Financing Infrastructure in the 21st Century City:
"How Did I Get Stuck Holding the Bag?"

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Abstract

This essay identifies critical issues in financing city infrastructure and a realistic set of options available to policymakers. In particular, the report examines trends toward decentralization and fragmentation of governmental and financial institutions and toward market-based and consumer- or customer-oriented policies. Urban policymakers today find themselves in the position of negotiating with neighboring communities, competitive markets, and citizens in a fragmented governance system. What appears to be little more than organized chaos has evolved over decades into the complex, if not always rational, system of infrastructure finance and governance in which cities find themselves today.

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The massive infrastructure rebuilding efforts in the wake of Hurricane Katrina may presage challenges in many American cities in the not-too-distant-future. The collapse or perilous crumbling of our infrastructures, the basic building block of the nation's economy, underscores the investment and fiscal policies that will confront the nation's cities' leaders. It is likely that any new leader will be dumbstruck by what appears to be a series of miscalculations made by previous administrations. As the city's fiscal situation looks even worse from the mayor's new seat than it ever did before, the mayor asks: "How did I get stuck holding the bag?" It may not look exactly like Katrina and the scope of problems may not rival the devastation of New Orleans, but the city's financial situation certainly appears worse from the inside than it did from the outside.

This essay identifies critical issues in financing city infrastructure and a realistic set of options available to policymakers. In particular, the report examines trends toward decentralization and fragmentation of governmental and financial institutions and toward market-based and consumer- or customer-oriented policies. Urban policymakers today find themselves in the position of negotiating with neighboring communities, competitive markets, and citizens in a fragmented governance system. What appears to be little more than organized chaos has evolved over decades into the complex, if not always rational, system of infrastructure finance and governance in which cities find themselves today.

I. HISTORY AND FRAMEWORK

We begin by examining the role of infrastructure in a market economy and the financial resources that support it. It further examines the historical movement toward market-like approaches to financing infrastructure, e.g., away from general obligation debt to revenue debt and the concomitant move from general tax to user fee financing. The next section sketches out cities' pricing schemes for infrastructure that increasingly charge individuals a fee for consuming services, especially as technology makes that option easier. The third section continues to develop the theme of the fragmentation and

proliferation of governments. Section four examines the deteriorating condition of infrastructure and the low capacity or willingness to charge users for their consumption or use of infrastructure. Section five examines the role of municipal budgeting in exacerbating the infrastructure condition problem. The last part of the paper revisits the role of the federal, state and local levels of government in the delivery of our cities' infrastructure in an attempt to at once summarize this discussion and offer new policy structures and fiscal action.

1.1 Infrastructure as a Foundation: Finding the Right Tax for the Citizen

Cities are social organizations, nurtured by economic, social and political forces, rising and falling in dynamic fashion through time, reflecting the symbiotic relationship between public resources and private markets. What hold communities of people together are not just propinquity, social interactions and business transactions, but also the joint consumption and enjoyment of public goods, such as public safety and schools, streets and bridges, water and sewer systems, which are paid for by the city's capacity to exact revenue from persons and businesses. City financial structures are social compacts designed by leaders at both the city and state levels, reflecting the collective wisdom of the polity for the purpose of supporting the provision of government services not only to individuals and families but also to firms and markets.

Organizing human activity in urban settlements requires investment in fixed assets, such as transportation and water. Networks of roads, navigable waterways and harbors have long determined the location of people and firms. Seaports, waterfalls and the confluence of rivers were the sites of the first commercial concentrations and settlements of people with road networks radiating throughout the interior. Later, railroads crisscrossed the nation leading to interior settlements at transshipment points and road intersections. The densities of the interior settlements were particularly great at railroad crossings and at railroad-river intersections. These intersections and transshipment points allowed for the exchange of commodities and the opening of markets.

These exchange relationships were built on a platform, the physical infrastructure of the community. The fixed assets allowed communities to grow both vertically and horizontally, creating not only a "feel" to the city by influencing the distribution of people and residential structures, but also by influencing the location of retail, office, cultural, tourist, university, healthcare and other industries.[1] In large part, public works and the resulting flow of services enabled private economic activity. They are the foundation for economic growth and they are often linked to the cities' economic growth engines. Without the provision of adequate streets, water supply, and sewage treatment, it would be difficult indeed for productive activities to proceed, at least without tremendous cost to the producer. Fixed assets and public works, then, influence and constrain in important ways the economic development and growth potential both of the city and of the region, their trajectory, and their prospects.[2]

Additionally, public infrastructure underlies the fulfillment of basic public health and safety needs. Cities need water systems to feed hydrants for fire protection. Potable water and sewer systems prevent disease and epidemics. "To many," according to historian Martin Melosi, "the infrastructure, various technical systems, and sanitary services represented *public goods* and thus required municipal—and later state and federal—commitments to increased public spending."[3]

Traditional Financial Support.

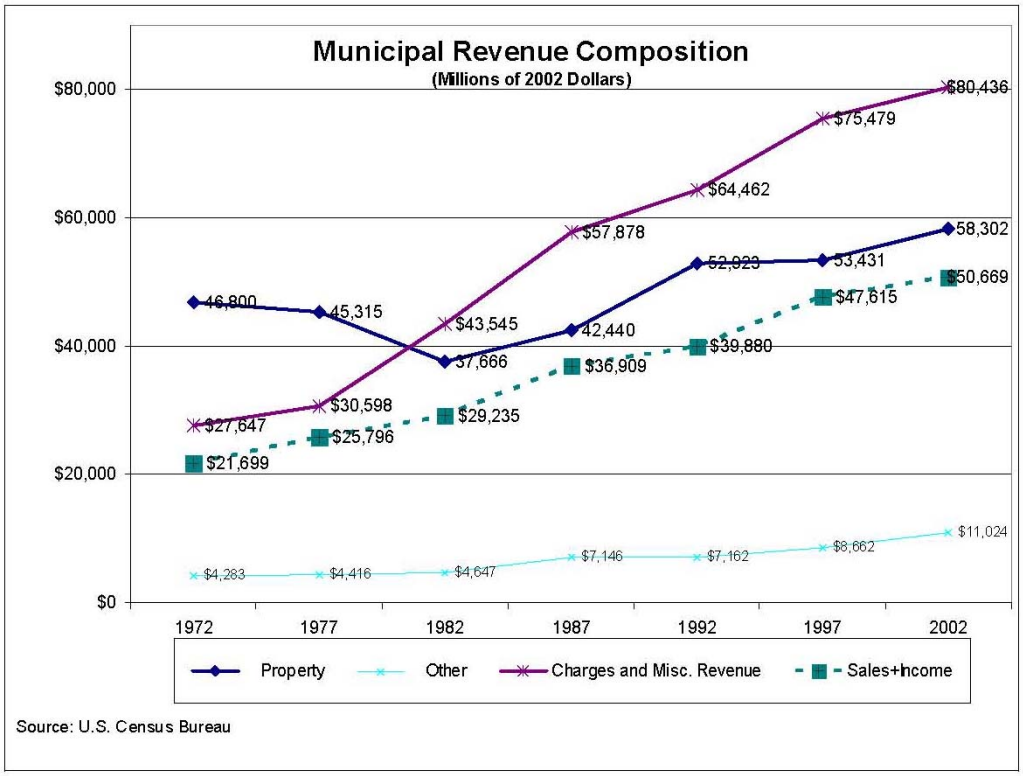
Over a century ago, cities were nearly totally dependent on taxing wealth in the form of real estate. City operations were covered by a property tax; so, too, were the costs of fixed assets or infrastructure, whether funded from current revenue or from

1 An obituary for Jane Jacobs noted that: "..[Robert Moses'] vision, however flawed, represented an America that still believed a healthy government would provide the infrastructure—roads, parks, bridges—that binds us into a nation. Ms. Jacobs, at her best, was fighting to preserve the more delicate bonds that tie us to a community. A city, to survive and flourish, needs both perspectives." Nicolai Ouroussoff, "Outgrowing Jane Jacobs," *New York Times*, Week in Review (April 30, 2006), p. 4.

2 Michael A. Pagano and Richard J. T. Moore, *Cities and Fiscal Choices: A New Model of Urban Public Investment.* (Durham: Duke University Press, 1985): 4-6.

3 Martin Melosi, The Sanitary City: Urban Infrastructure in America from Colonial Times to the Present (Baltimore: The Johns Hopkins University Press, 2000): 8.

borrowed funds (debt, requiring annual repayments). During the last century of public finance history, cities have come to rely more on other revenue sources. Today, over one-third of cities' own-source revenues are derived from "user fees and charges," while approximately one-third is derived from the property tax, and slightly less than one-third of own-source revenues is derived from local-option sales and income taxes.[4] As the graph below indicates, cities' revenue structures have become less dependent on the property tax even during the last 30 years, and increasingly dependent on user fees and charges.



4 U.S. Census Bureau, *Census of Governments*, 1972-2002.

Revenue Structure of Municipal Governments (1972-2002)

(As A Percentage of Own-Source General Revenue)

Category	*1972*	*2002*
Taxes		
Property	46.6%	29.1%
Sales and Gross Receipts	9.1%	17.7%
Income Taxes	5.4%	7.6%
Other	2.9%	5.7%
Charges and Misc. Revenue	18.5%	40.1%

Source: U.S. Census Bureau

The revenue structures supporting infrastructure investment have also changed significantly over time. In the late 1800s cities feverishly sought to build water, sewer and road systems, the costs of which overwhelmed their current-year revenue-generating capacity. In response, cities became debtors and began issuing massive amounts of general obligation debt, or debt that was guaranteed by the city's full faith and credit. Cities pledged their taxing authority on the assessed value of real estate to generate sufficient funds over time to retire the debt. As economic panics and depressions hit, however, some governments defaulted on their debts and most states imposed debt limits on their cities. Many of these debt constraints were put into state constitutions between 1865 and 1880 and limited municipal debt to a percentage of the city's assessed property value, along with requiring voter referenda to approve borrowing.[5]

Local governments therefore turned to forms of debt that were not backed by full faith and credit, allowing them to skirt debt limits and referendum requirements. These ranged from special assessment bonds to revenue bonds. From the late 19th Century until the Great Depression, many local governments substituted general obligation bonds with bonds backed

5 Alberta M. Sbragia, *Debt Wish: Entrepreneurial Cities, U.S. Federalism, and Economic Development.* (Pittsburgh: University of Pittsburgh Press, 1996): 79.

by special assessments on the owners of property that abutted an infrastructure improvement. For example, after the great fire of 1871, Chicago was growing rapidly and needed to rebuild. Because the city was subjected to general obligation debt limits, it turned to special assessment debt.[6] As the Depression took hold in the 1930s, many cities defaulted on their special assessment bonds as property owners failed to pay their assessments. The failure of special assessment bonds, in turn, stimulated the use of other forms of debt.[7]

One such form is the revenue bond, which has been a significant financial investment since the 1930s.[8] Revenue bond debt is secured not by tax revenues but by a dedicated stream of revenue generated from the operations of the facility. In other words, debt is repaid by individual rate payers rather than by taxpayers. Revenue bonds are mostly sold for self-supporting local enterprises. The revenue bond mirrors the private corporate bond in that there are defined relationships between borrower and lender, including covenants on service rates, insurance of assets and appropriate financing reporting practices.

Over time, the use of revenue bonds has grown while general obligation bonds, guaranteed by a city's full faith and credit, have declined as a percentage of U.S. local government debt. In the early 1930s revenue bonds accounted for $1 billion of $19 billion in total U.S. tax-exempt debt.[9] By 1960, 38 percent of state and local debt was non-guaranteed, and by 1996 the percentage had reached 76.3 percent.[10] Municipalities in forty-four states face some form of cap on their ability to issue municipal general obligation debt. Forty-two states require municipal referenda on general obligation debt. Most state courts have interpreted the limits to apply only to debt backed by the full faith and credit of the issuing jurisdiction, contributing to the increased use of revenue, or non-guaranteed, bond issues.[11]

6 Sbragia, Debt Wish, p. 83.

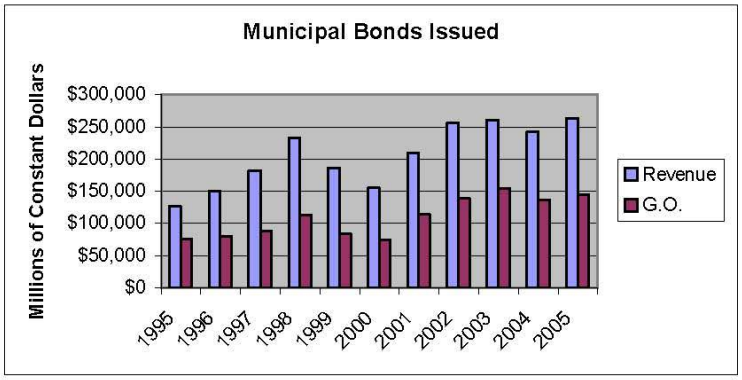
7 Thomas P. Snyder and Michael A. Stegman. *Paying for Growth: Using Development Fees to Finance Infrastructure* (Washington, DC: Urban Land Institute, 1986): 18.

8 John A. Vogt, *Capital Budgeting and Finance: A Guide for Local Governments* (Washington, DC: International City/County Management Association, 2004): 183.

9 Sbragia, *Debt Wish*, p. 132; David Perry, ed. *Building the Public City* (Thousand Oaks, CA: Sage Publications, 1995).

10 John Mikesell, *Fiscal Administration* (New York: Harcourt Brace, 1999): 542.

11 John Petersen and Thomas McLoughlin, "Debt Policies and Procedures," in *Local Government Finance: Concepts and Practices,*eds. J. Peterson and D. Strachota (Chicago: Government Finance Officers Association, 1991): 273.



Sources: "Record for Volume," *Bond Buyer* (January 3, 2006), pp. 1, 25; "A Decade of Municipal Bond Finance," *Bond Buyer* (October 7, 2004), p. 34.

As the use of revenue debt grew, some states began to place restrictions on it. States responded to such restrictions with the creation of public authorities and special districts.[12] By the mid-20th Century, then, along with the rise of municipal revenue bond use came an explosion in the creation of public authorities and special districts. Cities farmed out services to newly created public authorities and special districts that operated separately from the municipal government. The public authority, as usually defined, is governed by a city-appointed board and lacks taxing authority, yet it still often possesses the power of eminent domain. The special district, on the other hand, often has an elected governing board and may be authorized to levy taxes. In both cases, the jurisdictions exist separately from general purpose municipal governments and can issue revenue debt.[13] In either case, essentially, the major purposes of public authorities and special districts are "to provide a vehicle for using non-guaranteed debt and to finance activities out of fees and charges or special benefits taxes."[14]

Relying on user charges, public authorities could issue revenue bonds (non-guaranteed debt) that were not subject to state-imposed debt limits or referendum requirements. The Federal government encouraged the formation of such public authorities during the Depression, offering them preferable grant and loan options. The first public authority in the United States

12 Carolyn Bourdeaux, "A Question of Genesis: An Analysis of the Determinants of Public Authorities," *Journal of Public Administration Research & Theory* 15:3 (July 2005): 443.
13 Sbragia, *Debt Wish*, pp. 136, 149.
14 J. Richard Aronson and Eli Schwartz, Eds. *Management Policies in Local Government Finance* (Washington DC: International City Management Association, 1975): 166.

was the Port of New York Authority, established in 1921.[15] Other authorities were later created around the country for water and sewer utilities, mass transit, bridges and tollways, and housing and redevelopment. These authorities generally provided a service directly to citizens, charging them for services.

However, many public facilities were built for uses that were not amenable to service fees on users, such as jails and city office buildings. Unless they generated revenue in some way, their construction could not be backed by revenue bonds. Many local governments found a way to turn these public facilities into revenue-generating institutions by forming public building authorities, also known as lease-back authorities, the directors of which are appointed by the city.[16] Local governments established such building authorities as separate entities to construct their public buildings, creating the circumstance in which revenue bonds could be issued. If a local government built its own city hall, park, or maintenance facility, it would be paid by current tax revenues or general obligation bonds. However, if a lease-back entity was established for the purpose of paying for the building's construction and maintenance costs, the city could pay rent to that entity for use of the facility. That rent would be considered a non-tax revenue and therefore could be used to back a revenue bond, skirting the general-obligation debt limits and referendum requirements imposed on the city by state law.

While federal funding of infrastructure increased substantially during the 1950s to the 1970s, when it started declining in the late 1970s the cities again turned increasingly to public authorities and to revenue bonds. The share of revenue bonds in the tax-exempt securities market increased from 34 percent in 1970 to 71 percent in 1980. The share of tax-exempt securities issued by public authorities, as compared to general purpose governments, jumped from 31 percent in 1970 to 54 percent in 1979.[17] The dominance of revenue bonds and public authorities continued, such that in New York State local governments and local public

15 Perry, *Building the Public City*.

16 In a Sale-Leaseback arrangement, or Tax Benefit Leasing, tax ownership of a publicly-owned building or item of equipment is transferred to a private investor group (though legal title may remain with the governmental unit) which then leases it back to the governmental unit for its use. This allows the private investors to deduct interest on the money borrowed to finance the purchase and to take depreciation deductions on the real property and equipment. The savings realized from these tax benefits by the private partner are passed to the government in the form of lower lease payments. The contract is closed when the governmental unit repurchases the property at the end of the lease term See Peabody & Co. Inc., *Infrastructure Finance* (New York: 1984): 119.

17 *Building Prosperity: Financing Public Infrastructure for Economic Development* (Chicago: Municipal Finance Officers Association, 1983): 41.

authorities each had a nearly equivalent level of debt outstanding in 1999, with $14.3 billion and $14.1 billion, respectively.[18]

Strategic Fiscal Behavior.[19]

City officials creatively adapt to new-found fiscal situations in response to state attempts to constrain them or to assure their accountability to the public and taxpayers. City officials adapt to their changing fiscal environment. They also adapt their fiscal behavior to the incentive structures imbedded in their cities' authority to levy general taxes. The legal authority for municipalities to tax individuals and firms rests, in the end, on the state's authorization (or legitimization) of such authority. These general tax forms likely influence the spatial evolution of municipalities by encouraging commercial and residential development at certain locations accompanied by city provided infrastructure. Mall wars and auto mall wars result frequently from the tendency of municipalities that rely on the sales tax to influence mall development at the edges or corners of cities by investing in transportation and water infrastructure, so that taxable retail sales can be collected from as many non-residents as possible.

Property-tax dependent cities, on the other hand, have a need to capture as much of the economic development spin-offs from the city's infrastructure investment as possible by encouraging location of high-value real estate and structures as close to the center of the city as possible. This allows the city to maximize capture of development revenue. And income tax cities attempt to maximize high-income residential buildings or offices in order to capture as much income tax revenue as possible.

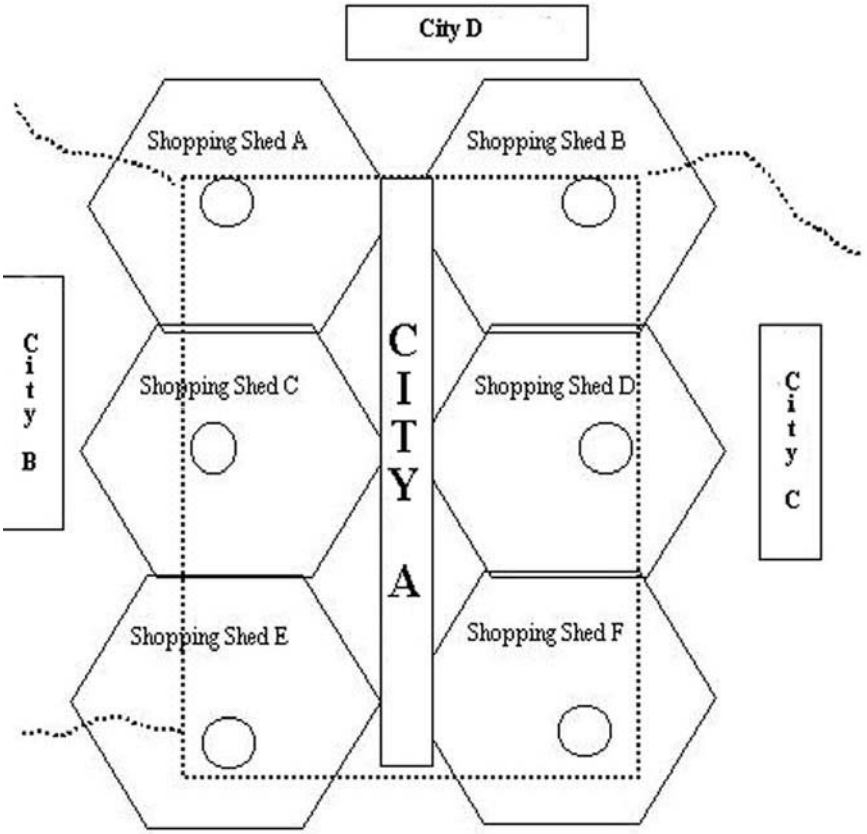
When deciding among competing infrastructure projects, city officials are motivated to maximize benefits, which include revenues and resources, and minimize costs, which include transportation and congestion costs in the neighboring community. The urban design of sales-tax cities, for example, is to build up the city's edges with commercial establishments and encourage non-residents to shop in the city (but live elsewhere). The figure below provides an idealized location of retail shopping centers or 'sales-tax canyons.'[20] Although good

18 Bourdeaux, "A Question of Genesis," p. 441.

19 This section is derived from Ann O'M. Bowman and Michael A. Pagano, *Terra Incognita: Vacant Land and Urban Strategies* (Washington, DC: Georgetown University Press, 2004)

20 In *The Reluctant Metropolis* (Baltimore: Johns Hopkins University Press, 1997), Williams Fulton shows that local governments' pursuit of retailers has resulted in long, contiguous tracts of land for commercial development. These long stretches of roach with bright lights, endless parking spaces, big box retailers, multi-lane streets, and no sidewalks are what he calls 'sales tax canyons'.

neighborhoods, low public safety costs, and vibrant communities are sought-after characteristics, municipal officials focus much of their energies on enhancing the retail sales tax base. These 'mall wars' encourage cities to invest in infrastructure in the hopes of generating sales-tax revenue from the surrounding region (the "shopping shed") and not just from the residents of the city. The result is endless skirmishes at the borders, duplicative or redundant infrastructure built in both cities when only one can sustain the economic transactions.



Source: Ann O'M. Bowman and Michael A. Pagano, *Terra Incognita: Vacant Land and Urban Policy* (Washington, DC: Georgetown University Press, 2004), p. 63.

Employment Centers and Free-Riders.

Infrastructure investment in the nation's "employment centers" (or cities with a significant "day time" population) requires building for a much larger group of users than just the residents. For example, Houston's daytime population swells by over 400,000 persons who commute from outside the city's boundaries. Atlanta's daytime population increases by 259,000 and Boston's

by 242,000.[21] Yet, those cities' infrastructure investment practices often do not match the non-residents' use of their infrastructures with their payments because they rely on either a property tax (Boston and Atlanta) or a sales tax (Houston), taxes that tend to be borne by residents rather than by users.

That is to say, infrastructure capacity at employment centers exceeds the demand of residents yet often foists most of the costs on those residents. Tax rates/burdens increase on residents of the "employment centers" driving more residents to relocate in the nonemployment centers where tax burdens are lower. Besides increasing state or federal fiscal transfers to cover cities' lack of authority to create an appropriate pricing structure, one policy response to this situation might be the controversial commuter tax, which is employed universally in two states. Only Ohio and Kentucky allow all their municipalities to impose a uniform income tax rate on both residents and non-residents. The municipal income tax in these states is essentially both a commuter tax and a tax-base sharing tax. The amount of tax-base sharing as a result of this commuter tax is staggering, estimated to be a $210 million net subsidy to Cleveland[22] (amounting to roughly two-thirds of the city's total municipal income tax collections). Yet, the controversy surrounding the commuter tax has led to protracted political battles in the nation's capital and to its repeal in New York City, cities that experience an increase in their daytime populations by 410,000 and 563,000, respectively, and whose infrastructure capacity was designed to handle those (and other) users.

1.2 Technology and Pricing: Charging the Consumer

After the Tax Revolt of the late 1970s, governments furiously searched for services that could be apportioned to consumers and charged a fee, thus protecting their embattled general tax revenue for more 'public' services. The increased use of governmental prices or charges has been associated with a growing interest in how the governmental sector can contribute to greater economic efficiency, defined as supplying goods and services in conformity with the preferences of the community. The proper use of prices helps ration available public facilities according to the intensity of demand and helps provide a rational basis for new investment

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21 U.S. Census Bureau, Population Division, *Journey to Work and Migration Statistics Branch (2000).* http://www.census.gov/population/www/socdemo/daytime/daytimepop.html

22 Net subsidy defined as the nonresident MIT contribution less foregone MIT revenue from residents who work in another city. See, Michael Pagano and Richard Forgette, "Regionalism and Municipal Tax Structures: Assessing Tax-Base Sharing Among Ohio's Municipalities," paper delivered to the Association for Budgeting and Financial Management, Kansas City, Missouri, 2002.

decisions. This is seen as particularly applicable for services in which individual benefits are clearly visible and for which personal utility rather than social utility predominates. Examples include public recreational facilities, such as tennis courts and golf courses, and public utilities, such as water and sewer.[23]

As technology advanced, city governments could begin to charge individuals for their consumption of a variety of services. Parking meters, for example, were installed in Oklahoma City in 1935 for the purpose of collecting revenue from specific users rather than collecting general tax dollars from all the city's taxpayers for a service that was enjoyed by identifiable consumers. The technological capacity to meter water use inexpensively likewise gave rise to the implementation of user fees on water consumption.[24] Cities often employ tolls and fees when technologically feasible, which treats resident and non-residents alike. Such services include bridges, tunnels and parking garages.[25] By moving to a user-fee financed system of infrastructure investment, the tax burden on residents or citizen-taxpayers is exchanged for a fee burden on users or consumers.

Nevertheless, some city services still rely on general tax revenues and special assessments on abutting properties because exclusion of individual users remains unattainable. City streets and sidewalks, for example, fit this category. For limited access highways, on the other hand, such exclusion, and therefore the prospects of imposing fees on use, are often feasible. As such, the use of toll roads has spread widely since the 1930s and 1940s.[26] Recently, the Transportation Research Board released a study calling for further alignment of highway funding with the benefits principle (in particular, a distance-based pricing system), which would more closely match actual use of the highway system with charges.[27]

Over time, the increasing use of fees and charges as market-like pricing mechanisms affected the way government officials understood the behavior of citizens as consumers of public services. Increasingly, citizens have been described as customers. Cities are willingly employing appropriate technology to monitor customers' consumption of units of public services.

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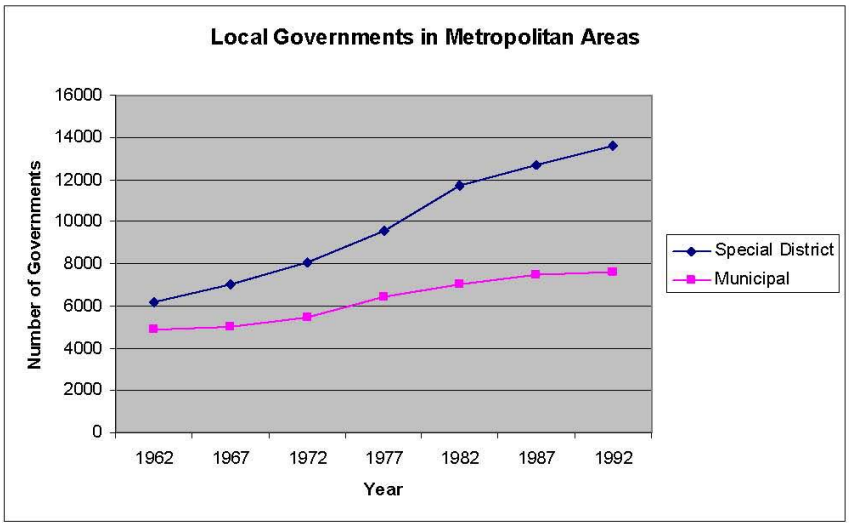
23 J. Richard Aronson and Eli Schwartz, eds, *Management Policies in Local Government Finance* (Washington, DC:, International City Management Association, 1975): 177.
24 Board of Water Supply, City & County of Honolulu. 15 April 2006. <http://www.hbws.org/cssweb/display.cfm?sid=1106>.
25 Aronson and Schwartz, *Management Policies in Local GovernmentFinance,* p. 179.
26 Joel Tarr, "Ownership and Financing of Infrastructure: Historical Perspectives," The World Bank Office of the Vice President Development Economics (Washington, DC: 1995), p. 6.
27 *The Fuel Tax and Alternatives for Transportation Funding* (Special Report 285) (Washington, DC: Transportation Research Board, December 2005).

And cities are apportioning services based on customers' willingness to pay, moving away from provision based on the citizen's right to enjoy a service regardless of personal financial means.[28]

1.3 Proliferation of Governments: Patchwork of Infrastructure Responsibility

The move toward charging consumers for the use of infrastructure and the technological or managerial capacity to track how much individuals consume was coincidental with thinking about infrastructure projects as having primarily "localized" impacts. Witness the proliferation of site-specific programs that link infrastructure investment to specific users, rather than to the community at large. Tax Increment Financing, Downtown Development Districts, Industrial Development Parks and the like are designed as contractual agreements between spatially-contiguous property owners (often, but not always, businesses) and the government (usually municipal corporations) often with the express purpose of taking annual capital investment decisions and plans out of the general political arena. Businesses are assured that their increased property taxes, due to enhanced site-specific values, are channeled back to the place that generated those revenues in the first place rather than to other parts of the city.[29] The result is rapid growth in the number of special districts. Since 1962, the number of special districts within metropolitan areas surged from just over 6,000 to nearly 14,000, an increase of 133 percent in 30 years.

28 Robert J. Bennett, *Decentralization, Local Governments, and Markets.* (Oxford: Clarendon Press, 1990): 13.
29 See Richard Briffault, "The Rise of Sublocal Structures in Urban Governance," *Minnesota Law Review,* vol. 82 (December 1997): 510.



Overlapping Governments.

Public authorities and special districts provide a specific type of service to a large geographic area. For example, a building authority would serve an entire city, and a sewer district would serve an entire metropolitan area. However, local governments have increasingly initiated and approved the creation of special assessment districts for public works and services. These are site or location-specific rather than simply service-specific entities. Since the turn of the century, special taxing districts have been established to provide specific types of public

Local Governments, 1967-2002

Year	*Total*	*County*	*Municipal*	*Township*	*School District*	*Special District*
1967	81,248	3,049	18,048	17,105	21,782	21,264
1977	79,862	3,042	18,862	16,822	15,174	25,962
1987	83,186	3,042	19,200	16,691	14,721	29,532
1997	87,453	3,043	19,372	16,629	13,726	34,683
2002	87,849	3,034	19,431	16,506	13,522	35,356
35 Year Change	**6,601**	**-15**	**1,383**	**-599**	**-8,260**	**14,092**
35 Year Percent Change	**8.1%**	**-0.5%**	**7.7%**	**-3.5%**	**-37.9%**	**66.3%**

Source: U.S. Census Bureau

improvements or services deemed to benefit a particular group of property owners. Early iterations tended to focus on street-oriented improvements such as street paving, street lighting, and sidewalks. Over time, special districts started providing services such as flood control and drainage, ambulance service, insect and pest control, and transportation services for the elderly.[30]

Business improvement districts have been created as economic development financing tools, stimulating the redevelopment of central business districts, commercial strips, neighborhoods, and historic preservation districts.[31] Proceeds from special assessments have been used to undertake projects such as free parking, street furniture, decorative lighting, plazas, outdoor malls, cultural centers, extra security, and commercial attraction or promotion activities.[32] To the extent that these districts are used to isolate the financing of infrastructure in areas of new development from the financing of existing infrastructure, they are a form of private financing similar to the traditional special assessment.[33]

Tax Increment Financing (TIF) for many cities is now the most popular form of economic development finance.[34] The use of TIF emerged in California in 1952 and since then has spread to nearly every state. TIF financing supports infrastructure development in a specific district, sells bonds to fund the development and pays back the bonds using the "tax increment" that results from increased property values in the district as a result of the public improvements and new development.[35] These TIF projects do not compete with other citywide infrastructure projects because they have a dedicated source of revenue (the "increment") to draw on. Although TIFs are not special districts, but rather site-specific investment areas, their creation has fragmented the decision space of city officials.

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30 *Building Prosperity*, p. 45.

31 District boundaries are commonly established by a city council action or by petition of property owners. Benefited properties are then levied a special tax assessment or fee for the benefits they receive. Assessments and fees are based on some formula that allocates construction or service costs among parties using such measures as linear front footage of property, square footage of property, or average assessed valuation of land. Sometimes the formula considers distance from the improvements and frequency of use See, *Building Prosperity*, p. 45. The most common way of distributing costs for projects that benefit commercial properties has been in proportion to square footage of building space. This applies to buildings either abutting, adjacent to, or near the infrastructure. See, Snyder and Stegman, *Paying for Growth,* p. 18. Special assessment bonds can be sold to provide up-front financing of the special assessment district's projects.

32 *Building Prosperity*, p. 45.

33 Snyder and Stegman, *Paying for Growth,* p. 18.

34 See, .e.g, Rachel Weber, "Equity and Entrepreneurialism: The Impact of Tax Increment Financing on School Finance," *Urban Affairs Review* (May 2003): 619-644.

35 *Building Prosperity*, p. 43.

Tax Exempts and Diminished Financial Capacity of Cities.

Some of the more important growth engines of municipalities are in the health care and education sectors, both of which are tax exempt entities in most cases. One estimate is that property holdings by tax-exempt organizations amounted to $900 billion.[36] Two other estimates (one national, one state) estimated that approximately 13 percent of real estate value was tax-exempt.[37] Assuming a 1.6 percent average tax rate on $900 billion,[38] governments forego $14.4 billion per year in tax revenue. That is one-third more than the combined budgets of Chicago and Los Angeles[39] and equal to 7 percent of all local property tax collected across the United States.[40] As the graphics below illustrate, not only is the value of tax-exempt property substantial (the first graphic), it also constitutes a large portion of some cities' assessment roles. In Hartford, over half the assessment value of the cities' properties is tax-exempt and in New York City, slightly less than half is tax-exempt. These cities face a diminished financial capacity to generate revenue for both operating budgets and capital projects, while the property tax burden is carried by the remaining taxable property owners.

The end result is that more assessed value moves off the tax rolls as tax-exempt organizations expand their importance in the nation's economy. This becomes potentially problematic as cities are encouraged to design tax systems that better fit with their underlying economic bases. If the underlying economy grows out from under the fiscal system, the city's investment in infrastructure and services is seriously compromised.

One policy response to the diminution of the property tax base is to impose a payment in lieu of taxes (PILOT) to at least partially offset the foregone property tax revenue. Although the underlying logic to adopting PILOTs to fund the tax-exempt organizations' consumption of basic

36 H. Woods Bowman, "Reexamining the Property Tax Exemption," *Land Lines* (July 2003).
37 Michael A. Pagano, *City Fiscal Conditions in 2000* (Washington, DC: National League of Cities, 2000); Robert Tannenwald, "Bringing Urban Revenues into the 21st Century," paper prepared for National League of Cities, 2001 (draft).
38 Per National Bureau of Economic Research estimate in Evelyn Brody, ed. *Property-Tax Exemption for Charities.* (Washington, DC: Urban Institute Press, 2002): 89.
39 LA operating budget $5.8B.City of Los Angeles. 15 Feb 2006. <http://www.lacity.org/mayor/budget/bgtfaq.htm>. Chicago all local funds $5.2B. City of Chicago. 15 Feb 2006. <http://egov.cityofchicago.org/webportal/COCWebPortal/COC_EDITORIAL/b._2006_Proposed_Budget.pdf>.
40 U.S. Census Bureau. 1997 Census of Governments. Municipal Property Tax: $46 billion. All LocalProperty Tax: $209 billion.

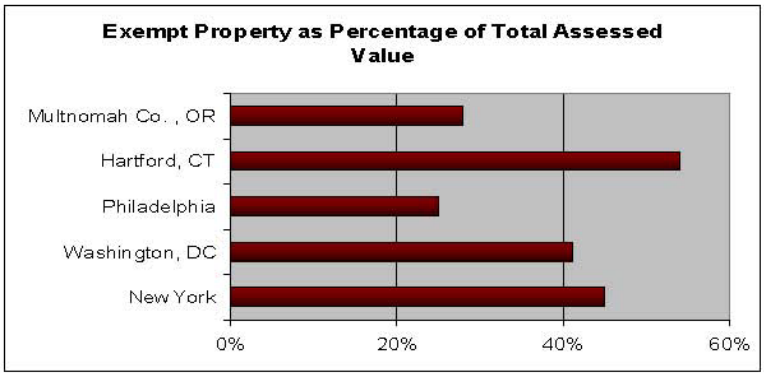
city services is sound, the amount of revenue generated from the policy is not very large.[41] A recent study of eight major cities estimated that PILOT revenue as a percentage of the budget is well under 2% and for five of the cities it was under 1%. The costs of providing infrastructure and services, as a consequence, are shifted to others, increasing their relative tax burden.

Estimated Value of the Property Tax Exemption
*(State Estimates of Tax-Exempt Property and/or Revenue Losses Attributable to Tax-Exempt Property)**

State	Number of Nonprofits	Nonprofit Organization Revenue	Avg. Effective Commercial Property Tax Rate	State Rank	Estimated Value of Property Tax Exemption	Tax Exemption as a Share of Nonprofit Revenue
California	22,774	$65,462,062,083	1.5%	47	$724,898,000	1%
Colorado	3,734	$8,423,438,598	2.0%	27	$17,780,000	0.2%
Minnesota	4,607	$12,670,172,608	4.7%	3	$1,770,000,002	1.3%
New Jersey	5,327	$19,982,864,180	5.0%	2	$284,000,000	1.4%
New York	15,118	$84,950,547,645	3.4%	7	$1,170,000,000	1.4%
Oregon	3,086	$5,327,548,696	1.5%	38	$26,811,000	0.5%
Washington	4,529	$11,758,815,066	1.2%	46	$396,176,000	3.3%
Wisconsin	4,196	$11,879,725,127	2.8%	15	$240,678,000	2.0%
State Sub-total	63,371	$220,455,174,003	N.A.	N.A.	$3,038,123,000	1.4%
National Total	193,214	$648,168,791,929	N.A.	N.A.	N.A.	N.A.

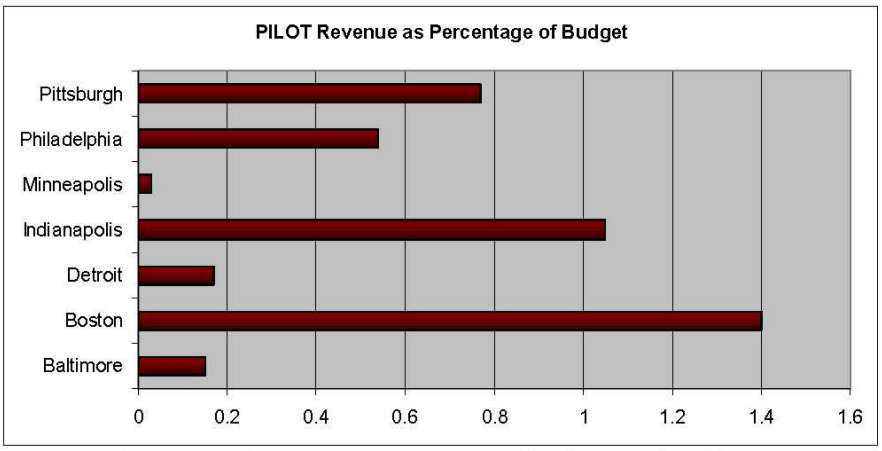
*Estimates of nonprofit organization revenue by state are computed using the National Center on Charitable Statistics Core File. Estimates of the tax value of the property tax exemption are taken from various state websites. The effective commercial property tax rate is based on estimates provided by the Minnesota Taxpayers Association.

Source: Joseph Cordes, Marie Ganz, and Thomas Pollak, "The Value and the Distribution of the Property Tax Exemption Among Nonprofit Organizations," *Proceedings of the National Tax Association*, 93rd Annual Conference on Taxation (2000): 170-179.



Source: Compiled from data in Evelyn Brody, ed. *Property-Tax Exemption for Charities*. (Washington, DC: Urban Institute Press, 2002): 70-72, 213, 234.

41 An exception is the case of New York City. In 2005, the city approved backing debt from PILOT revenues, amounting to some $650 million for a convention center and stadium project to be located on the far west side. See Elizabeth O'Brien, "New York City Council Approves PILOTs for Projects," *Bond Buyer* (October 31, 2005): 4.



Source: Evelyn Brody, ed. *Property-Tax Exemption for Charities.* (Washington, DC: Urban Institute Press, 2002): 202.

Private Governments and Homeowners' Associations.

If significant portions of infrastructure costs are being transferred to property owners who are not in the non-profit sector, the growth in homeowners' associations trend in a different direction. Many residential community associations are charged with infrastructure responsibilities, typically streets, lighting, sidewalk and recreation.[42] Since 1970, the number of persons who live in homeowner associations has climbed from 2 million to 55 million.

Cities are, on the one hand, relieved of some of the responsibilities of financing the costs of initial or new infrastructure projects in, say, subdivisions that are organized as homeowner associations. Yet, infrastructure ownership in new developments often reverts to the municipality, requiring the city to maintain and then, after some time, reconstruct the infrastructure. The value of infrastructure assets that are bequeathed to the city is not known, but considered substantial. Cities often require, as the price of supporting a residential development project, that infrastructure costs not fall to the city. The cost of infrastructure, then, is incorporated into the price of the dwelling and paid for by the owner. The owner is paying not only for his house, but also for the infrastructure that he uses. The nexus between payment and use is fairly clear to the beneficiary (home owner), just as it is to residents and businesses who

42 Donald R. Stabile, *Community Associations: The Emergence and Acceptance of a Quiet Innovation in Housing* (Westport, CT: Greenwood Press, 2000): 18. See also see Evan McKenzie, *Privatopia.* (New Haven: Yale University Press, 1994).

Data on U.S. Community Associations

- Estimated number of association-governed communities, individual housing units and residents within those communities:

Year	Communities	Housing Units	Residents
1970	10,000	701,000	2.1 million
1980	36,000	3.6 million	9.6 million
1990	130,000	11.6 million	29.6 million
2000	222,500	17.8 million	45.2 million
2002	240,000	19.2 million	48.0 million
2004	260,000	20.8 million	51.8 million
2005	274,000	22.1 million	54.6 million

Association-governed communities include homeowners associations, condominiums, cooperatives and other planned communities. Homeowners associations and other planned communities account for 55-60% of the totals above, condominiums for 35-40% and cooperatives for 5-7%.

live in TIF districts in which the infrastructure costs are tied to the 'increment' in property tax collections from that district.

Source: Community Association Institute. 16 March 2006. http://www.caionline.org/about/facts.cfm.

1.4 Price-Setting and Infrastructure Condition: Political Considerations Matter

In America's cities, there often exists a disconnect between those who use or benefit from infrastructure and those who pay for it. This is particularly true in the nation's employment centers. For many services--such as roads, sidewalks, and police and fire protection, and other services that flow from capital assets or basic infrastructure—fee-for-service arrangements are not employed. As a result, while benefits accrue to commuters and other non-residents, services tend to be funded through general tax revenue and the tax burden falls squarely on city residents and property owners.

Why, then, are efficient price mechanisms so often lacking? Generally, it remains technologically or politically infeasible to limit service access only to fee-payers. For example, it is not feasible for cities to meter usage and collect fees for pedestrians' use of sidewalks or motorists' use of city streets. This absence of a market-like price mechanism generates inefficiency in economic terms. Since producers of government services lack price as a signal, they cannot accurately measure demand and, therefore, cannot produce an efficient level of

public services. Under a market-like system, as demand rises, users compete to gain access to a scarce resource and the price increases. The higher price provides a revenue incentive for the producer to expand supply until equilibrium is reached.[43] However, without the authority to impose fees, providers lack a revenue incentive to expand service. They may indeed face pressure to restrict expansion since it would require a tax increase or diversion of funds from other programs. Such a funding dynamic invites infrastructure neglect.

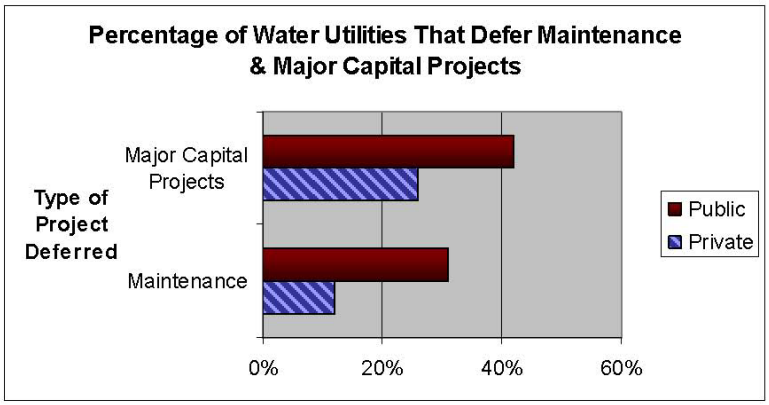
In the long term, two signals generally emerge that indicate infrastructure neglect: congestion and asset deterioration. Because individual users fail to pay a price that reflects the true cost of the service, including operating costs and long-term maintenance of the fixed asset, they generally exploit and overuse the system without reference to the long-term implications of their use.[44] Consumers do not consider the costs their usage imposes on others, in the case of congestion, or on the system, in the case of inadequately funded maintenance. As supply fails to keep pace with demand, infrastructure systems begin to accommodate more users than they were designed to handle. Such overuse, combined with a lack of funding for adequate maintenance, results in accelerated asset deterioration. In cash-strapped cities, it may be easier to ignore the unseen deterioration of fixed assets than to siphon revenue from visible city services, such as public safety, or to increase tax bills.

Given the difficulty of adequately funding tax-based infrastructure services, advocates of market-like discipline argue for the adoption of self-supporting enterprise funds and public authorities. Relying on a stream of revenue from user fees, rather than taxes, advocates contend that agencies can remove the 'politics' from setting the 'tax price' on government services, making the enterprise behave more efficiently and responsively to consumer demand.[45] If consumers are not satisfied with the product, they diminish consumption, and rates can be set that reflect or at least approximate the true cost of providing the service.

According to proponents of user fee pricing strategies and other market-like prices, the institutional design features of enterprise funds and public authorities ought to result in an infrastructure system that is in generally good physical condition.[46] These authorities, one assumes, could establish a fee schedule to fully fund the construction, operation and

43 David L. Weimer and Aidan R. Vining, *Policy Analysis: Concepts and Practice,* 3rd ed. (Upper Saddle River, NJ: Prentice Hall, 1999), pp. 62-73.
44 Weimer and Vining, *Policy Analysis*, pp. 90-93.
45 *Building Prosperity*, p 43.
46 *Building Prosperity*, p. 43.

maintenance of their utility services. Yet, studies on the differences between public and private ownership of utilities, and on rate setting, demonstrate a more complex policy problem. As the graphic below illustrates, both maintenance and capital deferral are greater among publicly owned water utilities compared to privately owned water utilities. Yet, deferral is still a problem even with the privately owned systems.



Source: General Accounting Office, *Water Infrastructure: Information on Financing, Capital Planning, and Privatization*" (Washington, DC: GAO, 2002): 45.

In reality, public authorities and private utilities do not operate free from broader political concerns, resulting in sub-optimal pricing strategies. For example, a Chicago Federal Reserve study noted that, had the tolls on the toll roads around Chicago been indexed to the Consumer Price Index, motorists would today be paying fives times the current rate. "Yet, the idea of an outright increase in tolls generated little enthusiasm among state lawmakers."[47] Likewise, the Pennsylvania Turnpike went 13 years without a rate increase[48] and the New Jersey Turnpike rejected toll hikes sufficient to balance its operating budget in the mid-1990s.[49] Even for private water utilities, the General Accounting Office found that fee-setting strategies do not differ drastically from their publicly-owned counterparts. As both defer maintenance and major capital projects to a similar extent,[50] it appears that private utilities do remain constrained by political considerations

47 Gene Amromin and Richard Porter, "Inducing more efficient payment on the Illinois Tollway," *Essays on Issues* (Chicago: The Federal Reserve Bank of Chicago, April 2006, No. 225).
48 Allison Hatfield, "Ruining a Bad Reputation," *Overdrive* (November 1997), Vol. 37, Issue 11.
49 Michale Demenchuk, "N.J. Turnpike Officials Lambaste Moody's Over Toll Hike Recommendation," *Bond Buyer* (19 August 1997) Vol. 321, Issue 30212.
50 U.S. General Accounting Office, *Water Infrastructure: Information on Financing, Capital Planning, and Privatization* (Washington, DC: GAO, 2002): 45.

In short, infrastructure providers face strong incentives to supply services at suboptimal levels with inefficient funding strategies. In some cases, services remain tax-supported, and residents of employment centers are stuck with the bill for services enjoyed by commuters. For services conducive to pricing, providers tend to set rates below the true cost of providing the service because of the political environment in which those rates are set, where political considerations such as equitable service access and the political acceptance of rates are factors. Overall, neither public nor private infrastructure service providers base prices solely on the dynamics of unfettered markets. Rather, political and fiscal pressures intervene, leading to suboptimal pricing strategies and service outcomes.

1.5 Budgeting for Infrastructure: Maintaining Fixed Assets

It is widely recognized that inadequate investment in infrastructure can constrain the economic development potential of a city by, for example, not relieving the costs of traffic congestion thereby increasing the cost of business or by not augmenting wastewater treatment capacity to allow for industrial, residential or commercial growth. Infrastructure investment, planned to meet the current and future needs of business and individuals, is a necessary and vital component of a healthy and competitive economy. Decisions to locate businesses and industry and to build residential housing depend in large part on the quality and adequacy of streets, water and sewer systems, traffic lighting and sidewalks, and other government investment activities.[51]

Yet, budgeting for infrastructure is not done in a unified manner. Construction and major renovation/repair projects tend to be funded through the city's capital budget; maintenance and operations are funded through the city's operating budget. In most cities, the political process of deciding on appropriations for the operating budget and for the capital budget is segmented such that one budget is completed at a different time from the other. Although the expectation for GASB 34[52] was to require governments to prepare accurate statements on fixed assets, it does not require cross-linking capital budgets with long-term maintenance outlays. Closer coordination between the capital and operating budgets is an important step in addressing the problem of underfunded maintenance. Because maintenance and repair activities tend to be funded from the operating budget and because these are asset-related activities, a crosswalk

51 Pagano and Moore, *Cities and Fiscal Choices*, pp. 6-8.
52 Governmental Accounting Standards Board Statement 34

between capital projects funded through the capital budget and longer-term maintenance and repair activities funded through the operating budget would more fairly present the true costs of building a fixed asset over its lifetime.[53]

Maintaining and repairing already-built bridges, roads, prisons, parks, office buildings, levees, and a host of other fixed assets are often relegated to political backburners for a number of reasons. One reason is that the effects of inadequate maintenance in any one year are not readily apparent. A leaking, underground sewer line will not degenerate into an asset 'failure' with the prospect of the loss of lives if it is not repaired this year; if the city waits for many years, it certainly could be. Because maintenance deferral infrequently causes an infrastructure failure in the very near term, it is often sacrificed in the face of a fiscal slowdown. Engineering studies demonstrate that continued maintenance deferral will certainly cause the infrastructure to fail, but the precise moment of the failure is unknown. Infrastructure use, age, weather and a host of other factors affect infrastructure performance, in addition to adequate repairs.[54] Hence, budgeting for a reduction in maintenance spending today will not usually be noticed by the users.

Second, it is also largely a decision that 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., bridges), or at least it does not involve the high-profile ribbon-cutting ceremonies that surround the completion of new capital projects. Yet, in recent years the visibility of maintenance (or the lack thereof) to the general public has become nearly as important as the construction of new projects due to a number of catastrophic events, such as potholes that swallow cars, the devastating effects of inadequately maintained and eroding levees and dams in and around New Orleans after it was nearly destroyed by Hurricane Katrina and the attendant flooding, and the bridge collapse over the Mianus River in Connecticut.

Although studies clearly demonstrate that state and local governments tend to reduce maintenance spending in response to difficult fiscal times, they do so at their own peril. Reducing the maintenance budget reflects poor management and financial decisions because those poorly maintained facilities wear out sooner than they were designed for and delaying maintenance only increases the eventual costs of repair at some later date. When a structure is

53 Daniel Mullins and Michael Pagano, "Local Budgeting and Finance: 25 Years of Developments," *Public Budgeting & Finance* (Special Issue 2005): 3-45.
54 "Report Card for America's Infrastructure (2005)." American Society of Civil Engineers. 15 Mar 2006. <www.asce.org/reportcard>. See also, "Grading the States," *Governing* (February 2005).

built, the current builders and citizens provide a facility that is designed to last some period of time. When the facility is poorly maintained or not repaired when needed, the intergenerational compact is broken or strained. Future generations then are required to build new and replacement facilities not just for their own needs, but also to invest in major reconstruction and costly repairs to the deteriorated fixed asset those earlier generations bequeathed to them but didn't care for.[55] During the 1990s when the nation's economy experienced unprecedented growth, cities began to invest this unexpected revenue windfall in infrastructure, advancing projects from their capital improvement plans. Indeed, by 2002, the percentage of cities that identified unmet "infrastructure needs" as a key factor negatively affecting their cities' budget had dropped to just one in four.[56]

Financing the maintenance of fixed assets, then, can be ignored until the next administration comes along. New mayors take office, a fixed asset fails, and the outgoing administration is no longer accountable. The new mayor is, indeed, left holding the bag.

1.6 Out of Control? A Watershed Era?

In important ways, the effect of the tremendous growth in the number of special districts and municipalities' creating an overlay of special-purpose sub-municipal governments for the purpose of localizing investment in infrastructure is to make clearer and cleaner the linkage between infrastructure investment activities and the individual beneficiary of such activity. The effect has also been that infrastructure provision has fractured into tens of thousands of local government providers, including the explosion of public authorities over the last 50 years, giving rise to accountability problems. Full faith and credit debt is no longer the most important type of municipal debt issuance, in part due to legal constraints; revenue (non-guaranteed) debt is

55 The most visible competing need for resources that might otherwise be dedicated to infrastructure enhancement (or to enhancement of any other service) is the medium- to long-term pension costs and post-employment benefits for retired personnel. To the extent that cities do not make adequate contributions (either through annual budgetary outlays or returns on investment), they will be confronted with Solomonic decisions once city employees begin to draw on their retirement. The question here is, what activity will be underfunded so that pension and post-employment benefit commitments, which were made by previous generations of city officials, can be met today? Or will the electorate agree that it has been getting a freeride on its tax burden in those previous years and that it is time now to raise tax rates? The political climate for municipalities has not been one that readily turns to tax hikes for the purpose of closing budget holes, especially not the size of the pension obligation. Trade-offs with other city responsibilities are then made. San Diego's pension system, for example, has been fraught with so many problems that it has been put on 'watch' by rating agencies, meaning it cannot borrow to build and repair its infrastructure. Even if these trade-offs (between future obligations and present needs) are not making today's headlines, GASB 43 will, within the next few years, move them onto the radar screen.

56 *City Fiscal Conditions in 2002* (Washington, DC: National League of Cities, 2002).

much more important to financing infrastructure today than ever before. Homeowners associations finance some infrastructure, non-profits often do not. The policy space within which city officials negotiate infrastructure investment has become nearly impossible to understand. Which government is financing the infrastructure? Who is responsible for taxing and fee decisions? How can they be held accountable to the public? In short, why does the incoming mayor feel like the situation is out of control? Because in large part, the perception is accurate:

- Neither mayor nor taxpayer is fully aware of which government is responsible for which set of services
- Proliferation of governments across the region looks like a patchwork quilt of accountability
- Pricing via fees is not full-cost or marginal and is still subject to political considerations
- Pricing via taxes ignores willingness to pay, leading to inefficiencies
- Economic growth nationally has been strong in the non-profit sector, yet PILOTs generate less than foregone property tax revenues.
- Services support by general tax revenue extract payment from residents and property owners rather than all users (including commuters), and the size of the tax base may lag the growth rate of services demanded by users.
- Authorization to levy only one general tax (property, sales, income) have spatial implications that can exacerbate destructive competition
- Budgeting practices artificially segregate the decision space between repairing or maintaining a facility and building or reconstructing the city's physical infrastructure.
- Infrastructure failures occur at unpredictable times due to maintenance neglect from previous years.
- More and more control rests with localized special assessment, business improvement, and TIF districts.

The narrative above has implications for the issues discussed below, all of which help explain the frustration felt by today's city leaders. The metropolis is in many ways fragmented, authority is decentralized, accountability and responsibility are divided and unclear, and the resident-citizen is billed for infrastructure and service-delivery costs that benefit a large number of non-paying consumers. Governance structures in the metropolis today appear to be chaotic, fragmented, splintered and fractured.

II. WHAT ARE CITIES TO DO?

As the previous sections of this paper indicate, we know a fair amount about how important infrastructure is to urban development and how complicated and difficult the tasks of providing such infrastructure have become. In short we know where we have been, but the real question now, in light of the fundamental role infrastructure plays in cities, is where are we going? What do we do now? The concluding sections of this paper are far less analytically definitive. They are meant to propose and provoke a meaningful conversation over these questions. They are offered more as topics focused on new policy structures and the concomitant fiscal actions such structures may require. They are also meant to direct our attention to infrastructure initiatives designed to operate at an appropriate scale—an *urban* scale that is large enough and challenging enough to require, at times national or state and other times regional, that are defined by, just as they exceed, the city limits of urban America.

"The mayor must be able to centralize and control the budgetary process at the final stages of decision making if fiscal problems are to be avoided."[57] So concluded a study of New York City and Chicago. This decidedly pro-centralization assessment of effective budgeting appears contrary to historical trends that, to the contrary, demonstrate an increasingly fragmented and 'silo-ed' governmental system. Nevertheless, the observation certainly rings true to one of the nation's master-builders, Robert Moses, who was the head of 14 different public works agencies at the height of his power. While the authorities were formally distinct, Moses centralized control over them in his own office, producing everything from parks, hydropower projects, bridges, and highways to housing, slum clearance projects and sports venues. Believing that full operational control over entire projects was a key for managerial success, Moses viewed the public authority as the appropriate vehicle to "get things done."[58]

Yet, the lessons of the past century are that fragmentation and pricing policies embrace competition and market-like expectations of government fiscal policies. If cities wish to abide by the people's wishes, they will find ways of building infrastructure in an efficient and equitable manner. For example, pricing of infrastructure systems does not often follow the benefits principle (in which the user pays). Instead, they are most often paid for in the most expeditious manner (if you have authority to increase the tax rate, then raise it!) rather than in an efficient

57 Ester Fuchs, *Mayors and Money* (Chicago: University of Chicago Press, 1992): 278.
58 Perry, *Building the Public City,* 222-224.

manner (will the user pay for her portion of the infrastructure's consumption?) and equitable manner (does everyone who needs it have access to it?). Cities' street and bridge systems rely on city and state funds (city residents, therefore, pay twice) but the users are not just city residents. Recent studies demonstrate that nearly half of state-local spending on transportation is paid for not by any transportation-related tax (e.g., fuel tax) but by general taxes (property, sales, income) as if the value of a resident's home indicates usage of the street and bridge system.[59] Or, as if non-residents are in no way linked to use of or payment for the transportation system.

The increasing growth of the tax-exempt sector, cities' consideration of PILOTs, the continual search for ways of moving from general-tax supported activities to user-fee based activities, from general-obligation to revenue debt, from general-purpose governments to special districts and public authorities, all of these were indeed symptomatic of city innovations in financing infrastructure and in a fundamental rethinking of the role of government in service provision and infrastructure investment. The innovations were spawned by governmental decentralization, technological improvement, demands for market-like pricing mechanisms and the competitive drive of cities to grow, expand and enhance the quality of life for residents and firms.

States are seriously being asked to reconsider the traditional forms of financing highways by asking questions of who benefits and who pays; and they are beginning to talk about mileage-based taxes (cf. the Oregon case). Cities too need to innovate once again and reconsider fundamentally the way infrastructure is financed, or at least to continue to experiment with different pricing mechanisms. The successful innovations will be adopted and diffused. And the future infrastructure of cities will be more efficient, equitable, and regional in scope.

2.1 The Federal and State Pieces

Federal aid to city government declined dramatically over a quarter century ago and has not recovered. In 1978, nearly one in five dollars collected by cities had its origin in Washington; today, it's less than one in twenty. State aid, since 1982, had remained fairly stable at around 22-23 percent of total municipal revenue. What then can the federal and state governments be encouraged to do, especially given the remote likelihood that either federal or state aid will

59 Martin Wachs, *Improving Efficiency and Equity in Transportation Finance*, The Brookings Series on Transportation Reform (Brookings Institution, April 2003).
http://www.brookings.edu/metro/publications/wachstransportation.htm

increase anytime soon? Several possibilities are worth examining for reasons that are based not on the relative fiscal health of cities and the difficulties that many municipalities have been confronting in recent years,[60] but rather on the merits of strengthening the intergovernmental partnership. The imperatives of sound urban infrastructure are both so central to the health of cities and the nation-state and, at times, so costly that they require a national fiscal response that is part grantor and part guarantor:

- Infrastructure Restoration Grant. A federal Infrastructure Restoration Grant should be targeted to centers of employment, which have the highest needs as measured by infrastructure use, to account for the wear-and-tear of employment centers' infrastructure by nonresidents. Defense of an Infrastructure Restoration Grant can be made on at least two grounds. First, earlier federal grants were designed to build infrastructure systems that were larger than cities would have built on their own. When the federal government pays 80-90 percent of construction costs, why not build a bigger facility than the city actually needs in anticipation of growth, whether it comes or not. But the costs of maintaining those infrastructures were borne by the cities alone. Most cities, save those with commuter taxes or other exportable taxes, rely on their own residents to provide the resources necessary to adequately maintain the infrastructure. These resident-taxpayers, then, pay for the maintenance of a facility that they use but are also used by non-residents.

  Second, some of these employment centers are central cities that house a disproportionately large low-income population who cannot afford the costs of maintaining an infrastructure system that was larger than could be afforded in the first place. The federal government, therefore, should be a grantor and design a grant for infrastructure maintenance.

- National Infrastructure Bank. Yet another reason for a more engaged and fully-scaled federal infrastructure policy is of a more recent vintage. Since the attacks of 9/11 and the even more recent crises brought on by Katrina, it is clear that the federal government could better act as a guarantor of debt that would assist cities and regions in raising the funds for local projects. One idea presently making the rounds in both financial and governmental circles is for the federal government to split the Federal Home Loan Bank in two—creating a new "Federal

60 *City Fiscal Conditions in 2005* (Washington, DC: National League of Cities, 2005).

Urban Infrastructure Bank" that would operate in parallel with (and like) the FHLB, Fannie Mae and Freddie Mac financing system. A second federal investment strategy that might operate at an appropriate scale could be the creation of law creating a form of reinvestment initiative for private banks that encourage them, like the Community Redevelopment Act, to respond to the credit needs of cities and regions. These strategies engage the federal government once again as a guarantor of urban infrastructure financing and a partner with cities and regions.

- Municipal Taxing Authority. Although a similar argument could easily be made for creating a state version of the Infrastructure Restoration Grant, this proposal is for states to allow cities to design a tax/fee system that the cities need and can match to their economic base. Cities are proscribed from levying certain taxes by their states, such as a commuter tax. Infrastructure investment is influenced not only by the needs of commerce and industry, but also by the fiscal needs of the city. The fiscal system in many cities encourages city officials to make infrastructure investment decisions that are clearly anti-regional in character but simultaneously are smart choices for the city's fiscal health (e.g., investing in the transportation infrastructure at a city's edge for an automall in order to reap sales tax revenues and also to shift costs of congestion and road infrastructure on neighboring cities).

  Transparent and efficient fiscal systems that more closely align cities' 'economic bases' to their revenue systems and that bring together both users of infrastructure and the payers in a market-like transaction ought to be encouraged or at a minimum allowed by state action. Therefore, states ought to allow cities to design their own tax/fee systems and compensate cities for spillover effects of infrastructure that benefit non-residents by granting flexible access to city-appropriate revenue levers.

2.2 City Management Reform

Reform of the intergovernmental grant and regulatory system, such as the proposals above, is not controlled by actions of city officials. Rather, state and federal officials must be convinced of the compelling nature of the proposals. Other actions, however, can be controlled or influenced by city officials, including the following: designing interlocal agreements on regional infrastructure policy; aligning users and payers; reforming the city's budget policies and practices; leveraging the value of city assets; and investing prudently.

- Interlocal/Regional Agreements. Another key element of the urban underlying this paper is that cities are not just cities anymore—they are *much* more. The metropolitan region is increasingly the demographic as well as the economic unit of local life and global competitiveness. Infrastructure that does not at once serve the every day realities of the local and the demands of global networks will contribute to the weakening of the urban rather than its effective growth and development. Even as “region” becomes more key to understanding the nation’s economic growth potential, the mix, complexity and splintering of governments, financing mechanisms and public-private collaborations add up to an almost impossible layering of politics, debt policy and infrastructure systems, which in turn confounds the regional demands for infrastructure and the capacity to provide it. The new “glocal” nature of regions requires infrastructure delivery at new and flexible scale. Infrastructure in such a time is, arguably, the prime area for governance reform, requiring as it does (and will) horizontal cooperation among local governments and vertical integration with the state and federal government.

- Aligning Users/Payers, Accounting for Needs. As the march toward political decentralization, increasing use of user fees, and privatization continue to “marketize” transactions of governments, cities are probably not in a position to counter the trend. They can create better and innovative financial systems that ensure (1) efficiency is met and the benefits principle followed; (2) equity is met and users pay for infrastructure use, and an ability-to-pay principle is followed; (3) maintenance costs are incorporated into the pricing structure so that the decision to build fixed assets doesn't trump the long-term care and repair of those assets, (4) the approach is a regional solution to a regional problem. This is an approach that calls on cities in the region to design a comprehensive infrastructure pricing system that is not limited to general tax sources (property, sales, income) but on a more firm nexus between payer and user.

- Budgeting Reform. Internal budget reforms need to explicitly link the capital and operating budgets of municipalities in order to better gauge the future infrastructure costs that result from present-day investment decisions. An unfunded infrastructure obligation might be avoided or at least diminished in importance. At a minimum there should be the full

implementation of good budgetary practices such as GASB 34. GASB 34 is a tool in focusing discussion and debate on an appropriate level of infrastructure investment and on an appropriate level of maintenance outlays. To continue budgetary practices that separate capital programs from operations contributes to the serious deferred maintenance budget of the country, estimated by the American Society of Civil Engineers to be $1.6 trillion dollars. It may not be accurate to conclude from this figure that the country has "stopped reinvesting in itself,"[61] but it certainly suggests that new budgetary practices and fiscal policy reforms are required.

- Valuing Assets. Revenues from asset sales or lease-back arrangements can be used for infrastructure maintenance, especially if state and federal aid is not forthcoming. Recent sale-leasebacks of highways (Indiana Toll Road, Chicago Skyway) are a recognition that the economic and monetary value of assets held by the government sector are sizable and can leverage resources from private investors and users. Contractual language that requires a prescribed level of maintenance/repair and restoration protects the government's initial investments. These arrangements can require a rental payment and should allow the operators to design a pricing structure that shifts the risk to the operator, not to the government. If the price (e.g., toll) is too high, revenues decline (e.g., motorists use alternate routes), forcing the operator to re-design the pricing system. Whether this approach becomes commonplace or whether private investors develop other tools for building-operating infrastructure for public use is not known.

- Invest Prudently. Fully fund infrastructure investments! The costs of an asset are not only the initial construction costs and later the renovation costs. Operating and maintaining the facility require planning for day-to-day use and adequate funding.
  Investment decisions today, if they include the full costs of financing infrastructure, including operating and maintenance costs, lock in future legislative financial decisions. The size and long-term operating needs of city infrastructure must be measured not only by the services provided to users today and by their capacity to afford those services, but also by the need to protect future generations from today's follies. Maintenance is an area that can easily be

61 Quote by Richard Baron, 2004 winner of ULI's J.C. Nichols Prize for Visionaries in Urban Development, as reported in Michael Paluwkiewicz, *Financing Urban Infrastructure* (Washington, DC: Urban Land Institute, 2004), p. 2.

underfunded, overlooked, and ignored for several years before the consequences of the inaction are noticed. Indeed, it is not uncommon to underfund maintenance during times of fiscal difficulties. Full disclosure of the present and future costs of a fixed assets, including a defensible assessment of revenue sources to fund those future costs, needs to accompany any infrastructure investment proposal from the city.

III. CONCLUDING THOUGHTS

The levees protecting the city of New Orleans from the high waters are a federal responsibility, the interstate roads and bridges belong to the state of Louisiana, the pumps, streets and alleys fall under the city's jurisdiction. Together these fixed assets constitute the public's 'built environment' or infrastructure, together the infrastructure provides a foundation for the residential and commercial wellbeing of the region, together these capital facilities are woven together to enhance progress and the human condition. The nation's political system deliberately fashioned a quilted arrangement of responsibilities under a federal structure so that no one state or compact of states or region or even the central government could command and control all the citizens of the nation. On the one hand, then, the initial chaos and finger-pointing shouldn't be unanticipated; on the other hand, the slow response signals a breakdown in the requisite coordination and cooperation of a federal system. For just as power is expected to be fragmented in the U.S. so that it cannot be centrally controlled, efficient management and cooperation among the levels of government are, or should also be, hallmarks of a vibrant federal system.

Innovative infrastructure finance must take center stage in policy debates on the fiscal futures of cities and on the quality of life in the broader region. Financial strategies for infrastructure projects should be designed to ensure that users of the infrastructure pay for both construction and maintenance costs, and that it can be afforded over time. Higher levels of government ought to intervene in providing support to users who have a low taxing capacity and a relatively high use of infrastructure as well as to non-residents who benefit from the city's provision of a service but whose payment cannot be effectively captured by pricing schemes.

Linking payment to an asset's use cements the market-like relationship in the minds of the consumers, who can then adjust levels of consumption based on their preferences. While market-based financial strategies will create more efficient and effective infrastructure systems that more closely link true costs of infrastructure to their beneficiaries, urban policymakers must

also address the infrastructure needs of segments of the population who cannot afford to pay their fair share.[62] A carefully designed financial structure must incorporate dimensions of both the ability of the users to pay for their consumption of infrastructure services (a horizontal equity concern) and the benefits received by the consumers. These two pillars of public finance systems (the benefits principle and the ability-to-pay principle) must be restored and, in many cases, must replace the existing fiscal systems of convenience and chaos that have evolved over the last century.

"Public works on a noble scale" is how Robert Caro described Robert Moses' approach to his powerful control of public authorities,[63] a perspective that certainly may have had adherents in the mid-20th Century. What needs to be thought about and pursued in the 21st Century is something a bit different, recognizing the fractured and fragmented metropolis and the 'marketized' public policies toward government services today. The perspective today might more realistically be thought of as public works on an urban scale.

Will the next Mayor who comes to office with the optimism and courage of doing good and doing it well be in a similar position as today's mayor? Will tomorrow's mayor also feel like she's left "holding the bag?" Possibly. Even if infrastructure price-setting is done in a quasi-market setting and even if the difficult calculations on how much a user consumes and even if the costs of use can technically be calculated and balanced against the users' ability-to-pay, in the end it's still only a market-*like* policy. The final pricing decisions continue to be situated in a political environment, constraining and shaping urban policymakers' decision space. The hope, however, is that more efficient, equitable and transparent systems of financing infrastructure in the 21st Century will replace the apparent organized chaos in today's world of urban infrastructure policy.

62 See, e.g., Stephen Graham and Simon Marvin, *Splintering Urbanism* (London: Routledge, 2001). See also, Susan E. Clarke, "'Splintering Urbanism': An Interesting Theory?" *Antipode* (forthcoming).
63 Robert Caro, *The Power Broker* (New York: Vintage Books, 1974), p. 172.