”

The federal asset recycling initiative encouraged Australian states and territories to evaluate what assets they owned, and to determine which ones could be leased or sold. For this purpose, the Abbott government offered to provide the states with a bonus grant comprising up to 15% of the value of the divested or leased asset proceeds, *provided that the proceeds were invested in infrastructure*. That encouraged state and local governments to lease or sell established and mature government-owned assets (brownfield assets) in order to reinvest proceeds into economic growth-enhancing infrastructure (either greenfield assets or refurbishing existing assets). To be eligible to receive the bonus match, the state had to pledge to invest the proceeds into other infrastructure projects.²⁹

The Australian federal government set aside A\$5 billion in incentive payments. In just a few years, this program succeeded in unlocking more than A\$20 billion worth of infrastructure investment. Governments had a two-year window to identify which assets they wanted to sell or lease, apply for the grant, and reach agreement with the federal government.³⁰

FIGURE 1: ASSET RECYCLING: THE AUSTRALIAN MODEL



²⁹ Umashev, Nichlas. “Kickstarting California’s Infrastructure Boom with Asset Recycling.” *California Policy Center*. June 14, 2017. <https://californiapolicycenter.org/kickstarting-californias-infrastructure-boom-asset-recycling/> Accessed 7 April 2018.

³⁰ Eicher. “Is it Time for an Infrastructure Garage Sale?”

Four state and territorial governments in Australia reached financial close on multiple deals under the two-year program, bringing A\$26 billion of capital to those governments (including the federal incentive grants).

3.4

INCENTIVES SPUR ASSET RECYCLING IN AUSTRALIAN CAPITAL TERRITORY

The Australian Capital Territory (ACT) government raised nearly A\$400 million through the sale of its wagering license, public housing and commercial properties. ACT sold its wagering license, ACTTAB, in 2014 for A\$105.5 million and received proceeds of A\$290 million from the sale of public housing and commercial properties.³¹ Further, the state anticipated additional proceeds of around A\$290 million through the sale of surplus land and assets currently under rehabilitation and/or construction. The state government received A\$60 million in incentive payments from the federal government in association with these asset recycling efforts.

It's worth noting that "public" or government-owned housing has a different context in ACT than in the traditional U.S. sense. The history of public housing in Canberra and the Australian Capital Territory stems from the decision to build the capital in the "bush" with a need to establish housing stock in general, not necessarily for low-income families.

As a result of its efforts, the state was able to use A\$460 million to fund the ACT Capital Metro light rail project.

3.5

ASSET RECYCLING IN NEW SOUTH WALES

The government of New South Wales saw asset recycling as an opportunity to generate new capital for infrastructure investment to reduce traffic congestion and improve economic competitiveness.³² The government determined that new tax revenue was

³¹ Australian Capital Territory. "Commonwealth Scheme to Support Capital Metro." February 19, 2015. http://www.cmd.act.gov.au/open_government/inform/act_government_media_releases/barr/2015/commonwealth-scheme-to-support-capital-metro Accessed 7 April 2018.

³² Editorial. "Right Formula to Accelerate New Infrastructure. *Financial Review*. March 7, 2015. <http://www.afr.com/opinion/right-formula-to-accelerate-new-infrastructure-20150317-1m13i4> Accessed 7 April 2018.

limited, and increases in user charges, while feasible, were challenging and wouldn't generate enough proceeds. At the time, congestion and crowded commuter trains were estimated to cost the NSW economy A\$8.8 billion a year.

The NSW government leased 49% of the state's electricity network—including the high-voltage transmission operator TransGrid and two distribution networks, Ausgrid and Endeavor Energy. The leases generated A\$13.1 billion, which was matched by a federal A\$2 billion incentive grant. This gave the NSW government more than A\$15 billion of capital to reinvest, funneling it into seven different infrastructure projects.

TABLE 2: NEW SOUTH WALES P3 COST BREAKDOWN (FIGURES IN A\$)

NSW Project	Reinvested Proceeds	Incentive Payment	Total Project Cost
Sydney Rapid Transit	\$9,043m	\$1,356m	\$10,399m
Western Sydney Rail Upgrade	\$870m	\$130m	\$1,000m
Parramatta Light Rail	\$522m	\$78m	\$600m
Pinch Points and Clearways	\$348m	\$52m	\$400m
Smart Motorways Program	\$348m	\$52m	\$400m
Gateway to the South Project	\$261m	\$39m	\$300m
Regional Road Freight Corridor	\$1,708m	\$256m	\$1,964m
Total	\$13,100m	\$1,963	\$15,063

Major reinvestment plans included the A\$10.4 billion Sydney Rapid Transit project and the A\$2 billion Regional Road Freight Corridor project in an effort to reduce traffic queues and crowded trains through rehabilitation of existing infrastructure and investments into new

projects. The NSW government estimates that this infrastructure strategy will generate an increase of 122,000 jobs by 2035,³³ leading to a 3.6% increase in Gross State Product.³⁴

To recap, the Australian infrastructure recycling initiative resulted in the revitalization of a wide range of infrastructure assets. Without this program, what became new public investment would have remained idle and unable to support new projects. As the Australian Embassy in Washington, D.C. explains:

The Australian experience has shown that “asset recycling”—providing financial incentives to state and local governments to sell or lease their assets—can be a fast and efficient way of injecting funds into upgrading existing infrastructure or building new infrastructure. Asset recycling promotes better utilisation of private capital, reduces reliance on taxation or public debt as a financing model and improves the efficiency with which existing government assets are used, while also bringing those assets into the federal taxation pool.³⁵

³³ Transport for New South Wales. “Sydney Metro Final Business Case: Summary.” October 2016. 20.

<https://www.sydneymetro.info/sites/default/files/Sydney%20Metro%20CSW%20Business%20Case%20Summary.pdf> Accessed 7 April 2018.

³⁴ Ibid.

³⁵ *Rebuilding America 20/20 Infrastructure Program, Lessons Learned from the Australian Experience.* Australian Embassy to the United States. Washington D.C. February 2017. 2.

PART 4

U.S. ASSET RECYCLING

Leasing infrastructure assets isn't new in the United States. Governments at every level have leveraged their assets from time to time to support other government programs or initiatives. However, given the size of the opportunity, the U.S. experience pales in comparison to that of Australia's. However, the fledgling U.S. experience is worth noting and is illustrated below.

4.1

INDIANA TOLL ROAD

In 2006, the state of Indiana faced a multibillion-dollar transportation infrastructure funding gap. Contributing to the problem, the 156-mile Indiana Toll Road (ITR)—a state-owned toll road that spans the northern part of the state—was losing money. Toll rates had not been increased in 20 years, and the road suffered from deferred maintenance and long-term under-investment.

Realizing there was real value in ITR, then-Governor Mitch Daniels embarked on a long-term lease of the asset. After competitive bidding, the state entered into a 75-year P3 lease with private investors in exchange for a \$3.8-billion upfront lease payment. The investors were granted the rights to operate, maintain and collect the toll revenue from ITR. The long-term contract established rigorous performance standards and enforceable penalty

provisions to ensure ITR remained open for the traveling public in good condition. Toll rate increases were limited to a measure of annual inflation or economic growth.³⁶

The state invested the bulk of the lease payment into new and/or upgraded transportation projects throughout the state, including almost 500 miles of new highway and 60 new or reconstructed interchanges.³⁷ Additionally, it repaid \$200 million in outstanding ITR debt and invested \$500 million into a “Next Generation Trust Fund,” which was designed to provide stable, long-term maintenance funding for the new transportation infrastructure. After paying down debt, and making other strategic investments, the state was able to dedicate \$2.6 billion to a 10-year highway and bridge program called Major Moves. Though not called “asset recycling,” this was a clear-cut example of the process.



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In 2007 the Indiana Treasurer announced “that the state had earned more than \$287 million in interest from its investments of proceeds from the lease.”³⁸ By April 2011, that number had grown to \$755.5 million in interest income. In essence, the ITR lease allowed the state to turn a revenue-losing facility into an asset that funded billions in transportation infrastructure now and hundreds of millions of dollars for the state’s long-term maintenance needs.

³⁶ Gilroy, Leonard and David Aloyts. “Leasing the Indiana Toll Road.” Los Angeles: Reason Foundation, May 31, 2013. <https://reason.org/policy_brief/leasing-the-indiana-toll-road/> Accessed 9 Feb. 2018.

³⁷ State of Indiana. Department of Transportation “Major Moves.” <<http://www.in.gov/indot/2407.htm>> Accessed Feb. 9, 2018.

³⁸ Poole, Robert. “Indiana Toll Road Producing Hundreds of Millions of Dollars in Interest.” Commentary. Los Angeles: Reason Foundation, March 10, 2008.

In addition, the joint venture of Cintra and Macquarie that took over operations of ITR pledged to deliver major capital to ITR itself. This included installing electronic tolling technology, upgrading toll plazas and adding new lanes to reduce congestion.

Not long after the lease of ITR, the global financial crisis hit, and tolled traffic fell well below the projections on which the joint-venture company had based its aggressive financing. It ended up filing for Chapter 11 bankruptcy. There was no interruption of service, no increases in toll rates, and no change in the performance requirements embedded in the original long-term lease agreement—which remained in force during the restructuring and remains in place today. And there was no government bailout. Despite the concession company's financial troubles, the state had received its payment upfront. Further it avoided any long-term liability. Had the state leveraged ITR through a bond offering instead of a long-term lease, taxpayers would have been on the hook when traffic didn't materialize.

In March 2015, a private consortium bought the long-term lease out of bankruptcy for \$5.715 billion.³⁹ A significant amount of the equity that went into the acquisition was supplied by more than 70 U.S. pension funds,⁴⁰ and headed by IFM Investors—a global fund manager with a long history and successful track record in infrastructure investment on behalf of pension funds. CalPERS, America's largest pension fund, subsequently acquired 10% of the concession from IFM. Since acquiring the concession, the new company has invested over \$300 million to rehabilitate 73 miles of pavement and 53 bridges, as well as redeveloping and modernizing the toll road's eight service plazas, which has significantly improved service quality and safety.

³⁹ Kaye, Byron and Tom Hals. "Australia's IFM Investors to pay \$5.7 billion for Indiana Toll Road." *Reuters*. March 12, 2015.

⁴⁰ "IFM Investors Completes Acquisition of Indiana Toll Road Concession Company." *BusinessWire.com*, May 27, 2015.
<https://www.businesswire.com/news/home/20150527006535/en/IFM-Investors-completes-acquisition-Indiana-Toll-Road> Accessed 9 Feb. 2018.

4.2 CHICAGO SKYWAY AND PARKING GARAGES

In January 2005, the city of Chicago entered into a 99-year lease of the Chicago Skyway, an eight-mile toll bridge that connects the Dan Ryan Expressway and the Indiana Toll Road.⁴¹ The lease generated an up-front payment of \$1.8 billion and “the money was used to retire existing debt on the Skyway (\$463 million), pay down long-term city debt (\$134 million), eliminate short-term debt obligations (\$258 million), establish the first ever long-term reserve (\$500 million), establish a mid-term reserve (\$375 million), and establish a “people, neighborhood, and business investment fund” (\$100 million).”⁴² Hence, this transaction did not constitute infrastructure asset recycling, as defined in this policy study, but the proceeds were used largely for balance-sheet strengthening.

The Great Recession that negatively affected the concession company for the Indiana Toll Road also reduced traffic and revenue on the Skyway, but the company remained viable. However, since it was less profitable than the company had expected, it was amenable to a buyout. In a parallel move with the ITR buyout by IFM and its pension fund clients, three of the largest Canadian public pension funds purchased the remaining years of the Skyway’s P3 lease in 2016 for \$2.879 billion, once again a significant premium over the initial up-front lease payment.⁴³ These pension funds saw the long-term value of a significant toll road in one of America’s largest metro areas.

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In a parallel move with the ITR buyout by IFM and its pension fund clients, three of the largest Canadian public pension funds purchased the remaining years of the Skyway’s P3 lease in 2016 for \$2.879 billion, once again a significant premium over the initial up-front lease payment.

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⁴¹ McCann, Herbert G. “Chicago Reaches Deal to Lease Skyway for \$1.8 billion.” *NorthWest Indiana Times*. October 15, 2004.

⁴² Bipartisan Policy Center. “Infrastructure Case Study: Chicago Skyway Bridge.” October 2016. <http://bipartisanpolicy.org/wp-content/uploads/2016/10/BPC-Infrastructure-Chicago-Skyway-Bridge.pdf> Accessed 9 Feb. 2018.

⁴³ Tammik, Ott. “FC for Chicago Toll Road Acquisition.” *Inspiratia Infrastructure*. February 29, 2016.

Following up the Skyway lease, the city of Chicago proceeded to lease four underground parking garages. Owned by the city and the Chicago Park District, the garages constituted the largest underground parking system in the United States. They garnered considerable private-sector interest, ultimately generating the city \$563 million in exchange for a 99-year lease.⁴⁴ The Park District used its share of the proceeds to pay off debt, and establish three different funds earmarked for different park improvements.⁴⁵ The City largely paid off debt with its share of the proceeds.

4.3

PUERTO RICO TOLL ROAD AND AIRPORT

The Territory's first foray into asset recycling came shortly after Indiana's, and focused on a similar asset. Puerto Rico's Public-Private Partnership Authority selected a long-term lease of the PR-22 and PR-5 toll roads as its first large-scale project. During a 12-month procurement process that began in 2010, the agency pre-qualified potential bidders and ended up with two firm bids from teams that had been short-listed. The winner was the team of Goldman Sachs Infrastructure Partners II (an infrastructure investment fund launched in 2010) and Abertis Infraestructuras (one of the largest Spanish toll P3 companies). The winning bid was \$1.136 billion, for the 40-year lease. The Abertis team also contractually committed to make \$350 million worth of capital improvements to the two highways. Abertis was already the operator of the Teodoro Moscoso Bridge in San Juan, one of the first greenfield P3 transportation facilities in America. The PR-22/PR-5 financial close occurred on Sept. 22, 2011.⁴⁶

⁴⁴ "The Chicago Parking Garage Leases." *The Civic Federation*. December 15, 2010. <https://www.civicfed.org/civic-federation/blog/chicago-parking-garage-leases> Accessed 9 Feb. 2018.

⁴⁵ Ibid.

⁴⁶ Poole, Robert W., Jr. "Privatization of Airports, Air Traffic Control, and Airport Security." *Annual Privatization Report 2011*. Los Angeles: Reason Foundation, May 2012 and Poole, Robert W., Jr., "Privatization of Airports, Air Traffic Control, and Airport Security." *Annual Privatization Report 2014*. Los Angeles: Reason Foundation, March 2014.



Puerto Rico's Public-Private Partnership Authority selected a long-term lease of the PR-22 and PR-5 toll roads as its first large-scale project.



Next Puerto Rico worked with the airlines serving Luis Muñoz Marín International Airport in San Juan, and after some months of discussion, the airport's then-leading carrier, American Airlines, agreed to the terms of a draft lease agreement. The Puerto Rico Public-Private Partnerships Authority short-listed six potential bidders, including teams led by ASUR, Ferrovial, Fraport, GMR and Zürich Airport. Two of these ended up submitting proposals: Grupo Aeropuertos Avance (Ferrovial and Macquarie) and Aerostar Airport Holdings (ASUR and Highstar Capital). In July 2012, the Aerostar team was announced as the winner. After the required FAA review and public hearing, the agency approved the 40-year lease agreement on Feb. 25, 2013, and the deal was financed soon thereafter. Aerostar made an up-front payment of \$615 million and agreed to invest \$1.4 billion in the airport over the 40 years of the lease. Aerostar will also share airport revenue with the government, estimated at \$552 million.

Puerto Rico used the proceeds from these transactions primarily to pay down debt, but also injected some capital into the island's regional airports and cruise ship terminals, so these transactions only partly qualify as infrastructure asset recycling.

4.4

BAYONNE, NEW JERSEY WATER AND WASTEWATER

In 2012 the city of Bayonne entered into a 40-year lease of the city's water and wastewater utility. The utility, like many urban water and wastewater systems, had suffered from a backlog of unmet capital needs and deferred maintenance. The long-term lease agreement "was structured to improve the overall financial condition of Bayonne as well as improving water and wastewater services."⁴⁷

⁴⁷ Bayonne Water and Wastewater Concession Agreement. University of North Carolina Environmental Finance Center, 2012.
<https://efc.sog.unc.edu/sites/www.efc.sog.unc.edu/files/2017/Bayonne_Final_WEB.pdf>
Accessed 7 April 2018.

After a competitive process, evaluating multiple possible structures, the city settled on seeking a 40-year lease that would allow the selected operator to retain all water and wastewater user-fee revenues while paying the city at least enough to pay off the system's outstanding debt.⁴⁸ The structure of the lease payments included an upfront payment of \$150 million and annual payments of \$500,000.⁴⁹ The initial payment was largely used to refund existing debt, with \$25 million used for transaction costs (\$6.5 million) and to support general governmental needs and tax stabilization (\$18.5 million).⁵⁰

The private operator, a joint venture of United Water and private equity firm KKR, is required to make annual capital investments into the utility, in addition to managing operating costs. "One of the major selling points of this arrangement was that it would smooth out rate increases in a way that would lead to lower customer rates than if the utility provided similar services without the long-term lease agreement."⁵¹

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Since completing the transaction in 2012, the city's overall financial health has improved. Its credit outlook shifted to stable from negative, and has further improved since.

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Since completing the transaction in 2012, the city's overall financial health has improved. Its credit outlook shifted to stable from negative, and has further improved since.⁵² Better credit ratings reduce the cost of borrowing for the city, potentially resulting in better financial conditions citywide.

⁴⁸ *State of New Jersey Board of Public Utilities Agenda*. Agenda Item 5B. October 23, 2012.

⁴⁹ Bowen, Mick. "KKR, United Water Price Private Placement Bonds for Bayonne Water Concession," *InfraAmericas*. November 21, 2012.

⁵⁰ *Order Approving an Agreement to Establish a Public-Private Contract Between the Bayonne Municipal Utilities Authority and United Water Joint Venture, LLC*. New Jersey Board of Public Utilities. Agenda Item 5B. October 23, 2012.

⁵¹ Bayonne Water and Wastewater Concession Agreement. 7.

⁵² *Ibid.* 8.

4.5

MARYLAND: SEAGIRT MARINE TERMINAL

In 2009 the Maryland Port Administration (MPA) signed a 50-year agreement for the lease and operation the Seagirt Marine Terminal.⁵³ The private partner, Ports America, agreed to invest \$500 million in the project, including a \$140 million payment to Maryland that was used for bridge and tunnel projects near the port along I-95 and the Chesapeake Bay Bridge.⁵⁴ Other investments, funded by the private partner, included a deeper 50-foot-deep berth, and four new cranes capable of handling Super-Post-Panamax cargo ships. Since the opening of the widened Panama Canal in the summer of 2016, the investments have paid off for the Port, which has seen increased container ship traffic.⁵⁵



The private partner, Ports America, agreed to invest \$500 million in the project, including a \$140 million payment to Maryland that was used for bridge and tunnel projects near the port along I-95 and the Chesapeake Bay Bridge.



4.6

THE OHIO STATE UNIVERSITY

The leadership of the Ohio State University (OSU) has fully embraced asset recycling. OSU owned assets that were not part of the university's core mission, and decided to explore monetizing them. Two separate transactions have been completed, generating significant new resources to fulfill the university's core mission.

In 2011, OSU launched a process to lease the university parking system, which reached financial close in September 2012. A 50-year long-term lease agreement generated a \$483

⁵³ State of Maryland. Transportation P3s.

<http://www.mdt.maryland.gov/partnerships/tp3overview.html> Accessed 7 April 2018.

⁵⁴ Ports America Chesapeake. <https://www.pachesapeake.com/Seagirt/Default.aspx> Accessed 7 April 2018.

⁵⁵ Campbell, Colin. "Expansion of Port of Baltimore's Seagirt Marine Terminal Moves Forward." *Baltimore Sun*. May 30, 2017.

million upfront payment to the university.⁵⁶ OSU deposited the proceeds into the university's endowment. More than \$100 million has been distributed to support student scholarships, recruit and hire tenured and tenure-track faculty, support campus area bus service and support the University's Arts District. OSU anticipates that the long-term lease will generate \$3.1 billion in academic initiatives.⁵⁷



In 2011, OSU launched a process to lease the university parking system...OSU anticipates that the long-term lease will generate \$3.1 billion in academic initiatives.



Following the successful parking initiative, OSU launched a Comprehensive Energy Management Project⁵⁸ to operate and maintain the utilities that power, heat and cool the campus. The effort resulted in a 50-year partnership that has a total value of \$1.165 billion, including a \$1.015 billion up-front payment to the university and a \$150 million commitment to support academics in specific areas requested by students, faculty and staff during the bidding process.⁵⁹ The up-front payment is being invested in the university's endowment—similar to the parking proceeds—and used to support core university functions including student financial aid, compensation enhancements for faculty and staff, investments in classrooms, labs and arts spaces.⁶⁰

⁵⁶ The Ohio State University, Office of Administration and Planning. "Parking Lease" <https://ap.osu.edu/parking> Accessed 7 April 2018.

⁵⁷ The Ohio State University. "Innovative Funding" <http://innovativefunding.osu.edu/> Accessed 7 April 2018.

⁵⁸ The Ohio State University. "Energy Management." <https://www.osu.edu/energymanagement/index.php?id=67> Accessed 7 April 2018.

⁵⁹ The Ohio State University. "University Launches Sustainability and Energy Innovation Partnership." July 17, 2017 <https://news.osu.edu/news/2017/07/17/partnership-launch/> Accessed 7 April 2018.

⁶⁰ Ibid.

These two initiatives have generated substantial new resources for OSU, improving the university's long-term financial position. Indeed, Moody's recently commented that "the financial flexibility afforded by monetizing assets increases Ohio State's competitiveness by bolstering funds for core operations and strategic initiatives."⁶¹ Some investment analysts suggest that parking transactions could open the door to broader university P3s.⁶²

⁶¹ Moody's Investor Service. "The Ohio State University, Issue in Depth." April 12, 2017. <https://www.osu.edu/energymanagement/Moody's%20FINAL%20-%20Upfront%20Payment%20from%20Energy%20Management%20Initiative%20Enhances%20Ohio%20State's%20Competitive%20Position.pdf> Accessed 7 April 2018

⁶² Gilligan, Eugene. "News Analysis: Parking Concessions Could Prove Gateway to Broader University P3s." *Inframation News*. June 12, 2018.

PART 5

ESTIMATED VALUES OF SELECTED U.S. STATE/LOCAL INFRASTRUCTURE ASSETS

There are numerous opportunities for asset recycling by U.S. cities, counties and states. The most attractive assets to investors are those with an established use profile with existing user fees or other dedicated revenue streams. That's not to say that less-mature assets aren't attractive, but since they have less revenue history, they will come with a higher risk premium and may not generate comparable valuations.

5.1

INDICATIVE VALUATION METHODOLOGY

Globally, governments have been using long-term P3 concessions for all types of infrastructure assets. Their experience gives us a general idea of what existing facilities might be worth. Investors estimate the value of an infrastructure enterprise in terms of its earnings before interest expense, taxes, depreciation and amortization (EBITDA). In the case of assets owned by governments, taxes are zero, and the other figures are readily available in their financial statements. Investors typically pay some multiple of EBITDA,

either for outright ownership or a lease term long enough to have many of the attributes of ownership (e.g., 40 to 75 years).

The indicative valuation methodology used here is intended only to suggest the possible magnitude of the value of several infrastructure categories. The actual value of any specific facility will depend on many factors specific to that facility, so estimates such as those given below should be used with caution, as simply illustrative of potential magnitudes.

AIRPORTS:

Macquarie Capital has assembled figures that cover 30 commercial airport transactions for years 2008 through 2013. While the EBITDA multiples ranged from a low of 10 times EBITDA to a high of 35X, the average was 16.3X.⁶³ The EBITDA multiple for the recent sale of London City Airport for \$3.05 billion was 28X.⁶⁴ To be conservative, the estimates that follow use 17X for baseline airport valuations, with a high value of 20X and a low-end value of 15X.

TOLL ROADS:

Another Macquarie data set tracks 10 major toll facility concessions from 2008 through 2015. These range from 18.3X to 35.5X EBITDA, with an average of 26.2X.⁶⁵ The EBITDA multiple for the recent A-25 toll road lease in Montreal was 26X.⁶⁶ To be conservative, the estimates that follow use 25X for baseline toll road valuations, with a high value of 30X and a low-end value of 20X.

SEAPORTS:

Although there have been some long-term port leases (and some sales), data on EBITDA multiples are harder to obtain. Recent Australian port deals, according to *Infrastructure*

⁶³ Author calculation based on Macquarie data table provided to author.

⁶⁴ Kneller, Peter. "Winning Bidder for London City Airport." *Inspiratia Infrastructure*, Feb. 26, 2016.

⁶⁵ Author calculation based on Macquarie data table provided to author.

⁶⁶ "North America: Transurban Wins A-25 Toll Road." *Inframation*. March 22, 2018. <https://www.inframationgroup.com/north-america-transurban-wins-a25-toll-road> Accessed 7 April 2018.

Investor, were in the 25X to 27X range.⁶⁷ Because most U.S. landlord ports already have long-term leases with terminal operators, the high end of the EBITDA range is not realistic. To be conservative, the estimates that follow use 14X for baseline port valuation, with a high value of 17X and a low-end value of 12X. Port values are significantly affected by the port's location in the flow of commerce, so applying any average to a specific port does not take that factor into account.

WATER/WASTEWATER:

There are few U.S. examples of long-term leases of water or wastewater systems. However, there are a number of privately owned water utilities that often trade in the market. Another Macquarie data set established an average value of 12X EBITDA for water utilities.⁶⁸ To be conservative, the estimates that follow use 12X for baseline valuation, with a high value of 13X and a low-end value of 11X. Many U.S. water and wastewater systems have extensive deferred maintenance, which may reduce net proceeds to lower levels than suggested by these average evaluation metrics (based on well-run water utilities), since the P3 concession companies will have to make large-scale investments in refurbishing such leased systems.

UNIVERSITY PARKING:

Another Macquarie data set tracked the five most-recent parking P3 concessions. These range from 15X to 30X EBITDA, with an average of 22X.⁶⁹ However, the sole on-campus transaction had an EBITDA of 25.5X so the estimates use that as a baseline valuation, with a high value of 30X and low-end value of 20X. As the advent of autonomous vehicles grows nearer, the risk inherent in long-term ownership of parking facilities may increase, so recent valuations may be higher than those of future transactions.

⁶⁷ Chong, Florence. "Why Investors Prefer Ports in an Economic Storm." *Infrastructure Investor*. Feb. 2015.

⁶⁸ Author calculation based on Macquarie data table provided to author.

⁶⁹ Author calculation based on Macquarie data table provided to author.

5.2

NET VALUE ESTIMATION

AIRPORTS

Existing state and local government-owned airports are very attractive globally, with more than 450 commercial airports already having been privatized, in whole or in part worldwide, mostly via long-term P3 lease concessions.⁷⁰ Thus far, only one U.S. airport has been successfully leased in this manner (San Juan International), though Chicago has tried to lease Midway Airport, and similar deals are under consideration for St. Louis' Lambert International and Westchester County, New York's airport.⁷¹

Using the methodology summarized in footnote #74, an estimated \$250 billion to \$360 billion of net economic value could be generated from P3 leases of airports with enplaned passengers greater than two million—which represents 61 airports.⁷² An additional estimated \$100 billion of capital improvements over five years would be undertaken by the private partners, bringing the total private-sector investment value to between \$350 billion and \$460 billion.

⁷⁰ Government Accountability Office. "Airport Privatization: Limited Interest Despite FAA's Pilot Program." GAO-15-42. November 2014.

⁷¹ Poole, Robert W., Jr., "Annual Privatization Report: Air Transportation," Reason Foundation, May 2018.

⁷² Valuation was generated on a pro forma operating profile for privatized U.S. airports where aeronautical revenues are assumed to remain at current levels per enplaned passenger. Non-aeronautical revenues are pegged at the weighted average non-aeronautical revenues per enplaned passenger from seven privatized Australian airports. Operating costs are assumed based on a "normalized" EBITDA margin from Australian airports, adjusted by setting the aeronautical revenue per enplaned passenger equal to the U.S. weighted average. An EBITDA multiple of 15-20 times was then applied to calculate gross proceeds. ("EBITDA margin" equals EBITDA/total revenue and is used to demonstrate a company's profitability or relative efficiency. It is assumed that P3 airports achieve a certain profitability factor.)



Baltimore Washington International Airport

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***Airports Example #1:
Baltimore/Washington (BWI)***

Gross proceeds:

- Low: \$2.2 billion
- Medium: \$2.5 billion
- High: \$2.9 billion

Net proceeds before any incentive payment:

- Low: \$1.6 billion
- Medium: \$1.9 billion
- High: \$2.3 billion

***Airports Example #2:
Louisville (SDF)***

Gross proceeds:

- Low: \$640 million
- Medium: \$726 million
- High: \$854 million

Net proceeds before any incentive payment:

- Low: \$452 million
- Medium: \$538 million
- High: \$666 million

TOLLED ROADS AND BRIDGES

Existing government-owned toll roads and bridges are also very attractive to investors globally, and count for three examples of full or partial U.S. asset recycling initiatives thus far (Chicago, Indiana, and Puerto Rico).

Values were estimated by reviewing recent operating revenue and expenses of 42 of the largest toll systems, which represent 89% of U.S. toll revenue; net proceeds were grossed up to capture the full U.S. market potential.⁷³ This produced an estimate that between \$175 billion and \$230 billion of net economic value could be generated from P3 leases of existing toll roads around the country.

An additional estimated \$10 billion of capital improvements over five years⁷⁴ would be undertaken by the private partner, bringing the total private-sector investment value to between \$185 billion and \$240 billion.

<i>Toll Roads Example #1: Bay Area Toll Authority (BATA)</i>	<i>Toll Roads Example #2: George Washington Bridge</i>	<i>Toll Roads Example #3: Illinois Tollway system</i>
Gross proceeds:	Gross proceeds:	Gross proceeds:
<ul style="list-style-type: none"> • Low: \$11.3 billion • Medium: \$14.2 billion • High: \$17 billion 	<ul style="list-style-type: none"> • Low: \$13.5 billion • Medium: \$16.9 billion • High: \$20.3 billion 	<ul style="list-style-type: none"> • Low: \$17.5 billion • Medium: \$21.9 billion • High: \$26.3 billion
Net proceeds before any federal incentive payment:	Net proceeds before any federal incentive payment:	Net proceeds before any federal incentive payment:
<ul style="list-style-type: none"> • Low: \$2 billion • Medium: \$4.9 billion • High: \$7.7 billion 	<ul style="list-style-type: none"> • Low: \$10.2 billion • Medium: \$13.6 billion • High: \$17 billion 	<ul style="list-style-type: none"> • Low: \$11.5 billion • Medium: \$15.8 billion • High: \$20.3 billion

⁷³ Some efficiency gains were assumed within some assets and a multiplier of 25-30 times EBITDA was used; any long term debt was deducted to calculate net proceeds.

⁷⁴ Assumed capital expenditures of 10-15% of revenue per year based on run-rate capital expenditure profile for Indiana Toll Road.

SEAPORTS

Valuation began with the most recent year's operating revenue and expenses for a sample of eight U.S. ports. To extrapolate to the full U.S. market, total U.S. port cargo volume was compared to the cargo volume in the data set, which represented 26% of total volume. Net proceeds were grossed up, but at a discount, since smaller ports would not be as attractive to private investors. The sample set of eight produced an estimated net economic value of \$20 billion, and the remaining volume produced an estimated net economic value of \$30 billion for a total net seaport value of \$50 billion that could be generated from port asset recycling initiatives around the country.⁷⁵ An additional estimated \$9 billion of capital improvements⁷⁶ over five years would be undertaken by the private partners, bringing the total private sector investment value to around \$59 billion.

Seaports Example #1: Port of Tampa Bay⁷⁷

Gross proceeds:

- Low: \$261 million
- Medium: \$304 million
- High: \$369 million

Net proceeds before any incentive payment:

- Low: \$164 million
- Medium: \$227 million
- High: \$272 million

Seaports Example #2: Port of Houston⁷⁸

Gross proceeds:

- Low: \$1.66 billion
- Medium: \$1.94 billion
- High: \$2.4 billion

Net proceeds before any incentive payment:

- Low: \$985 million
 - Medium: \$1.26 billion
 - High: \$1.68 billion
-

⁷⁵ If the EBITDA margin for a port was less than 45%, an uplift adjustment to 45% is assumed, based on improved performance by the P3 entity. An EBITDA multiple of 25 times was applied across the data set to calculate gross proceeds; long-term debt was deducted to calculate net proceeds. ("EBITDA margin" equals EBITDA/total revenue and is used to demonstrate a company's profitability or relative efficiency. It is assumed that P3 seaports achieve a certain profitability factor.)

⁷⁶ Assumed capital expenditure (capex) of 46% of revenue per year based on capex spending of ports sampled.

⁷⁷ Port of Tampa Bay <<https://www.porttb.com/finance>> Accessed 20 March 2018.

⁷⁸ Port of Houston. <http://porthouston.com/financial-transparency/financial-information/> Accessed 20 March 2018.

WATER/WASTEWATER

Existing local water systems hold significant value that can be unlocked, but many urban systems are also in need of significant investment because of years of deferred maintenance. Asset recycling can address both by generating capital for other investments as well as providing immediate capital for the system itself. Recycling has the added benefit of transferring long-term investment risk to the private sector, likely preventing the systems from falling into similar conditions in the future.

The estimated value is based on gathered data on the rate base, customers served, and projected capital expenditure for eight investor-owned U.S. water utilities. A weighted-average rate base per customer and weighted-average capital expenditure (capex) per customer was calculated. An estimate of the total customers under publicly owned utilities was found, and the rate base/capital expenditure metrics applied with a rate base multiple of 1.7X to calculate gross proceeds of a P3 lease. Debt was deducted based on average leverage level for public utilities to arrive at net proceeds. This yielded an estimate of around \$110 billion of net economic value that could be generated from water/wastewater asset recycling initiatives around the country. An additional estimated \$60 billion of capital improvements over five years would be undertaken by the private partner, bringing the total private sector investment value to around \$170 billion.

Water Example #1:

Las Vegas Valley Water District⁷⁹

Gross proceeds:

- Low: \$1.32 billion
- Medium: \$1.44 billion
- High: \$1.56 billion

Net proceeds before any incentive payment:

- Low: \$489 million
- Medium: \$609 million
- High: \$729 million

Water Example #2:

Mobile Area Water and Sewer System⁸⁰

Gross proceeds:

- Low: \$476 million
- Medium: \$520 million
- High: \$563 million

Net proceeds before any incentive payment:

- Low: \$241 million
- Medium: \$285 million
- High: \$328 million

⁷⁹ Las Vegas Valley Water District. Operating and Capital Budget for the Fiscal Year ending June 30, 2019 <https://www.lvwwd.com/universal/agenda/getfile.cfm?id=1582> Accessed 7 April 2018.

⁸⁰ Mobile Area Water and Sewer System. <https://www.mawss.com/uploads/file_library/2018-annual-budget.pdf> Accessed 12 April 2018.

STATE UNIVERSITY PARKING

There is significant private sector interest in parking infrastructure at state university systems. In addition to the economic value, there is an added benefit of transferring long-term revenue risk to investors, as changes in mobility (such as a possible shift from individual vehicle ownership to “mobility as a service”) emerge in coming years. Airports are already starting to see reduced growth in revenues from parking and rental car operations.

University Parking Example #1: Mississippi Board of Regents⁸¹

Mississippi State University

- Low: \$120 million
- Medium: \$150 million
- High: \$180 million

University of Mississippi

- Low: \$128 million
- Medium: \$160 million
- High: \$192 million

University of Southern Mississippi

- Low: \$72 million
- Medium: \$90 million
- High: \$108 million

University Parking Example #2: Georgia Board of Regents⁸²

University of Georgia

- Low: \$184 million
- Medium: \$230 million
- High: \$276 million

Georgia Institute of Technology

- Low: \$148 million
 - Medium: \$185 million
 - High: \$222 million
-

It is estimated that around \$60 billion of net economic value could be generated from state university parking recycling initiatives around the country. The value was derived from estimated student enrollment at all U.S. public universities.⁸³ Based on the average

⁸¹ Assumes rate increases of CPI and that three universities operate under a single long-term lease agreement.

⁸² Assumes rate increases of CPI.

⁸³ National Student Clearinghouse Research Center.
<<https://nscresearchcenter.org/currentenrollmentestimate-fall2016/>> Accessed 12 April 2018.
Note also that a discount was applied to account for institutions that are of sufficient scale to generate investor interest.

students per parking space for a sample of schools, the number of parking spaces at public universities was calculated, assuming an acquisition price of \$13,800 per parking spot based on the OSU parking transaction metrics, with 30% assumed to be needed to pay off existing parking-related debt. That yielded net proceeds from P3 parking leases of \$60 billion.

An additional estimated \$2 billion of capital improvements⁸⁴ over five years would be undertaken by the private partner, bringing the total private-sector investment value to around \$62 billion.

It is worth noting that proceeds would likely support the core higher education mission rather than be reinvested into infrastructure. However, if universities followed the Ohio State model, they can offset the long-term decline of public financial support for higher education.⁸⁵

⁸⁴ Five-year capex of \$445/parking spot based on OSU parking transaction metrics.

⁸⁵ Mitchell, Michael, Michael Leachman and Kathleen Masterson. "Funding Down, Tuition Up." *Center on Budget and Policy Priorities*. August 15, 2016.

PART 6

FEDERAL POLICY CHANGES FOR ASSET RECYCLING

While nearly all the infrastructure assets of interest to investors are owned by state and local government entities, there are several actions the federal government could take to spur asset recycling in the United States. First, the federal government could lead by example by seeking long-term lease P3 concessions of its own revenue-generating assets (e.g., the Tennessee Valley Authority or the Washington, D.C. airports), showcasing the opportunity. This would have the added benefit of making asset recycling an accepted national policy.

Beyond that, there are three kinds of policy measures the federal government could use to help spur asset recycling by state and local government entities: providing incentives, helping fund qualified advisors, and reducing the cost of capital for asset recycling transactions.

6.1

INCENTIVES PROGRAM

As we saw in the case of Australia, incentives matter. Our federal government could similarly establish formal tools and policies to encourage state and local governments to unlock the value of their existing infrastructure, and reinvest the proceeds in new projects.

Absent such an incentive, these governments may not see the value in undertaking these kinds of transactions, given their relative novelty and perceived complexity. As with Australia's federal recycling initiative, the incentive could be structured as a matching grant for up to a certain percentage of lease proceeds that government asset owners realize from the private sector *and commit to reinvesting in new infrastructure*.

The grants would be available to support investments in a broad range of infrastructure categories, including transportation facilities; water, wastewater, and electric utilities; and state and local government buildings. Indeed, the White House infrastructure proposal called for establishing an incentives program to encourage state and local governments to “develop their own dedicated revenues.”⁸⁶

A matching incentive is likely the most effective and best leveraging of limited federal resources available. For example, if the matching grant was 10% or \$0.10 for every dollar reinvested, every federal dollar would generate \$11 of new investment—the \$10 from the asset recycling, plus the \$1 of federal investment. This, of course, does not account for any new or additional capital investment in the leased facility that the new owner/operator would undertake during the long term of the lease, adding further leverage to the federal investment.

This program could be an adaptation—or the core component—of the White House proposal. In its report on the White House proposal, the U.S. DOT specifically notes asset recycling as a tool to leverage private sector investment in infrastructure.⁸⁷

Asset recycling also takes non-taxpaying assets and converts them into taxpaying assets. New federal corporate income tax revenues will offset the program's costs and in the long run generate a stable revenue stream that could be used for further federal investments.

⁸⁶ “The President's Initiative for Rebuilding Infrastructure in America.” U.S. DOT. 16.

⁸⁷ *Ibid.* 18.

Indeed, in Australia they found that the “taxes paid by the assets...more than pay for the upfront cost” of the program.⁸⁸

Nothing motivates like financial incentives. However, establishing this program would have the added benefit of changing the political dialogue and providing support to state and local governments that use the program. It would send a positive political signal that asset recycling is an established U.S. public policy.

6.2

HELP FUND QUALIFIED ADVISORS

The government could make small federal grants available to city and state governments to hire financial and legal advisors for asset recycling projects. This would help them to avoid early out-of-pocket costs to evaluate opportunities. Asset recycling is new and unfamiliar to most state and local governments, and these governments need expert advice to help guide them through the process of identifying the best opportunities, and ultimately structuring the transactions and contracts to ensure public policy goals are met. Given the budget challenges facing these governments, there is often little room or appetite to pay for new advisors. Federal policy should encourage state and local governments to obtain the services of well-qualified legal and financial advisors, so as to fully evaluate all options available to them.

Similar to the incentives above, this program would have limited financial costs and could help change the political paradigm by emphasizing the federal government’s endorsement of the potential of asset recycling opportunities. Grants wouldn’t need to be much more than a few million dollars (per jurisdiction) to have a meaningful impact. Further, the grants themselves could be credited against any incentive payment later made by the federal government if the state or locality decides to pursue a transaction, reducing the net cost to the federal government.

6.3

REDUCING THE COST OF CAPITAL (PABS REFORM)

Private-sector investors in new (greenfield) infrastructure P3s often rely on tax-exempt private activity bonds (PABs) to provide financing that is competitive with tax-exempt state and local government bonds. Unfortunately, under current law, PABs are subject to

⁸⁸ *Rebuilding America 20/20 Infrastructure Program*. Australian Embassy. 7.

restrictions that limit their ability to facilitate P3s agreements that would power infrastructure recycling. First, PABs can only be used for certain kinds of infrastructure projects. Second, there is a \$15-billion cap on the amount of PABs that can be issued, and about two-thirds of that total has already been issued or authorized. Even more negative for asset recycling, PABs cannot be used to finance the *acquisition* (through an outright purchase or long-term lease) of existing (brownfield) infrastructure assets.

Together, these limitations make it much more difficult to take the first step in the infrastructure recycling process. Without access to PABs that can be used to lease a broad range of existing infrastructure assets, private investors would be required to finance the lease of these assets (and the repayment of any associated municipal bond debt) with *taxable* bonds, imposing significant additional costs. Ultimately, these costs limit the amount of proceeds that can be made available to state and local governments to support new infrastructure projects, frustrating the goals of asset recycling.

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First, PABs should be made available for P3 projects for all types of public-purpose infrastructure.

The best way forward would be to reform PABs in several respects. First, PABs should be made available for P3 projects for all types of public-purpose infrastructure. Currently, only surface transportation projects have something resembling a level financial playing field. Other infrastructure—airports, ports, schools and other public buildings, parking structures, water and wastewater facilities—may use tax-exempt bonds under certain conditions, but must comply with various IRS regulations and government controls.⁸⁹

In 2015 the Obama administration proposed that Congress authorize a new kind of tax-exempt infrastructure bond called Qualified Public Infrastructure Bonds (QPIBs), intended

⁸⁹ Public buildings such as schools and courthouses must comply with IRS rules that limit management agreements with private parties to ones interpreted as not impairing the “public” character of the facility. Water and wastewater projects can use tax-exempt debt only if they can obtain an allocation of “volume cap” from the state in question.

to “extend the benefits of municipal bonds to public-private partnerships.” The White House Fact Sheet⁹⁰ added the following:

A similar existing program, Private Activity Bonds (PABs), has already been used to support financing of over \$10 billion of roads, tunnels, and bridges. QPIBs will expand the scope of PABs to include financing for airports, ports, mass transit, solid waste disposal, sewer and water, as well as for more surface transportation projects. Unlike PABs, the QPIB bond program will have no expiration date, no issuance caps, and interest on these bonds will not be subject to the Alternative Minimum Tax.

Consistent with the above proposal, PABs should be reformed along the following lines:

- P3s for all sectors of public-purpose infrastructure would be included;
- No cap on the volume that can be issued;
- No expiration date;
- Not subject to the Alternative Minimum Tax (AMT).

The second major reform would be to extend PABs to brownfield as well as greenfield P3 facilities.

The second major reform would be to extend PABs to *brownfield* as well as greenfield P3 facilities. Current U.S. law permits PABs to be used only for projects that create new (greenfield) infrastructure facilities, but not for rebuilding and modernizing existing (brownfield) facilities. In cases such as the long-term P3 leases of the Indiana Toll Road and San Juan International Airport—both of which will involve significant reconstruction over their lengthy terms (75 and 40 years, respectively)—existing tax-exempt bonds had to be paid off, and they had to be replaced by more-expensive taxable bonds. Yet since the primary focus of the Administration’s infrastructure effort is to “rebuild” aging and obsolete

⁹⁰ Office of the Press Secretary. “FACT SHEET: Increasing Investment in U.S. Roads, Ports, and Drinking Water Through Innovative Financing.” The White House. January 16, 2015.

infrastructure via P3 concessions, these current tax provisions are properly viewed as another federal barrier.⁹¹

A positive U.S. step in this direction would be to authorize the use of PABs or QPIBs to finance the long-term lease of brownfield infrastructure facilities, rather than to restrict their use only to greenfield projects. For assets requiring major near-term reconstruction and expansion, there might not be any net proceeds to the state or local government, but since long-term P3 concessions have a track record of better management and more cost-effective construction and modernization efforts, there are sound public policy reasons to shift their management to the private sector in advance of the need for major reconstruction.

The White House infrastructure proposal calls for these reforms, though this part of the proposal has received little attention. In the subsection called “Create Flexibility and Broaden Eligibility to Facilitate the Use of Private Activity Bonds,” the proposal calls for the following:⁹²

- Treat a project that a government owns but leases under a long-term P3 agreement as “governmentally owned” for federal tax purposes;
- Broaden eligibility for PABs to a wide array of public infrastructure;
- Eliminate the Alternative Minimum Tax on PABs;
- Remove state volume caps and transportation volume caps for P3 projects;
- Preserve tax-exempt status of government bonds when a project is leased under a P3 agreement;
- Allow tax-exempt PABs to be used to finance brownfield P3 leases.

State and local governments would have to comply with a “maintenance of effort” test demonstrating that state infrastructure investment in the three years following the issuance of the new PABs exceeded the average spending level of the prior three years by at least the amount of the PABs.

⁹¹ Poole, Robert W., Jr. and Austill Stuart. “Federal Barriers to Private Capital Investment in U.S. Infrastructure.” Los Angeles: Reason Foundation, January 2017.

⁹² The White House. “Legislative Outline for Rebuilding Infrastructure in America.” 15-16.

Most importantly, acquisition-financing PABs must not be subject to the provision in section 147(d) of the Internal Revenue Code that restricts the financing of existing property. Short of an outright exemption from this provision, legislation could provide for “deemed” compliance with its terms through the “recycling” of P3 net proceeds into new infrastructure.

6.4**PROGRAM ADMINISTRATION**

Because asset recycling would support projects across several different infrastructure sectors (including transportation facilities; water, wastewater, and electric utilities; and state and local government buildings, among others), it cannot be effectively administered by an office housed within a single federal line agency like the Department of Transportation or the Environmental Protection Agency. Instead, it needs a multidisciplinary platform.

One solution would be to convert DOT’s Build America Bureau into a multi-sector government entity or corporation, with a board of both inside directors (federal agency officials) and outside directors (with industry expertise in project development, finance and operations). The corporation could allocate the resources among sectors and select the projects within each sector that would receive assistance.

An alternative approach would direct the secretary of the treasury each year to allocate available grant and volume cap resources among the various federal agencies with functional purview, based on joint annual assessments of national need and program demand. Each department or agency would have its own Build America Bureau (DOT, EPA, Army Corps of Engineers, Department of Energy, etc.) to sub-allocate the financial assistance to individual projects. This could lead to duplicative effort, but would ensure that agency priorities and sector expertise were effectively included in the analysis.

PART 7

CONCLUSION

Few question the need to invest more in America's infrastructure. Governments at every level have struggled for years to keep up with the needs of a growing economy and changing demographics, let alone stay on top of maintenance and rehabilitation on existing infrastructure. Despite trillions in investment, there remains significant need for both expansion and rehabilitation.

Prior infrastructure investments have created tremendous economic value for the country, as well as creating a long list of assets attractive to private investors. Asset recycling can unlock billions in new capital that can be redirected into new investments in infrastructure.

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Additionally, recycling can benefit the long-term health of the nation's infrastructure, since long-term P3 lease agreements include stringent performance regimes. Requirements include keeping assets properly maintained and fully operational, as well as returning the asset in excellent condition at the end of the lease. Private operators are fully incentivized

to make the investments when they need to be made in order to keep customers happy, avoid any performance penalties, or risk termination of the concession and the asset returning to the state.

With constrained public resources at every level of government, it will take novel ideas to address our continued infrastructure investment deficit. Shifting non-taxpaying assets into tax-paying entities will broaden the tax base and generate new revenue streams that support continued infrastructure investment.

Arguably, no other tool holds as much promise in addressing America's infrastructure deficit, while simultaneously boosting employment and GDP growth. Asset recycling should be part of any solution to rebuild and modernize this country's aging public-purpose infrastructure.

ABOUT THE AUTHOR

Robert W. Poole, Jr. is director of transportation policy and the Searle Freedom Trust Transportation Fellow at the Reason Foundation. He received his B.S. and M.S. in mechanical engineering at MIT and did graduate work in operations research at NYU.

In surface transportation, his 1988 policy paper proposing privately financed express toll lanes invented that concept. The paper inspired California legislation that led to the world's first privately developed express toll lanes project on SR 91 in Orange County, California. Today, more than 40 ETL projects are in operation around the country. In 1993 he directed a Reason study that introduced the term HOT Lanes.

He has been an advisor to the Federal Highway Administration, the Federal Transit Administration, the White House Office of Policy Development, and the DOTs of California, Florida, Georgia, Indiana, Utah, Virginia, Texas, and Washington State. He served on the Caltrans Privatization Advisory Steering Committee, in 1989-90, and was a member of California's Commission on Transportation Investment in 1995-96.

In 2003-05 he was a member of the TRB's special committee on the long-term viability of fuel taxes for transportation funding. In 2008 he served as a member of the Texas Study Committee on Private Participation in Toll Roads. In 2010 he served as a member of the Expert Review Panel on Managed Lanes, for the Washington State DOT. He also served on the transition team for Florida's Gov.-Elect Rick Scott.

His book, *Rethinking America's Highways: A 21st Century Vision for Better Infrastructure*, was published by the University of Chicago Press in July 2018.

In aviation, during the 1990s Poole's Reason Foundation studies helped launch a national debate on airport privatization, and he served as an advisor to the Federal Aviation Administration on this subject. His research and testimony supported the 1996 legislation that created the FAA's Airport Privatization Pilot Program. In aviation security, he advised the White House and the House Aviation Subcommittee on legislation in response to the 9-11 terrorist attacks. His decade of research on the Trusted Traveler concept helped bring about the TSA's PreCheck program.

Over more than three decades, Poole has been a leading researcher on the merits of converting the FAA's air traffic control system into a self-supporting, nonprofit corporation similar to Canada's successful Nav Canada. In 2011-2014 he was a member of a Business Roundtable expert group advancing this concept, which inspired legislation approved by the House Transportation & Infrastructure Committee in 2016 and in a revised form in 2017. For this work he received the 2018 Transportation Thought Leader Award from the Eno Center for Transportation.

