

# Funding and Investing in Infrastructure

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**F**unding and investing in infrastructure are not only about finding adequate resources to meet the demands of the citizenry. Rather, funding and investing in infrastructure are parts of a larger governmental process involving the assessment of demand for the facility, estimating and measuring consumption of the facility, and assessing the performance or condition of existing facilities. Finding resources for infrastructure, then, is part and parcel of government planning and budgeting, functions and exercises that require a thorough assessment of infrastructure need, use, and demand. Funding also requires governments to identify the type of facility to be funded (e.g., streets, city hall), which allows an assessment of pricing, that is, how the facility should be paid for, who should bear the burden, and how much should be provided. Pricing is the key element to funding infrastructure policy and undergirds the recommendations in this policy brief.

## Introduction to the Problem

**I**nfrastucture is the foundation for economic growth and development. The Government Accounting Standards Board defines a “capital asset” as a long-term, productive asset, such as a building or a road and an “infrastructure asset” as a capital asset that has a useful life longer than most capital assets (excluding buildings).<sup>2</sup> For our purposes, I employ the broader definition of infrastructure that

includes all capital assets (including public buildings) owned or regulated by a government entity because the underlying financing scheme, demand or use of facilities, and maintenance and repair needs affect both types of assets.

Political support for infrastructure investment has rarely been a partisan issue. There is general agreement that infrastructure is a good target for the investment of public resources, or at least as an object of public planning. What also brings political assessments from all stripes together is that the nation’s states and local governments have an unimaginable “infrastructure deficit.” The nation’s infrastructure deficit is unfathomably large—\$2.2 trillion, according to estimates of the American Society of Civil Engineers.<sup>3</sup> Nobel Prize economist Joseph Stiglitz recently noted that federal investment in infrastructure should be increased.<sup>4</sup>

I am not in disagreement with the sense of urgency that a crisis is upon us; rather, my position is at odds with the premise that governments should spend more on infrastructure. Rather, I would encourage a redirection of government funds toward maintenance, repair, and renovation. Spending more funds may be necessary but getting the pricing and incentives aligned seems like a more important first step. I will not address debt financing of infrastructure<sup>5</sup>—although it ought to be incorporated in capital budget plans as it spreads costs over generations of users—not because I lack an opinion, but because it

<sup>1</sup> Based on a paper prepared for the Fiscal Future of the Local Public Sector conference, June 2–3, 2011, at the George Washington Institute of Public Policy and sponsored by the Brookings Institution, the George Washington Institute of Public Policy, the Lincoln Institute of Land Policy, the National League of Cities, and the Urban Institute.

<sup>2</sup> Government Accounting Standards Board, <http://www.gasb.org>.

<sup>3</sup> American Society of Civil Engineers, “Report Card 2010,” accessed 20 May 2010 at <http://www.infrastructurereportcard.org/>.

<sup>4</sup> National Public Radio, Morning Edition interview, 9 May 2011.

<sup>5</sup> I do not include debt because, as a loan, either the full faith and credit of the issuing government requires payment from the government’s taxing authority (i.e., own-source revenues are retiring the debt) or the issuing government pledges a certain amount from an income stream attached to the facility (i.e., own-source revenues in the form of charges are retiring the debt). Either way, debt only advances spending; it ultimately is a charge to the issuing government and the appropriate revenues to defray the municipal debt must be raised by its taxing powers, unless intergovernmental grants are permitted to be dedicated to debt retirement.

is addressed in another policy brief.<sup>6</sup> Rather, I present a set of recommendations based on reframing the “infrastructure deficit” as a pricing problem.

How did the infrastructure deficit accrue? The quick answer is neglect and bad pricing signals. There are two types of infrastructure deficits. One is inadequate investment (high demand but inadequate resources to construct new or expand existing facilities), which speaks to unmet needs; the other is inadequate maintenance (due to high facility use and inadequate maintenance spending), which speaks to neglect. It’s politically painless in the short term to neglect spending funds on infrastructure maintenance, leaving the consequences to the next administration.<sup>7</sup> The pricing signals are deceptive because consumers and public officials are fixated on the costs of building an asset, but not on the life-cycle costs to build, maintain, and renew it. No other market signals tell us how much of the asset we actually use. As a result, we continually disinvest in and undervalue our public assets.<sup>8</sup> Either way, the infrastructure deficit can be characterized as a problem in *public pricing*. Given the nation’s less-than-exemplary willingness to pay for the use of fixed assets for their useful lives, it would be reasonable to conclude that state and local governments have overinvested in infrastructure construction while underinvesting in maintenance, repair, and general upkeep.

## Framing the Infrastructure Deficit

The public policy frame through which we should evaluate our country’s infrastructure should not be underinvestment, but rather, appropriate pricing. Public pricing of assets is in most cases *cost pricing* (that is, the cost of land assemblage, design, construction, etc.) or input-cost pricing, often unrelated to demand or supply.

Underinvestment often frames the infrastructure issue as one in which more resources (e.g., taxes) are needed to expand the infrastructure system, rebuild deteriorated facilities (e.g., shovel-ready projects), and create jobs. Yet, what is seldom asked is, at what price? Not to suggest that debates are not over budgetary outlays—they indeed are. Rather, the budgetary debate is often about the cost of construction rather than about what price the consumer is willing to bear in order to consume a portion of an asset. While that statement is in general true, it is not always the case. Toll roads, for example, do require users to pay a mileage fee. But, city street users are provided no price signal for use of city streets.

In addition to estimating what price the individual consumer is willing to bear (which depends on her demand for the service that flows from the asset) is the issue of estimating what price the *collective* consumer (e.g., a city’s residents) is willing to bear. Too often, the issues aren’t separated. Too often, *infrastructure* is used as a blanket term to cover all

<sup>6</sup> See Tracy Gordon, “Buy and Hold (on Tight): The Recent Muni Bond Rollercoaster and What It Means for Cities,” <http://www.urban.org/url.cfm?ID=1001557> (Washington, DC: The Urban Institute, 2011).

<sup>7</sup> “Aging Infrastructure: Is Neglected Maintenance Putting Americans in Danger?” *CQ Researcher* 17, no. 4 (28 September 2007): 793–816.

<sup>8</sup> Michael A. Pagano and David Perry, “Financing Infrastructure in the 21st Century City,” *Public Works Management & Policy* 13, no. 1 (July 2008): 22–38.

varieties of assets—those for which an individual indeed can reveal a preference (and therefore bid on the use of the asset) and consume his share of the facility, compared with those assets for which one’s value preference may allow free riders to partake. Use (or valuation) of the police station or of public (not tolled) highways is an example of the latter. In those examples, citizens expect access but are not asked to specify how much they are willing to spend for the asset. For services from these assets, a user has an interest in not revealing her true valuation, thereby creating the opportunity to be a free rider. Use (or valuation) of municipal water systems and toll roads is an example of the former. Users of water and toll roads reveal their preferences by consuming more or less of the services provided by those assets, thereby eliminating the free rider problem.

Each, then, needs to be understood from the pricing system that is appropriate, one that is similar to pricing systems for goods in the private market and one that is similar to the pricing systems for government or social goods. Private investment is attracted to opportunities for which a return on the investment is measurable and units of the service derived from the asset can be sold separately. The more the flow of services resembles a private good, the more attractive it is to private coinvestment. The flow of services from infrastructure provision can be classified according to the extent of joint consumption and the opportunity for assigning a price to a unit of consumption.

If the flow of services from infrastructure assets can be segmented and priced by unit, infrastructure

financing should hew as closely to the benefits principle as possible. That is: pay for what you consume. When pricing mechanisms are bad and undervalue the true cost of infrastructure, people consume too much because the price is set too low (leading to deteriorating infrastructure) or find ways to avoid paying yet still consume the asset (e.g., exurban development). The pricing policy identified as most appropriate for the federal highways over a half-century ago, for example, was a mileage fee (a toll), but many issues impeded its adoption, such as technology and political will.<sup>9</sup> GPS and other technologies (e.g., bar codes, EZ Pass) make adoption and implementation of a mileage fee much easier today.<sup>10</sup>

## Public Pricing

As the U.S. Advisory Commission on Intergovernmental Relations recommended, “mechanisms that result in beneficiaries paying a greater share of costs” should be advocated as an element of current infrastructure finance policy, an assessment with which I generally agree.<sup>11</sup> Fees imposed on infrastructure use and depreciation (e.g., bridge tolls, water consumption) can be used to offset current infrastructure costs and to repay borrowed funds (e.g., revenue bonds). General taxes, as finance mechanisms, are more clearly identified with the ability-to-pay principle (payment is not as directly tied to consumption). They can be used to pay for other infrastructure projects and depreciation (e.g., jails, city hall, city streets and alleys) not as closely tied to direct use and to offset current

<sup>9</sup> *The Fuel Tax and Alternatives for Transportation Funding* (Washington, DC: Transportation Research Board, 2006).

<sup>10</sup> See, for example, Paul Sorenson and Brian Taylor, “Innovations in Road Finance: Examining the Growth in Electronic Tolling,” *Public Works Management & Policy* 11, no. 2 (October 2006): 110–25.

<sup>11</sup> U.S. Advisory Commission on Intergovernmental Relations, *Toward a Federal Infrastructure Strategy: Issues and Options* (Washington, DC: ACIR, August 1992); see also, National Commission on Public Works Investment, *Fragile Foundations* (Washington, DC: U.S. Government Printing Office, 1988).

infrastructure costs and repay borrowed funds (e.g., general obligation bonds). Both the benefits principle and the ability-to-pay principle are and ought to be factored into any city's infrastructure financing scheme.

The challenge for the public sector is establishing a price that reflects a facility's life-cycle costs, not just its construction costs. The principal challenge to adequately financing such infrastructure is that taxes and fees are set *politically* at levels acceptable to the voter (or at least perceived to be acceptable by the councilor, commissioner, or other legislative officer), but they are not necessarily set at a price that includes the *life-cycle costs* of the fixed asset.<sup>12</sup>

Instead, prices tend to be set at the value of construction and the price (tax) tends to be decided at two distinct points in time. The first point occurs when a tax or fee rate is established that is adequate to repay the debt issuance and to cover the full costs of constructing or expanding a facility. A second, and often disconnected and ignored, decision point is when state and local governments set the operating budget's tax and fee rate for operating and maintenance costs. Older facilities typically need more maintenance or repair funding than brand-new facilities. Yet, governments do not set aside appropriate resources to cover those costs for each facility. Instead, those maintenance needs compete for other government operating needs and, given the dire condition of state and local fixed assets, they clearly do not compete well. Why?

Governments often act like teenagers making decisions comparable to those made in the movie

*American Graffiti*. That is, what counts is the car—the new car. And teenagers are shopping to buy *the* car. To a teenager, the price of a car is the transaction price paid by the consumer—only the cost of buying the physical car—and they want the fanciest car they can afford. They then learn a lesson in financial management when they have to budget for insurance, gasoline, repairs, and maintenance. When it comes to purchasing fixed assets, state and local governments mimic these thought processes. Why is this of utmost importance? It leads to crumbling infrastructure and us asking, why is America in ruins?<sup>13</sup>

- First, because maintenance deferral infrequently causes an infrastructure failure in the very near term, it is often sacrificed in a fiscal slowdown.<sup>14</sup> Infrastructure maintenance and repair is considered a lower priority than other government services, such as public safety.
- Second, the deferral decision is invisible because so much of the repair and maintenance activity is underground (e.g., cracks in the foundation of an office building), not in full view of users (e.g., crumbling bridges), or at least it does not involve the high-profile ribbon-cutting ceremonies that surround the completion of new capital projects. The immediate consequence of maintenance deferral is typically unknown for some time, often many years afterward when the administration that deferred maintenance leaves office and is replaced by another.
- Third, budget processes for operating and capital expenditures often are not linked effectively.<sup>15</sup>

<sup>12</sup> See, for example, Cambridge Systematics with Michael D. Meyer, *U.S. Domestic Scan Program: Best Practices in Transportation Asset Management: Scan-Tour Report*, NCHRP Project 20-68, sponsored by the American Association of State Highway and Transportation Officials, Federal Highway Administration, National Cooperative Highway Research Program, February 2007.

<sup>13</sup> Patrick Choate and Susan Walters, *America in Ruins* (Washington, DC: Council of State Planning Agencies, 1981).

<sup>14</sup> See, for example, George Peterson, "Capital Spending and Capital Obsolescence: The Outlook for Cities," in Roy Bahl, ed., *The Fiscal Outlook for Cities* (Syracuse, NY: Syracuse University Press, 1978), pp. 49–74.

<sup>15</sup> See, for example, Michael A. Pagano and David Perry, "Financing Infrastructure in the 21st Century City," *Public Works Management & Policy* 13, no. 1 (July 2008): 22–38.

The political processes to approve capital and operating budgets are frequently disconnected temporally, which forces discussions about investment in capital assets to take place at a different time than discussions about repair and maintenance activities, which are funded from operating budgets. Even in instances when governments are required to estimate the O&M costs of new and expanded infrastructure projects proposed in the capital budget, the cross-walk between the capital budget and the operating budget is nonexistent.

## Possible Solutions to the Maintenance Conundrum

It is certainly true that prior investment in government fixed assets has a profound influence on urban and regional design. New or expanded highways open up areas for housing and commercial development, changing the landscape permanently; bridges connect communities and create nodes of commerce; extending water and sewer into new areas can encourage sprawl. These investments affect population growth patterns, economic growth, and the mobility of people and firms for a long time. Yet, they have been undertaken without considering the full price of the asset, pushing the costs on future generations (even when debt is not a financial instrument) and by requiring subsidies from other functions and activities as well as from those who do not use the facilities. What, then, might

governments consider to more efficiently, effectively, and equitably provide citizens and residents with infrastructure assets?

**Adopt the Utah model.** State law in Utah requires a five-year plan that includes a priority list of capital development requests, information on condition of assets, description and justification of projects, cost estimates and the projected increase in O&M, and staffing and program costs that will result if projects are funded. A scoring system prioritizes the projects.

The novel portion of the state's approach to maintain fixed assets by following a life-cycle for repair and maintenance is contained in legislation that assures funding for maintenance activities for the state's public buildings. State law requires that before new capital projects can be approved, the legislature must allocate 1.1 percent of the state buildings' replacement value to capital improvement projects which, by definition, do not add square footage to the state's building inventory. The allocation can be used for repair, maintenance, and renovation. This statute ought to create the discipline to fund infrastructure maintenance at a significantly higher level than might have been the case and on a consistent basis from year to year.<sup>16</sup> The minimum funding requirement means that the appropriated funding will increase annually, because the formula is tied to the replacement value of state facilities. And replacement value grows due to inflation as well as to the growth in new building space.

<sup>16</sup> The statute requires 1.1 percent of the replacement value to be set aside in a capital development fund, unless the state experiences an operating deficit, in which case the required percentage can fall to 0.9. The state's fiscal stress resulted in the state lowering funding below the 1.1 percent threshold. In FY 2009, the state lowered funding to 0.83 percent of replacement value and again in FY 2010 to 0.77 percent. Even well-intentioned policies can be damaged by severe fiscal stress. (See the issue briefs published by the State of Utah's Office of the Legislative Fiscal Analyst, for example, "Capital Improvements" for FY 2012 at <http://le.utah.gov/interim/2010/pdf/00000217.pdf>.)

This policy, if expanded to cover *all* government fixed assets, not just state buildings in the case of Utah, can ensure that maintenance and repair of capital assets over their useful lives will be funded adequately. But the implication is that spending reductions might be necessary elsewhere in the state's budget (or, on the other hand, increased resources/taxes might be adopted). In turn, then, this action of linking repair and maintenance costs to the life-cycle of a fixed asset will incent local and state government behavior to better rationalize their fiscal systems. The opportunity costs implied in this approach can be significant for future legislatures, as today's legislature sets aside future funds in the operating budget for repair and maintenance based on the replacement value of the government's fixed assets.

**Adopt value-capture tools.** Public investments in infrastructure represent a possible risk, namely, that the investment will not return substantial tax revenues or an income stream to defray the expenses. To the extent that risk assessment should be part of state and local governments' decision calculus to invest in fixed assets, these governments ought to behave as though they are business partners in the relationship.

Infrastructure can increase the value of proximate properties, thereby raising the assessments and property tax collections.<sup>17</sup> This return on investment can be incorporated into ownership and partnership opportunities for governments by formally creating value-capture policies.<sup>18</sup> Transit-oriented

development, for example, in which the government owns land, captures the increase in land values (e.g., tax increment financing), or participates as a coinvestor, has been adopted as a measure of controlling both land use and transportation as well as participating materially in the investment. Other value-capture opportunities ought to be pursued, such as extending government investment around major highway intersections, imposing development fees on commercial and residential developers, and designing development districts in which governments coinvest, among other activities that can be linked to value capture.<sup>19</sup>

**Examine public-private partnerships.** Local governments have an inability or unwillingness to price infrastructure adequately for several reasons: the disconnect between capital and operating budgets, poor pricing signals of a quasi-market good (i.e., a common pool resource), and lack of visibility for fixed asset maintenance needs (especially those below ground), among other issues, all of which add up to an overbuilt, undervalued public capital stock. If infrastructure is indeed undervalued and legislative bodies are unwilling to price it at a market-determined rate, then those fixed assets are ripe for privatization schemes, or public-private partnerships (PPPs). PPPs are promoted at times as a means of (1) relieving strain on government budgets, (2) sharing risks between both the public and private sectors, or (3) accelerating the implementation of infrastructure projects from the design phase through the build, operate, and maintain phases. Yet most PPPs require

<sup>17</sup> See, for example, Robert Burchell and David Lisotkin, *The Fiscal Impact Handbook* (New Brunswick, NJ: Center for Urban Policy Research, 1978); Ann O'M. Bowman and Michael A. Pagano, *Terra Incognita: Vacant Land and Urban Policy* (Washington, DC: Georgetown University Press, 2004).

<sup>18</sup> George Peterson, *Unlocking Land Values to Finance Urban Infrastructure* (Washington, DC: The World Bank, 2009); Jeffrey I. Chapman, "The Fiscalization of Land Use: The Increasing Role of Innovative Revenue Raising Instruments to Finance Public Infrastructure," *Public Works Management & Policy* 12, no. 4 (April 2008): 551–67.

<sup>19</sup> See, for example, Thomas P. Snyder and Michael A. Stegman, *Paying for Growth: Using Development Fees to Finance Infrastructure* (Washington, DC: Urban Land Institute, 1986).

infrastructure projects to be priced in such a way that the focus is on the use of (demand for) an asset, return on investment, and quality of service to the users.<sup>20</sup> Thus, a benefit of introducing the private sector might be to overcome the political problem in pricing goods at their actual cost.

An advantage to a private provider in a PPP arrangement is that the private entity can reduce its tax liabilities by depreciating the value of the asset, which is a measure of the asset's consumption, and set a price accordingly. The concession agreement, if structured properly, can require the operator/private entity to meet performance guidelines, such as pavement serviceability ratings or resurfacing cycles, that closely match the asset's deterioration value. According to a study by Kathleen Brown, "Both the Indiana Toll Road and the Chicago Skyway transactions have 300 pages of operating standards that address, in great detail, the manner in which the roads will be operated and maintained."<sup>21</sup> The price, then, ought to reflect not only the amortized cost of the asset's purchase price but also the continuous costs of operating, maintaining, and renewing the asset over its useful life.

Arguments in favor of PPPs often address the fact that, for example, an asset lease allows the government access to proceeds from its sale or lease. Although financial proceeds to enhance a government's budget portfolio are an important feature of such transactions—and indeed a rationale for many local governments that are considering asset sales or leases (e.g., parking facilities in Los Angeles,

Pittsburgh, and Indianapolis)—they are not the principal reason for advocating PPPs here. Instead, PPPs hold themselves as an organizational and financial form that incents all partners to establish reasonable, market-like prices for the services provided by the asset to cover the costs of its construction, operation and maintenance, and renewal phases. Indeed, selling or leasing of assets to a private operator may sometimes be the only politically acceptable way for a government to set prices closer to market value.

A fee for consumption can also be applied by governments to various infrastructure assets even in the absence of partnership with a private entity. For example, a fee structure can be established that would be equivalent to the actual proportionate costs the public pays to support a piece of property, from roads to water lines to sewers to lighting to police protection. This kind of fee, a land-service use fee, ought to be adopted to fund infrastructure because only those who use services delivered to the property are charged—no cross-subsidization is required, no general tax levy is required. In the end, a better pricing mechanism that requires users to pay for their portion of consuming public infrastructure (and other public services) will, in all probability, result in "compact, in-town, and physically close-by developments," as Neal Pierce indicates.<sup>22</sup> The challenge will be to create a pricing scheme that allows at least minimal consumption of infrastructure and services for those who cannot otherwise afford them (in other words, public policy must build an ability-to-pay principle into a fee-for-service program).

<sup>20</sup> See, for example, Kathleen Brown, "Are Public-Private Transactions the Future of Infrastructure Finance?" *Public Works Management & Policy* 12, no. 1 (July 2007): 320–24; Dorothy Morallos and Adjo Amekudzi, "The State of the Practice of Value for Money Analysis in Comparing Public-Private Partnerships to Traditional Procurements," *Public Works Management & Policy* 13, no. 2 (October 2008): 114–25; Sasha N. Page, William Ankner, Cheryl Jones, and Robert Fetterman, "The Risks and Rewards of Private Equity in Infrastructure," *Public Works Management & Policy* 13, no. 2 (October 2008): 100–113.

<sup>21</sup> Kathleen Brown, "Are Public-Private Transactions the Future of Infrastructure Finance?" *Public Works Management & Policy* 12, no. 1 (July 2007): 322.

<sup>22</sup> See Neal Pierce, "'Snow Tax' to 'Land Use Tax'—Time to Experiment," <http://citiwire.net/post/1728/>, 20 February 2010. Pierce quotes Albert Appleton, the former chief of New York City's Department of Environmental Protection, who proposed a "land-service use tax" with the same properties as described herein at a conference in 2010.



## Chicago Transportation Deals

Two examples from Chicago illustrate motivations for private-public partnerships and highlight some complications.

The Chicago Skyway was leased to Cintra Macquarie Consortium for \$1.83 billion, of which \$500 million was deposited in the city's rainy day fund. Chicago also netted some \$1.7 billion in long-term leases for municipal parking assets. A year after the Skyway deal was signed, tolls were raised by \$.50 to \$2.50 for automobiles and by \$1.20 per axle for vehicles with three or more axles. Further, a congestion price on heavy vehicles was imposed on traffic between 4:00 a.m. and 8:00 p.m. daily. And tolls are permitted to increase to \$5.00 by 2017. Beyond 2017, tolls are permitted to increase by the greater of the CPI, nominal GDP per capita, or 2 percent.<sup>a</sup> The Chicago Skyway is an illustration of a PPP in which a pricing scheme (a toll or mileage fee)<sup>b</sup> is based on consumption of a certain amount of the asset.

The long-term lease for Chicago's parking is a PPP that includes an understandable pricing option, even as residents often complain about its price. Under the agreement, which was signed for \$1.12 billion in December 2008 by the City of Chicago and Chicago Parking Meters LLC (a newly created entity led by Morgan Stanley), substantial increases to the parking fees are allowed during the first five years, after which the lessee is permitted to raise parking fees by the rate of inflation. Rates at most downtown locations are permitted to increase from \$3.00 per hour to \$6.50 over five years, while those in other downtown locations can increase from \$1.00 to \$4.00. Residential parking is to increase from \$0.25 to \$2.00.

The impetus behind the parking lease was *not* that the assets were operating at a loss. As a former finance official noted, the cost of managing the parking meters amounted to some \$3 to \$4 million annually, while collections reached around \$20 million per year.<sup>c</sup> Rather, it was considered an underperforming asset whose value could be captured by the city and used for emergency budgetary and other purposes. Hourly rates presumably did not reflect the market price that the public would be willing to pay, but it also appears that increasing the parking rates was not an action that the city council was willing to entertain either. Consequently, the city's agreement to turn over the leasing of the asset to a private entity allowed Chicago Parking Meters LLC to raise the rates.<sup>d</sup> Indeed, rates have been raised and will continue to be raised per the agreement, without a public vote by city council on each annual increase.

Implementation problems clearly point to problems in the way the city adopted the program. For example, LAZ Parking—the firm given operating responsibilities by Chicago Parking Meters—installed faulty equipment. This was not handled well by the Chicago police, who ticketed violators even though the parking meters were not working. Also problematic was lack of transparency in the parking meter lease: both the city council and the general public were given only two days to examine the complex document before the council voted on the deal.<sup>e</sup>

Three years later, demand for parking in Chicago's Loop appears to have changed little in response to the increased fees. The city has nearly depleted the amount set aside for "rainy day" or emergency purposes—and 72 years still remain on the lease. At the end of FY 2010, the city will have removed all but \$52 million from the \$1 billion in reserve funds set up with the lease agreement.<sup>f</sup> Analysts, including the independent inspector general's office, estimated that the city could have leased the parking for \$2 billion.<sup>g</sup> Nevertheless, even if the adoption and implementation of the parking meter lease might seem disappointing on a number of fronts, the increased price of parking seems to have dampened demand nary a whit.

a. AECOM Consult Team, *Case Studies of Transportation Public-Private Partnerships in the United States*, [http://www.fhwa.dot.gov/ipd/pdfs/us\\_ppp\\_case\\_studies\\_final\\_report\\_7-7-07.pdf](http://www.fhwa.dot.gov/ipd/pdfs/us_ppp_case_studies_final_report_7-7-07.pdf) (Washington, DC: U.S. Department of Transportation, Federal Highway Administration, 7 July 2007).

b. See, for example, J. M. Whitty, "Oregon's Mileage Fee Concept and Road User Fee Pilot Program" (Salem: Oregon Department of Transportation, 2007).

c. See the three-part report on the deal by Ben Jorvasky and Mark Dumke in *The Reader*: <http://www.chicagoreader.com/chicago/features-cover-april-9-2009/Content?oid=1098561>, 9 April 2009; <http://www.chicagoreader.com/chicago/one-billion-dollars/Content?oid=1123046>, 21 May 2009; and <http://www.chicagoreader.com/chicago/the-parking-meter-fiasco-part-iii/Content?oid=1127436>, 18 June 2009.

d. Studies suggest that one reason for the recent popularity in public-private partnerships, including long-term leases, is antitax sentiment from the general public. Raising tax rates or fees to enhance or maintain infrastructure is an option of last resort, according to this perspective. See, for example, Michael J. Garvin and Doran Basso, "Assessing the Effectiveness of Infrastructure Public-Private Partnership Programs and Projects," *Public Works Management and Policy* 13, no. 2 (October 2008): 162–78.

e. See Jorvasky and Dumke.

f. Civic Federation, "Expiring Parking Meter and Skyway Funds," <http://www.civicfed.org/civic-federation/blog/expiring-parking-meter-and-skyway-funds>, 10 November 2010.

g. City of Chicago, Inspector General's Office, *Report of Inspector General's Findings and Recommendations: Analysis of the Lease of the City's Parking Meters*, <http://chicagoinspectorgeneral.org/wp-content/uploads/2011/03/Parking-Meter-Report.pdf>, 2 June 2009.

Fees should be set at a price (what the market will bear) and return sufficient funds to the PPP for reinvestment and renewal. The fees can be used to leverage additional resources, say, loans and bonds, without pledging resources unrelated to the facility. In other words, PPPs can establish prices at an equilibrium point that would, or should, create a self-financing asset that would not, or should not, require additional revenues from the partnering government in the form of subsidies (see *text box*). But the problem is not intractable. It's only political.

Setting fees at a market-like rate should not be the motivation of only the private sector. Governments can (and often do) set market-like rates that would approximate the same rate set by, say, a regulated utility. But the evidence today is that the pricing of too few infrastructure assets is sufficient to cover construction, operations and maintenance, and renewals. The infrastructure deficit, which primarily accrues to the public sector, is a stark reminder that governments have not priced fixed assets appropriately.

Governments that do not wish to participate in PPPs or turn over assets in other privatization schemes are challenged to create better and innovative financial systems that ensure (1) *efficiency* is met and the benefits principle followed; (2) *equity* is met by ensuring that the ability-to-pay principle is followed for low-income users while other users pay the cost of consumption for services and infrastructure; and (3) *full-cost pricing* of infrastructure construction and operations is adopted that includes the life-cycle costs of maintenance, repair, and renewals.

## A Federal Policy for Metropolitan Regions

Federal policies have often been part of the problem by stimulating spending on new and expanded infrastructure at the expense of preserving and maintaining existing infrastructure. Asset-pricing structure includes federal grants, which often encourage construction of new or expansion of existing fixed assets but not maintenance or repair. Responsibility for maintaining fixed assets falls to the state and local governments and both have, in general, notoriously underfunded the maintenance and repair function. What should the federal government offer states and localities (and by extension, what should states offer local governments)? Federal and state assistance for new or expanded infrastructure should be in the form of loans. If an expanded or new infrastructure is needed, demand will be such that the recipient of state or federal support should be able to design a pricing system that would retire the investment. Federal and state assistance for existing infrastructure should be in the form of matching grants.

Federal grants should be designed with the following features:

- First, federal investment should be targeted to the existing infrastructure, not to expanding an overbuilt system. A cooperative federal program could leverage local and state dollars to repair or replace deteriorated assets and employ idle hands immediately, with no need for new plans, environmental impact statements, or land acquisition.
- Second, a federal grant should require state and local governments to pay the lion's share of

any new and expansion projects. Why subsidize expansive growth and sprawl when existing fixed assets need repair? Reverse the funding shares and require local governments to invest an amount that demonstrates the need for the facility and to establish a maintenance fund sufficient for the life of the asset.

- Third, funnel federal, state, and local funds into regions and metropolitan areas. The modern economy is not demarcated by the political boundaries of states or cities. Its engines of growth are metropolitan regions. The metropolitan region is increasingly the demographic as well as the economic unit of local life and global competitiveness. The new “glocal” nature of regions requires infrastructure delivery at a new and flexible scale.
- Fourth, create regional taxing powers and encourage intergovernmental cooperative agreements. Municipalities will be looking for regional partners and allies in designing a system that is less destructive to the region’s long-term interests and fairer in distributing the costs to the users. Infrastructure investment decisions shape the built environment not only of the investing city but of the region. Regions as economic units of the globalized economy need to coordinate investment activities.

Federal intervention can assume other forms as well. Recent proposals in Congress have reawakened interest in a national infrastructure bank. Proposals differ along two dimensions. One type of proposal would authorize the bank to both grant and loan funds to state and local governments, the former of which can augment the resource base of recipient governments. No bill has been submitted to

Congress with such a provision. Another type would create a financial institution, such as the National Infrastructure Development Bank (as proposed in HR 402) or an “American infrastructure financing authority” (as proposed in S. 652), which does not authorize the issuance of competitive grants but rather provides loans and loan guarantees. An AIFA, for example, would exempt private activity bonds from the alternative minimum tax, making them attractive to lenders. The problem with this latter type of proposal is not that it has no merit (indeed, an attractive feature is that qualifying projects would be required to be of regional or national significance, thereby reducing the earmark feel of many federal programs); instead, it will yield little to state and local governments because borrowing costs are at historic lows and governments do not tend to be shut out of the municipal bond market. Any national infrastructure bank proposal that would authorize the bank to issue discretionary grants has merit primarily because it could provide “but for” or “gap” funding to projects of regional significance.<sup>23</sup>

## Infrastructure Financing Policies

Infrastructure financing, then, ought to be designed around the following policies:

1. Nondivisible and nonrival fixed assets ought to be financed from general tax sources (including borrowing), the costs of which must include life-cycle pricing that incorporates design, construction, O&M, and renewal costs. The Utah model should be adopted, which will bind future legislatures’ budgets because a set-aside for future maintenance/repair activities for each asset equivalent to some specified value will be required at the start of every budget deliberation, thereby

<sup>23</sup> Emilia Istrate and Robert Puentes, “Investing for Success: Examining a Federal Capital Budget and a National Infrastructure Bank,” [http://www.brookings.edu/~media/Files/rc/reports/2009/1210\\_infrastructure\\_puentes/1210\\_infrastructure\\_puentes.pdf](http://www.brookings.edu/~media/Files/rc/reports/2009/1210_infrastructure_puentes/1210_infrastructure_puentes.pdf) (Washington, DC: Brookings Institution, December 2009).

- setting aside funds that cannot be reallocated for other uses.
2. Fixed assets that provide services to which a fee, charge, or other market-like price can be attached ought to be financed (including borrowing costs) from the asset's income stream. The asset's costs must include life-cycle pricing that incorporates design, construction, borrowing, O&M, and renewal costs. The Utah model should be employed. Related to this proposal, local governments should be encouraged to adopt land-service use fees to charge customers for the full cost of infrastructure provision: residential density will be incentivized, thereby decreasing the probability of sprawl and its attendant infrastructure costs.
  3. State and local governments should engage in public-private partnerships, not just because PPPs bring additional capital to the table, but because private investors will demand a return on investment that must be included in the PPPs' pricing policy. Improving infrastructure pricing such that the construction and maintenance/repair costs are incorporated in the fee structure will likely reduce expansion and new projects; encourage repair, reuse, and renewals of existing infrastructure; and reduce sprawl.
  4. Governments should behave as entrepreneurs by strategically investing in areas and assets with a potential positive return on investment. In that vein, governments ought to explore the use and expansion of value-capture tools (e.g., TOD, TIF)<sup>24</sup> that require coinvestment with the private and nonprofit sectors.
  5. Federal matching grants ought to be made available for the repair and maintenance of existing infrastructure, whereas federal loans ought to be made available for new and expanded infrastructure.
  6. Local governments should also include a "safety net" or ability-to-pay feature in any infrastructure pricing, such that those who cannot afford to pay a market-like price are not completely shut out. Access to jobs, for example, often requires low-skilled workers to travel long distances which, if a fee for road or transit consumption were imposed at a market rate, would make their travel unaffordable.<sup>25</sup>
- Had infrastructure financing over the last 50 years followed the policies outlined above, the size of the nation's infrastructure, including local governments', would have been considerably smaller and urban regions would have less sprawl—or the tax and fee burden on citizens would have been significantly higher. Given the political mood of the nation, I suspect the former would be more accurate. The principal challenge for financing infrastructure in the future, then, is not to find sufficient funds—the private capital that has accumulated over the last two years, according to all accounts, is staggering and awaiting the right moment to invest in both private and PPP infrastructure projects—but rather to price the fixed assets such that users pay the full price, not a subsidized price. We thereby protect our great-grandchildren from yet one more unfunded obligation. ■

<sup>24</sup> Value-capture tools help finance infrastructure through capturing some of the spillover of increased value to surrounding areas. For example TOD is transit-oriented development, or linking development to transit plans. TIF is tax-increment financing, which allows the investment project to have a claim to some of the increased property taxes generated by higher property values.

<sup>25</sup> An illustration of how low-income workers can access transportation systems is found in a U.S. DOT program, JARC (Job Access Reverse Commute). See, for example, Piyushimita (Vonu) Thakuria, P. S. Sriraj, Siim Soot, and Joseph Persky, *Economic Benefits of Employment Transportation Services*, summary of the final report to the Federal Transit Administration (Washington, DC: U.S. Department of Transportation and Community Transportation Association of America, 2008).