

REINVENTING THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

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Poole has advised the Federal Highway Administration, the Federal Transit Administration, the White House Office of Policy Development, National Economic Council, Government Accountability Office, and state DOTs in numerous states. His 1988 policy paper proposing privately financed toll lanes to relieve congestion directly inspired California's landmark private tollway law (AB 680), which authorized four pilot toll projects including the successful 91 Express Lanes in Orange County. More than 20 other states and the federal government have since enacted similar public-private partnership legislation.

Poole was among the first to propose the commercialization of the U.S. air traffic control system, and his work in this field has helped shape proposals for a U.S. air traffic control corporation. A version of his corporation concept was implemented in Canada in 1996 and was more recently endorsed by several former top FAA administrators. His policy research on airport privatization helped inspire Congress' 1996 enactment of the Airport Privatization Pilot Program and the privatization of Indianapolis' airport management under Mayor Steve Goldsmith.

Robert Poole co-founded the Reason Foundation with Manny Klausner and Tibor Machan in 1978, and served as its president and CEO from then until the end of 2000. He is the author of the first-ever book on privatization, *Cutting Back City Hall*, published by Universe Books in 1980, and has written hundreds of articles, papers, and policy studies on privatization and transportation issues. His popular writings have appeared in national newspapers, including the *New York Times*, the *Wall Street Journal*, *USA Today*, *Forbes*, and numerous other publications. Poole earned his B.S. and M.S. in mechanical engineering at Massachusetts Institute of Technology (MIT) and did graduate work in operations research at New York University.

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Executive Summary

The Port Authority of New York & New Jersey (PA) was established in 1921 to create a sustainable, depoliticized way to provide and manage bistate transportation infrastructure. At the time, the highly centralized, Progressive-era public authority model was state-of-the-art. Nearly a century later, however, the model's three key limitations have become evident: politicized decision making, money-losing facilities, and declining financial viability.

Several studies have urged that the PA divest its real-estate and “economic-development” assets and reform its governance. These changes are certainly worthwhile but do not go far enough. Crucially, they fail to address the way the agency finances its system. By treating airports, bridges, and tunnels as cash cows to subsidize its other lines of business, the PA has ended up with mediocre airports, congested and inadequate bridges and tunnels, money-losing seaports, a pathetic bus terminal, and the worst heavy-rail transit system in the nation.

The PA needs more dramatic reform. Major transportation infrastructure requires ongoing investment (including capacity additions as needed), renewing and replacing aging facilities, and keeping pace with the latest technologies. That is simply not possible until the PA abandons its decades-long practice of common-pool funding and extensive cross-subsidies, and moves instead toward infrastructure facilities funded by dedicated revenue streams and facility-specific accountability. The mechanism to do so is long-term public-private partnerships (P3s), which today mobilize hundreds of billions in new capital for infrastructure around the world.

The endgame is that the PA would no longer own or operate transportation infrastructure. Instead, it would plan and regulate an array of concession companies that would be held accountable for performance through bond covenants and terms embedded in their long-term concession agreements.

The P3 model would produce major benefits. These include added runway capacity at Kennedy and Newark Airports; the reconstruction and expansion of aging bridges and tunnels; more-productive seaports; a greatly reformed Port Authority Trans-Hudson (PATH) rapid-transit system; and a sensible replacement of the Port Authority Bus Terminal (PABT).

The transition could take place over several decades. The PA would first divest the current non-transportation properties and begin setting aside funds to retire (defease) its existing bonds. Up-front payments for long-term leases of individual airports, bridges, tunnels, and ports would provide the needed revenues. Since the value of the PA assets exceeds the agency's bonded indebtedness, the PA could invest some of the lease proceeds in new trans-Hudson rail and truck tunnels. Public pension funds, which have already begun to make serious infrastructure investments in the past decade, should be a key investor in the new P3 concessions.

REINVENTING THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

I. Introduction

The Port Authority of New York & New Jersey is America's largest single provider of metro-area transportation infrastructure. The New York–New Jersey Port Authority Compact established the agency in 1921, and the original purpose was to improve the region's seaports. But the broad language of the compact enabled the agency to build toll bridges and tunnels between the two states and, in the 1940s, to operate the region's three major commercial airports. The PA expanded again in 1962, taking over a money-losing heavy-rail transit line that was renamed PATH, and launching the World Trade Center real-estate development in lower Manhattan.

The Progressive-era architects of public authorities like the PA set out to replace the often sordid politics of public procurement with independent public agencies. These agencies would be led by apolitical technocrats—professional engineers, managers, and administrators. That has proved to be a vain hope, as politicized decisions in recent decades have thrust the PA into an array of “economic-development” projects in New York and New Jersey, and the agency has diverted funds to rebuild the Pulaski Skyway, entirely within New Jersey.

The agency's financial condition is deteriorating. It is also a defendant in a long-running lawsuit by the regional affiliate of the American Automobile Association, which challenges the PA's diversion of revenue from bridge and toll increases to help reconstruct the World Trade Center, instead of using it for bistate transportation projects.

In light of these developments, outside organizations and, indeed, the PA leadership have called for reforms. The goal is generally to return the agency to its core transportation mission by divesting real-estate assets and taking a more businesslike approach to its transportation assets.

The question is whether these reforms go far enough. I think not. The PA needs to undertake more fundamental change, and a review of its history helps explain why.

II. The Port Authority's Rationale and History

By the early 1920s, New York Harbor had grown increasingly congested, as the port's docks and wharves proved inadequate to the growing seaborne commerce. Nearly all the region's docks were in New York City, but the railroads that were needed to transport goods to and from the Port of New York were in New Jersey. The result was the creation of a bistate public authority, established by the New York–New Jersey Port Compact of 1921, to develop and operate port and transportation facilities for the benefit of the entire region.

The Port Authority's initial plan was to improve the ports and expand railroad infrastructure. But the agency, short of funds, instead devoted much of its efforts toward building revenue-producing assets: three bridges between New Jersey and Staten Island (Bayonne, Goethals, and Outerbridge) and the George Washington Bridge, between New Jersey and upper Manhattan. The PA acquired the existing Holland Tunnel under the Hudson River in 1931 and built the Lincoln Tunnel, which opened in 1937.

In the 1940s, the PA entered into long-term leases to operate Newark, LaGuardia, and Idlewild (later JFK) Airports. In 1950, the agency opened a large Port Authority Bus Terminal in mid-Manhattan, primarily to serve commuter buses from New Jersey. In the 1950s and 1960s, the agency significantly expanded marine terminal facilities, including the development of the world's first all-container facility at Port Elizabeth, New Jersey.

Still, the PA's infrastructure investments over the first 40 years all dealt with bistate transportation facilities. That changed in 1962. Laws enacted by the legislatures in both states enabled the Port Authority to develop a World Trade Center office complex in lower Manhattan (a New York project) and to take over the bankrupt Hudson & Manhattan Railroad, which became PATH (Port Authority Trans-Hudson), serving New Jersey commuters. In 1979, legislation allowed the PA to build industrial parks and redevelop waterfront land. Similarly, in 1984, legislation enabled the PA to build mixed-use waterfront projects in New Jersey and Queens, New York.

The PA could finance these major moves into real estate because, by the 1960s, bridge and tunnel tolls, along with thriving airport traffic, were generating large surplus cash flows. The agency could tap the

money because there were no new projects lined up, and terminal lease agreements with airline tenants were largely funding airport expansions.

Nearly all U.S. commercial airports must use their revenues for airport purposes as a condition of accepting federal airport grants. But PA airports are exempt. That's because they were already transferring surplus airport revenues to non-airport purposes before the enactment of the federal airport grants law in 1970.

The PA's Board of Commissioners comprises 12 members: six appointed by the governor of New York; and six by the governor of New Jersey. Under a long-standing informal arrangement, the governor of New Jersey appoints the board chairman, and the governor of New York appoints the executive director. The agency's large surplus cash flows have proved alluring: the commissioners searched for new projects, including non-transportation real estate, which would win political plaudits in their respective states. It is also likely that the surpluses weakened agency incentives to efficiently manage the airports, toll facilities, and seaports. The idea of an apolitical agency was still well out of reach.

One fact stands out: aside from expanding the Lincoln Tunnel in the 1950s and opening the second deck on the G. W. Bridge in 1962, *there has been no expansion of highway capacity between New York and New Jersey in more than 50 years, despite massive traffic congestion.* And until very recently, adding runway capacity at any of the three major airports has been out of the question. Since the early 1960s, the PA has milked the cash cows—the airports and toll facilities—to subsidize an increasing array of other projects.



III. Change Is in the Air

The PA's declining financial performance—combined with growing concerns over ever-higher toll rates, cost overruns on the World Trade Center reconstruction, and a variety of scandals—has led to proposals for reform in recent years. The first proposal began in September 2011, when a special committee of the PA's board of commissioners asked Navigant (a consultancy) and investment banking firm Rothschild to perform a financial review of the agency. Navigant's Phase II (final) report in 2012 made some organizational and governance recommendations but did not question the agency's overall business model.¹ Rothschild assessed the PA's ability to finance additional projects despite its high debt level, which it found to be adequate.²

In 2013, New York's Citizens Budget Commission (CBC; a nonprofit citizens' group) made a series of recommendations to improve the Port Authority's management and budgeting. A year later, the CBC reported that the agency had made progress in some areas but was falling short in disclosing how it made and justified decisions on capital projects, in disclosing the sources of funding for each project and in providing independent monitoring of major capital projects.³

New York University's Rudin Center for Transportation Policy & Management released a more comprehensive report in 2014.⁴ "The fundamental challenge," according to the executive summary, "is that the business model under which the Authority has operated for the past 30 years is no longer sustainable."

"A Port Authority That Works" faulted agency decisions to move into real-estate development and PATH and the subsequent move into economic-development projects. The Rudin Center report also criticized "allocat[ing] a portion of its surplus

revenues and its limited capital capacity to projects selected by the governors of the two states, many of which bore little or no relationship to the Authority's mission or its existing businesses." It documented the PA's eroding financial base, thanks to zero-revenue projects in the two states and soaring operating deficits at the ports, PATH, and the bus terminals. And it pointed with alarm to the continued irresponsibility of doing so once the financial erosion became obvious:

Even as the Port Authority's financial foundations were eroding, the Authority continued to finance projects chosen by the governors. Between 2001 and 2012, the Port Authority spent more than \$800 million on such "regional projects." During the next few years, PA spending on zero-return projects will increase even further, as a result of the Authority's agreement to provide \$1.8 billion to fund the rehabilitation of state highways in New Jersey.

"A Port Authority That Works" stated that the relentless increase in bridge and tunnel tolls was the "direct result" of the PA's "continuing reliance on its bridges, tunnels, and airports to fund its money-losing operations and to finance both its own and the states' capital projects." The report called for redirecting PA funding to be "solely for facilities, services, projects, and programs that are clearly aligned with its core [transportation] mission." It recommended that the PA divest all non-transportation real estate except for the World Trade Center (which it expects to be profitable), invest more in improving the three major airports, and stop the financial hemorrhage of the PATH system.

Also in 2014, the PA's board of governors created the Special Panel on the Future of the Port Authority, consisting of its chairman, vice chairman, a board member, and the counsels of each of the two governors. The Special Panel released its rather sweeping report in December 2014;⁵ in February 2015, the board voted unanimously for the panel's core structural and strategic recommendations.

In addition to several changes in governance (e.g., a single CEO and two cochairs, increased transparency), the Special Panel report, *Keeping the Region Moving*, made profoundly important mission recommendations. First, the PA must "return to its

core mission of facilitating the efficient movement of people and goods through the region.” Second, it must revitalize its core transportation assets: the three airports, the bus terminal, the seaports, and PATH. Third, it must “phase out real estate ownership and development” as part of its mission, including divestiture of its commercial real estate holdings at the World Trade Center. Finally, the PA must update its 1952 Consolidated Bond Resolution to include “facilitating the divestment of non-core assets” and taking advantage of public-private partnerships and other innovative financing tools.

The reform proposals are many, but none of them asks the fundamental question: Is the Port Authority model the best way to plan, finance, and manage the critically important bistate infrastructure? I suggest that the answer is no. The PA itself needs reinvention. A review of the Authority’s individual lines of business explains why—and how.

IV. Planes, Trains, Automobiles, and Ships

Airports

Kennedy, LaGuardia, and Newark Airports score very poorly in national and international airport rankings. Many of their terminals are antiquated and undersize. Their retail concession offerings are far below those available elsewhere. And for decades, the Federal Aviation Administration has rationed their landing and takeoff slots, thanks to inadequate runway capacity. Meanwhile, the PA appeared to be more interested in adding to its airport portfolio (by acquiring money-losing Stewart Airport and getting involved in the management of money-losing Atlantic City Airport) than upgrading its three major airports to world-class standards.

The PA’s Special Panel report touts the three major airports as “the second largest airport system in the world in passenger traffic (behind London) and the largest in flight operations.”⁶ Considering these airports as a centrally directed “system” reflects the Progressive-era mind-set. It ignores the potential benefits to passengers and shippers of healthy competition among these airports.

London’s Heathrow, Gatwick, and Stansted Airports were operated as a system when they were part of

the British Airports Authority. The Thatcher government privatized BAA in 1987, but most economists regarded privatizing a shared monopoly as a mistake. Over the past decade, the government rectified the mistake by requiring BAA plc to divest Gatwick and Stansted; the three airports now compete for airlines and passengers. Currently, Gatwick and Heathrow are each making a strong public case for a runway addition. The CAPA Centre for Aviation released a thoughtful report on the New York airports in 2015, recommending the competitive divestiture model as a key to revitalization.⁷

An airport’s organizational form matters. A large-scale empirical study in 2008 used a database of 109 international airports, with six different ownership forms: city/state government, airport authority, private shareholders, public-sector corporations, port authorities, or mixed ownership. The most productive airports were those that had been privatized, corporatized, or were under airport authority ownership. The least productive were those of U.S. port authorities.⁸ This fact could well be due to the practice of multi-purpose port authorities using airport revenues to cross-subsidize other activities, rather than focusing on investing productively in their major airports.

In 2011, a major study from the Regional Plan Association (RPA) showed that, contrary to conventional wisdom, it would be physically feasible to add runway capacity at Kennedy and Newark Airports.⁹ The study also showed that the benefits of adding new runways would be worth the cost, since air travel is so crucial to the continued economic growth of the region. Planning along these lines should have been initiated and brought to fruition by the Port Authority itself.

The RPA report was pathbreaking but unfortunately gave short shrift to the benefits of serious runway pricing at the PA’s three major airports. Charging what amounts to market-clearing prices to land and to take off—instead of traditional landing-only fees based on aircraft weight—would generate significant new revenue to pay for additional runways and encourage airlines to increase their average aircraft size to allow for more passengers.

London’s Heathrow and Gatwick, now privately owned, have abandoned traditional weight-based landing charges. Heathrow charges the same landing

fee for any size aircraft, giving airlines an incentive to use larger planes, on average, to spread the cost over more passengers. The fees vary by time of day, with rates about twice as high during noise-sensitive nighttime hours, as compared with days and evenings. Heathrow also charges different landing fees based on their noise category, with rates six times higher for the noisiest planes than for the quietest.¹⁰ Gatwick charges the same rate regardless of aircraft size or weight and likewise charges based on noise category. Unlike Heathrow, it charges for both landings and takeoffs, and with far lower rates off-peak than for peak-time operations.¹¹

The Reason Foundation laid out a detailed approach to runway pricing for JFK, LaGuardia, and Newark Airports in 2007.¹² Incumbent airlines serving the three airports strongly opposed the report's recommendations to charge time-of-day rates for both landings and takeoffs, arguing, on the one hand, that pricing would not work. On the other hand, the incumbent carriers argued that if it did work, it would jeopardize their existing investments in terminal facilities (if new entrants were willing to pay more to use the runways than the incumbents).

The U.S. Department of Transportation (DOT) had long prohibited market-based runway pricing, allowing only traditional weight-based fees for landing. In 2008, the DOT lifted the ban, and the policy change survived legal challenges by the airlines. Thus, the PA has had the legal authority to implement runway pricing along these lines for nearly a decade but failed to use it.

After privatization, BAA plc—on its initiative—designed, financed, built, and now operates a nonstop heavy-rail transit line between its Heathrow Airport terminals and the Paddington Station in central London. Trains run every 15 minutes and make the trip in the same amount of time. BAA plc spent “over £500 million” (\$646 million) to develop Heathrow Express and has stated that the operation is profitable. The round-trip fare is £36 (\$46.50).¹³ Gatwick also has nonstop rail service via Gatwick Express, serving Victoria Station in central London. Trips depart every 15 minutes and take 30 minutes. The round-trip fare is £35.¹⁴ The Port Authority has failed to plan or build any kind of fast rail link to the airports for which it is responsible.

Bridges and Tunnels

In its generally forward-looking report, the PA's Special Panel unfortunately took for granted that the agency's bridges and tunnels are cash cows, always available for milking. Yet bridges and tunnels do not last forever. With proper maintenance, major bridges and tunnels can last up to a century. But in a growing metro area, they may become functionally obsolete decades before that.

Here are the in-service dates of the PA's revenue-generating bridges and tunnels: Holland Tunnel, 1927; Outerbridge Crossing and Goethals Bridge, 1928; George Washington Bridge and Bayonne Bridge, 1931; and Lincoln Tunnel, 1937. The Lincoln Tunnel added a third tube in 1957, and the G. W. Bridge's second deck opened in 1962. Since then, the PA has added no trans-Hudson capacity for buses, cars, or trucks.

The PA is building a replacement, with additional lane capacity, for the aging and inadequate Goethals Bridge (which connects Elizabeth, New Jersey, to Staten Island, New York), under a long-term public-private partnership. And the Bayonne Bridge (connecting Bayonne, New Jersey, to Staten Island) is being raised to provide increased clearance for large cargo ships. Yet there are no other known PA plans for “revitalizing its core [highway] transportation assets.”¹⁵ Given the overwhelming congestion on the Authority's other bridges and tunnels, the drivers who use them are clearly being shortchanged, paying ever-higher tolls for declining levels of service.

Congestion extracts a high cost from the highway, bridge, and tunnel users in the New York metro area. The Texas A&M Transportation Institute's “2015 Urban Mobility Scorecard” shows that the total annual cost of traffic congestion (measured only as the value of lost time and extra fuel consumed) in the New York metropolitan area increased from \$10.2 billion per year in 1982 to \$14.7 billion in 2014 (both in 2014 dollars). The New York metro area moved from being ranked second-worst to worst in the nation on this measure. On an individual basis, the average annual cost, \$1,209 per commuter in 1982, had climbed in real terms to \$1,739 in 2014. On a cost measure, New York has gone from the fifth-worst metro area in the nation to the second-worst.¹⁶



Manhattan residents may well be concerned that adding to trans-Hudson highway capacity will make congestion on the city's streets even worse. Not necessarily.

First, given that 85% of the containers going to and from the ports are carried by trucks (since they are going to or from nearby distribution centers and businesses), new truck-only capacity could relieve some of the congestion on current bridges and tunnels. Second, some portion of trans-Hudson vehicle traffic is longer-distance through traffic, especially on the G. W. Bridge, which is part of the East Coast's main north-south interstate highway (I-95). Third, additional bridge or tunnel capacity should be accompanied by congestion pricing for *all* of the PA's tolled facilities. And this pricing could be revenue-neutral, with higher rates during peak periods offset by lower rates during off-peak hours.

Unsurprisingly, the New York metro region's toll payers object to paying ever-higher tolls for ever-worse congestion. In a 1989 lawsuit, the Automobile Club of New York and New Jersey argued that it was not "just and reasonable" for the PA to include PATH losses in the rate base for determining tolls on the bridges and tunnels. A federal district court rejected the argument. And in a 2016 lawsuit, the Automobile Club of New York and New Jersey sued the PA (same as before), but this suit also failed.

Any serious reform of the Port Authority should reconsider its long-standing policy of treating its bridge and tunnel customers as cash cows.

Bus Terminals

The PA includes the Port Authority Bus Terminal, or PABT, and the George Washington Bridge Bus Terminal in its "Interstate Transportation Network." Reporting the financials of the bus terminals separately would foster greater transparency and accountability.

PABT, which opened in 1950, is the largest bus terminal in the U.S., thanks to expansions in the 1970s and 1980s. It serves both intercity and commuter bus operators, with the latter accounting for 85% of its operations. Despite strong growth in traffic during the past decade, its annual operating loss is growing—\$97.6 million in 2014 alone. The Special Panel report ranked PABT low on alignment with

performance objectives (presumably because of increasing losses) but high on alignment with the PA's core mission. The facility is in poor condition, and the report calls it "physically and functionally obsolete."

In October 2015, the PA's commissioners voted unanimously to begin work toward replacing PABT with an all-new facility. Following an international design competition, the PA staff will develop the plans, which tentatively call for building the new facility at an estimated cost of \$7.5 billion–\$10.5 billion. Without the huge potential fund transfer from bridge and tunnel revenue, such a grandiose plan would be highly unlikely. Instead of a competition to design the grandest edifice, it would make much better sense to invite conceptual proposals from potential developers/operators whose plans would be judged on how self-financing they could be.

The G. W. Bridge Bus Terminal is a much smaller facility, poorly connected to Manhattan transit lines and with a small fraction of the daily usage of PABT. It is difficult to find, in the PA reports, either cost figures or recent usage figures, since this bus terminal is lumped in with the G. W. Bridge in financial statements. The PA reportedly considered closing or selling the G. W. Bridge Bus Terminal in 1990.¹⁷ That might still make sense, given that the Special Panel report ranked it much lower in alignment with core mission than PABT.

PATH

Table 1 compares the key metrics of America's 10 largest heavy-rail transit systems, including PATH. Not only does PATH have the second-highest train (vehicle) operating cost per trip (1.9 times the median) and the third-highest total operating cost per trip (\$3.90), but its general administration costs are the highest of all 10—at \$0.92 per trip, they are 2.2 times the median of \$0.42 per trip.

According to New York's CBC, the annual PATH deficit rose from \$294 million in 2004 to \$383 million in 2014. The commission projects that PATH's annual loss will increase to \$487 million by 2018.¹⁸

The CBC and the Special Panel noted that PATH's fares are relatively low, especially given that its ridership is somewhat more affluent than typical transit commut-

TABLE 1.

Key Metrics for the Largest 10 U.S. Heavy-Rail Systems, 2014

Agency	City	Op. Exp. (mil)	Unlinked Trips	Veh. Op. Cost	Veh. Maint. Cost	Non-Veh. Maint.	Gen. Admin.	Total Cost/Trip
NYC Transit	New York	\$3,744	2,570	\$0.67	\$0.25	\$0.38	\$0.17	\$1.47
WMATA	Washington	\$844	285	\$0.98	\$0.59	\$0.83	\$0.56	\$2.96
CTA	Chicago	\$515	231	\$0.88	\$0.39	\$0.62	\$0.33	\$2.22
BART	San Francisco	\$489	119	\$1.85	\$0.80	\$0.76	\$0.70	\$4.11
PATH	NY/NJ	\$312	80	\$1.79	\$0.39	\$0.80	\$0.92	\$3.90
MBTA	Boston	\$309	167	\$0.81	\$0.31	\$0.49	\$0.24	\$1.85
SEPTA	Philadelphia	\$184	103	\$0.88	\$0.33	\$0.34	\$0.24	\$1.79
MARTA	Atlanta	\$178	73	\$0.86	\$0.42	\$0.60	\$0.57	\$2.45
LACMTA	Los Angeles	\$106	48	\$0.99	\$0.41	\$0.61	\$0.20	\$2.21
Miami-Dade Transit	Miami	\$76	19	\$1.50	\$0.93	\$1.15	\$0.50	\$4.08
Average		\$676	370	\$1.12	\$0.48	\$0.66	\$0.44	\$2.70
Median		\$311	111	\$0.93	\$0.40	\$0.62	\$0.42	\$2.34

Source: Citizens Budget Commission, PATH report, Table A-1

ers. Despite several fare increases, the average one-way fare paid is just \$1.96, due to an array of discount pass options. PATH grossly undercharges for what amounts to a high level of service between New York and New Jersey (see the sidebar).

Why are PATH fares so low? While political pressures to keep transit fares far below cost affect all transit agencies, one factor unique to PATH is its heavy reliance on cross-subsidies from toll payers. The CBC noted that PATH is the only one of the 10 major heavy-rail systems that does not receive annual taxpayer subsidies from federal (Federal Transit Administration), state, and local taxpayer sources.

The Special Panel recommended that the PA seek a new operator for PATH, public or private—potentially one not regulated by the Federal Railroad Administration (FRA), whose regulatory requirements are more costly to meet than those of the Federal Transit Administration (FTA). It also recommended that PATH pursue federal funding from the FTA, as all other heavy-rail systems receive; reduce PATH’s 24/7 service modestly; and increase advertising revenue.

CBC, however, suggested a major reduction in the cross-subsidy from toll payers (down from the current 69% of PATH’s budget, to 25%–33%). “The large cross-subsidy PATH requires from more profitable lines of business,” the CBC noted, “represents lost opportunities for investments in the agency’s more profitable activities and an inequitable burden on users of the bridges and tunnels.”

That would require either local sales taxes in the counties in which PATH operates or a special property tax in those same counties. While either change might be politically difficult, the change would be a marked improvement in fairness, better matching PATH costs to its beneficiaries. The commission recommended fare

Peak-Period Charge for Trans-Hudson Crossings (as of 2014)

PATH	\$1.96
NJ Transit (train)	\$5.00
NJ Transit (bus)	\$5.50
Car toll (one-way, E-ZPass)	\$6.25

Source: Citizens Budget Commission, “Financing PATH”

increases and revisions in the fare structure that could include peak/off-peak pricing and distance-based fares, both of which are used on some of the other large heavy-rail systems. It also suggested transferring PATH to New Jersey Transit, which would presumably eliminate the FRA regulation and open the door to annual FTA grants.

Seaports

The Port of New York and New Jersey is the country’s third-largest port, after Los Angeles and Long Beach. Like many U.S. port authorities, the PA operates largely as a landlord, leasing individual terminals to various private-sector companies.

The PA has invested heavily to prepare its facilities for the much larger post-Panamax cargo ships that will be able to use the expanded Panama Canal. The competition among East Coast ports to capture market share from new all-water service from Asia via the Panama Canal—as a faster alternative than shipping via the Suez Canal—is intense. However, there is considerable speculation within the shipping industry that more capacity is being created than will be used, given that ultra-large ships will likely stop at fewer ports. To capture the new business, ports will need greater depth and larger cranes but also a quicker and more efficient means of loading and unloading cargo. These improvements will be a challenge for the PA’s facilities and workforces.

The *Journal of Commerce* has developed a ranking system for container ports that measures berth productivity (an index based on the average number of container moves per crane, per hour, while a ship is at berth).¹⁹ **Table 2** lists the productivity scores for the world’s 26 largest container ports. U.S. ports fare poorly compared with Asian ports. The most productive U.S. container ports are Long Beach and Los Angeles, with the New York–New Jersey ports a distant third, closely followed by Baltimore and Savannah. Panama’s Balboa port is significantly more productive than any U.S. port and might develop a transshipment capability under which mega-ships from Asia would offload their containers for further shipment to the U.S. East Coast by smaller vessels.

By and large, PA port facilities are poor financial performers. The PA’s 2014 annual report reveals net operating losses for Port Newark (\$43.6 million, 54% of gross income); Howland Hook (\$17.3 million, 159% of gross

TABLE 2.

2013 Global Port Productivity

Port	Country	Productivity Score
Tianjin	China	130
Qingdao	China	126
Ningbo	China	120
Jebel Ali	United Arab Emirates	119
Khor al Fakkan	United Arab Emirates	119
Yokohama	Japan	108
Yantian	China	106
Xiamen	China	106
Busan	South Korea	105
Nansha	China	104
Shanghai	China	104
Dalian	China	104
Balboa	Panama	91
Salalah	Oman	91
Long Beach	United States	88
Los Angeles	United States	87
Bremerhaven	Germany	86
Mina Khalifa	United Arab Emirates	86
Rotterdam	Netherlands	86
Southampton	United Kingdom	81
Hamburg	Germany	81
New York–New Jersey	United States	78
Algeciras	Spain	76
Baltimore	United States	75
Prince Rupert	Canada	72
Savannah	United States	72

Source: JOC Group Inc.: Port Productivity Data²⁰

income); Brooklyn Marine Terminal (\$7.6 million, 177% of gross income); Red Hook (\$6.0 million, 405% of gross income); and Port Jersey Marine Terminal (\$5.4 million, 24% of gross income).

These losses, once again, demonstrate the perverse effects of subsidizing potentially money-losing operations out of surplus revenues extracted from toll payers. The Elizabeth Marine Terminal generated enough net income—\$71.6 million in 2014—to reduce the overall port commerce line of business net operating loss to \$10.4 million. But with the pressing need for capital investments to modernize its port facilities and keep them competitive, the PA cannot afford to operate America’s third-largest port system at a loss.

There is a project under way to raise the clearance height of the Bayonne Bridge to accommodate larger, higher cargo ships. It will cost \$1.3 billion, and the funds are coming from increased bridge and tunnel tolls. *Toll Roads News* has sharply criticized the equity of this arrangement:

Since the drive to heighten the shipping clearance at the Bayonne Bridge comes from shippers who will benefit by the ability to use larger ships, why won’t they pay “tolls” to travel under the rebuilt bridge and help pay for what benefits them? Truckers and other motorists get a slightly widened deck, but otherwise the main change they’ll see is a longer, higher climb and more fuel consumed.²¹

The Port of Hong Kong provides a cautionary tale for New York. Once one of the leading ports in Asia, Hong Kong is no longer among the world’s 26 most efficient container ports (it is still fifth in container volume). A recent article in the *Wall Street Journal* attributed the decline to the port’s “crowded terminals” and the ability of other Chinese ports to unload cargo containers faster and cheaper.²²

World Trade Center and Other Real-Estate Ventures

The original World Trade Center development, though controversial at the time, ended up providing a return on the PA’s original investment. Indeed, the agency leased it (in July 2001) for 99 years to developer Larry Silverstein, at a price of \$3.2 billion. Following the destruction of the buildings on September

11, 2001, both Silverstein and the PA understandably committed to building a replacement World Trade Center on the site, with the PA focused in particular on creating a much better transportation hub to link PATH with subway lines and other transportation services. Unfortunately, for many reasons, the overall redevelopment suffered large cost overruns and schedule delays before its completion in January 2016.

In hindsight, the 1962 agreement that led the PA to build the original World Trade Center destabilized the agency and led to its current modus operandi: repeatedly increasing bridge and tunnel toll rates to finance money-losing and “zero-return” projects favored by the governors of New York and New Jersey. The first of these, of course, was the money-losing PATH system, which the PA agreed to take on in exchange for permission to develop the WTC.

As the Rudin Center report noted, “Between 2002 and 2012, the Port Authority spent more than \$800 million on these ‘regional projects,’ including \$1.8 billion for rehabilitation of New Jersey state highways and bridges, including the Pulaski Skyway.” The availability of cross-subsidies, the Rudin Center report concluded, “has seriously distorted the Port Authority’s investment priorities.”²³

One consequence of the relentless increase in toll rates is the ongoing litigation brought in federal district court by the Automobile Clubs of New York and New Jersey, affiliates of the national AAA. The suit argues that the toll increases begun in 2011 violate the federal Bridge Act, since that legislation does not allow bistate toll revenues to be used for non-transportation purposes—or for transportation projects that don’t link the two states in question (the Pulaski Skyway).

The U.S. Magistrate’s Court for the Southern District of New York denied the auto clubs’ request for an injunction to halt the toll increases but allowed the case to proceed, since these questions had not been definitively adjudicated in previous cases.²⁴ Should the plaintiffs prevail, it seems unlikely that the recent toll increases would be rescinded (due to bond covenants), but such a decision would significantly change the PA’s continued reliance on toll facilities as its cash cow for cross-subsidies—at least for non-transportation projects.

The PA's Special Panel has recommended that the agency phase out its commercial real-estate holdings and, as well, "Repurpose, redevelop, or sell underperforming assets, including obsolete facilities such as the Red Hook Container Terminal." Managing its various non-transportation assets, the Special Panel noted, may "divert staff attention and financial resources from core transportation facilities and needed new projects."²⁵

V. Feasibility

The reports from the CBC, the Rudin Center, and the PA's own Special Panel all suggest, to varying degrees, that the PA's business model of the last 50 years or so is no longer sustainable. But all three remain comfortable with the Progressive-era model of a public authority that master-plans the region's key transportation infrastructure as a system, owns and operates the major facilities, and dispenses extensive cross-subsidies (though perhaps no longer to non-transportation projects).

I would suggest, instead, a more sweeping reform based on three core ideas: 1) competition rather than monopoly among individual facilities; 2) revenue self-sufficiency for the major-mode facilities—airports, bridges and tunnels, and seaports; and 3) procurement and operation of facilities via long-term public-private partnerships (P3s), whose incentive is to earn a rate of return by providing high-quality service to paying customers.

The new business model draws on global best practices. These include a new appreciation for the benefits of competition among facilities (e.g., the now-competing London airports and the separately managed urban tollways of Santiago, Chile); privatization of major airports, seaports, and toll roads and development of new facilities via long-term P3 concessions; and increasing roles for variable pricing of airport runways and congested urban toll facilities.

The transition would have to take place over many years (more on this below), but the Port Authority would undergo a profound change. It would no longer be the owner and operator of major infrastructures. Instead, it would become the policymaker and regulator of facilities that would be developed or redeveloped via private capital under long-term P3 concession

agreements. The PA would retain its responsibility for bistate transportation infrastructure, but as a growing number of state DOTs are now doing for megaprojects, it would rely on the competitive procurement of privately financed concession companies to build or modernize major airport, bridge and tunnel, and seaport facilities.

Once cross-subsidies end, the PA would use toll revenues to reconstruct and modernize the existing bridges and tunnels. The agency might also be able to finance new bridge and tunnel facilities for freight as well as motor vehicles. The PA could use airport revenues and new pricing schemes to add new runways to Kennedy and Newark Airports, as well as modernize airport terminals. There would also be a strong, even overwhelming, incentive to close down uncompetitive ports and to reinvest in competitive ones that could retain and expand the ports' market share among East Coast ports.

What about PATH and PABT? To improve PATH's finances, the alternatives reviewed earlier in this paper would all be worth implementing: significant fare increases to levels competitive with other means of crossing the Hudson; changes in the fare structure, such as peak/off-peak and distance-based rates; and eliminating 24/7 service.

PATH itself could be divested to New Jersey Transit, as suggested by the CBC. Another alternative would be to include PATH (or, at least, its new World Trade Center terminal) as part of the divestiture of the WTC.

There is nothing revolutionary in this recommendation. For example, Hong Kong's Mass Transit Railway Corporation (MTR) was created in 1975 as a government-owned corporation, and it is self-supporting from fares and real-estate revenue. The Hong Kong government partially privatized MTR in 2000, selling 23% of its shares on the stock market.

Whichever ownership alternative is selected, the CBC recommendation of changing PATH's subsidy from toll payers to federal and local taxpayers has much to recommend it. Today, there is no good reason to exclude PATH from the FTA's annual grant funding for other heavy-rail transit systems. There are also grounds for considering taxation of properties directly served by PATH's commuter trains (these properties benefit from their proximity to commuter transportation). Today, with apparently endless cross-subsidies from

toll payers, there is little political incentive to think about this. If the subsidies end, the incentives would be dramatically different.

The aging and obsolete PABT needs replacement. The money to make this happen could come from a public-private partnership that would develop PA-owned real estate in the vicinity. Navigant's *Phase II Report*²⁶ cited property around the terminus of the Lincoln Tunnel (Dyer Avenue) that "offers the potential opportunity for value-added real estate development that could generate hundreds of millions of dollars over a 10- to 15-year period." Navigant also noted that air rights above PABT North Wing present another development opportunity.

What Are Port Authority Assets Worth?

British prime minister Margaret Thatcher privatized the state-owned British Airports Authority (BAA), British Ports, British Rail, British Gas, British Telecom, and the formerly state-owned water and electric utility industries in the 1980s. In subsequent decades, there has been a worldwide trend toward privatization and public-private partnerships for large-scale infrastructure in transportation, energy, and environmental facilities.

In transportation infrastructure, specifically, the predominant model is not an outright sale (as with BAA) but rather a long-term lease under what is called a concession agreement—a form of public-private partnership (P3). Those agreements are the means by which the public-sector agency exercises governance and oversight of the concession company responsible for designing, financing, constructing (or reconstructing), operating, and maintaining the facility over a lease term long enough to generate a return on its investment.

New York's Port Authority has done a handful of such P3 deals, including the JFK Terminal 4 project in 1999, the current project to replace the Central Terminal at LaGuardia, and a concession for replacing the Goethals Bridge. Notable projects in other locales include the long-term concessions for modernizing the Indiana Toll Road and Chicago Skyway; concession projects to add express toll lanes to congested freeways in Orange County (California), Fort Lauderdale, Dallas and Fort Worth, and the I-495 Beltway and I-95 in northern Virginia near Washington, D.C.; and Puerto Rico's long-term lease to upgrade and modernize the San Juan Airport. Since 2003, more than \$31 billion in equity

and long-term debt has been invested in P3 infrastructure projects in the highway sector alone.²⁷

There is, in fact, a global infrastructure investment-fund industry that includes major investment banks, sovereign wealth funds, and large public pension funds. In 2014, such funds raised a record \$55 billion. They raised another \$48 billion in 2015, via 77 funds.²⁸

Some of the largest U.S.-based infrastructure funds include ArcLight Capital Partners, Global Infrastructure Partners, the Blackstone Group, and Goldman Sachs Infrastructure. Major U.S. pension funds that are investing directly in infrastructure include CalPERS (California Public Employees' Retirement System), CalSTRS (California State Teachers' Retirement System), the New York City Employees' Retirement System, the State Board of Administration of Florida, and the Illinois State Board of Investment. The non-profit TIAA (Teachers Insurance and Annuity Association) is another direct investor.

Because long-term P3 concessions worldwide are modernizing airports, toll facilities, and seaports, we can gain a general idea of what the PA's existing facilities might be worth. Investors evaluate the value of a company or an infrastructure enterprise in terms of its earnings before interest expense, taxes, depreciation, and amortization (EBITDA). In the case of assets owned by the PA, taxes are zero, and the other figures are in its financial statements. Investors typically pay some multiple of EBITDA, either for outright ownership or a lease term long enough to have many of the attributes of ownership (e.g., 40–75 years).

Airports: Macquarie Capital has assembled figures that cover 30 commercial airport transactions for 2008–13. While the range of the EBITDA multiples ranged from a low of 10 times EBITDA (10X) to a high of 35X, the average was 16.3X.²⁹ The EBITDA multiple for the recent sale of London City Airport for \$3.05 billion was 28X.³⁰ Attorney John Schmidt of Mayer Brown, who has advised on many P3 concession transactions, suggests that the high end of this range would apply to the PA's major airports.³¹

Toll facilities: Another Macquarie data set tracks 10 major toll-facility concessions from 2008 through 2015. These range from 18.3X to 35.5X EBITDA, with an average of 26.2X.³²

TABLE 3.

Estimated Asset Values of PANYNJ Bridges, Tunnels, Airports, and Seaports

Category	Asset	Net income	Interest	Deprec. & Amortiz.	Total EBITDA	High Multiple	High Estimate	Med. Multiple	Med. Estimate	Low Multiple	Low Estimate	
Bridges & Tunnels												
	G. W. Bridge	\$492,235	\$23,523	\$32,007	\$547,765	35.5	\$19,445,658	26.2	\$14,351,443	18.3	\$10,024,100	
	Holland Tunnel	\$65,745	\$7,590	\$26,601	\$99,936	35.5	\$3,547,728	26.2	\$2,618,323	18.3	\$1,828,829	
	Lincoln Tunnel	\$82,612	\$19,021	\$43,611	\$145,244	35.5	\$5,156,162	26.2	\$3,805,393	18.3	\$2,657,965	
	Bayonne Bridge	\$3,831	\$6,455	\$5,186	\$15,472	35.5	\$549,256	26.2	\$405,366	18.3	\$283,138	
	Goethals Bridge	\$106,589	\$7,089	\$34,879	\$148,557	35.5	\$5,273,774	26.2	\$3,892,193	18.3	\$2,718,593	
	Outerbridge Crossing	\$112,976	\$1,843	\$5,048	\$119,867	35.5	\$4,255,279	26.2	\$3,140,515	18.3	\$2,193,566	
	Total B&T						\$38,227,856		\$28,213,234		\$19,706,190	
Airports												
	LaGuardia	\$30,603	\$19,884	\$48,927	\$99,414	35.0	\$3,479,490	16.3	\$1,620,448	10.0	\$994,140	
	Kennedy	\$242,303	\$64,092	\$141,945	\$448,340	35.0	\$15,691,900	16.3	\$7,307,942	10.0	\$4,483,400	
	Newark	\$278,895	\$57,617	\$114,148	\$450,660	35.0	\$15,773,100	16.3	\$7,345,758	10.0	\$4,506,600	
	Teterboro	-\$4,147	\$8,149	\$15,668	\$19,670	35.0	\$688,450	16.3	\$320,621	10.0	\$196,700	
	Stewart	-\$13,244	\$1,040	\$1,260	-\$10,944	35.0	-\$383,040	16.3	-\$178,387	10.0	-\$109,440	
	Total Airports						\$35,249,900		\$16,416,382		\$10,071,400	
Port Commerce												
	Newark	-\$43,615	\$33,277	\$29,129	\$18,791	26.0	\$488,566	19.0	\$357,029	12.0	\$225,492	
	Elizabeth	\$71,613	\$36,445	\$36,474	\$144,532	26.0	\$3,757,832	19.0	\$2,746,108	12.0	\$1,734,384	
	Brooklyn	-\$7,552	\$1,211	\$1,016	-\$5,325	26.0	-\$138,450	19.0	-\$101,175	12.0	-\$63,900	
	Red Hook	-\$5,979	\$0	\$0	-\$5,979	26.0	-\$155,454	19.0	-\$113,601	12.0	-\$71,748	
	Howland Hook	-\$17,258	\$14,603	\$17,023	\$14,368	26.0	\$373,568	19.0	\$272,992	12.0	\$172,416	
	Greenville	\$475	-\$69	\$341	\$747	26.0	\$19,422	19.0	\$14,193	12.0	\$8,964	
	Port Jersey	-\$5,413	\$7,899	\$2,292	\$4,778	26.0	\$124,228	19.0	\$90,782	12.0	\$57,336	
	Total Ports						\$4,469,712		\$3,266,328		\$2,062,944	

Source: Author's calculations based on PANYNJ 2014 annual report financial data

Seaports: Although there have been some long-term port leases (and some sales), data on EBITDA multiples are harder to obtain. Port values declined sharply during the Great Recession and an accompanying slowdown in global shipping, but recent Australian port deals, according to *Infrastructure Investor*, were in the 25X–27X range.³³ Because most U.S. landlord ports (like the PA’s) already have long-term leases with terminal operators, the high end of the EBITDA range is probably not realistic. To be conservative, the estimates that follow use 19X for baseline port valuation, with a high-end value of 26X and a low-end value of 12X.

Table 3 estimates the value of the PA’s individual bridges and tunnels, airports, and port commerce lines of business. Figures for net income, interest, and depreciation and amortization are from Schedule E of the PA’s 2014 annual report. (For the three major airports, the PA’s \$233 million in 2014 Passenger Facility Fee [PFC] revenue was added to the reported net income figure, allocated among the three airports, based on relative passenger numbers.) The first set of valuation estimates uses the high-end multiples noted above; the second set uses the average multiple in each case, and the third set uses the low-end multiple.

The potential market values for the three sets of assets are summarized in **Table 4**, for the three alternative valuation multiples.

The PA reports the book value of all its assets as \$30.77 billion (Schedule F in the 2014 annual report). Of course, book value includes investments in loss-producing facilities, which might have a market value of zero or less. The estimated market value of just the revenue-producing bridges and tunnels, airports, and seaports ranges from \$78 billion at the highest EBITDA multiples to \$32 billion at the lowest, more conservative, multiples.

Another interesting comparison is the assets’ market value compared with the PA’s outstanding bonds. Schedule D-2 of the 2014 annual report lists these:

Consolidated bonds	\$19.23 billion
Special-project bonds	1.53 billion
T4 Liberty bonds	1.22 billion
Total bonds	\$21.98 billion

The total indebtedness is considerably less than the market value of the revenue-producing assets.

TABLE 4.

Summary of Estimated Range of Market Values, in Billions

	High-End	Average	Low-End
Airports	\$35.2	\$16.4	\$10.1
Bridges & Tunnels	\$38.2	\$28.2	\$19.7
Seaports	\$4.5	\$3.3	\$2.1
TOTAL	\$77.9	\$47.9	\$31.9

Source: Table 3

VI. Reinventing the Port Authority

Since there would likely be strong political resistance to the sweeping change outlined above, two basic questions need to be answered. First, would the benefits to users of the PA’s facilities and the economy of the metro area be significant enough to warrant sweeping change? Second, is such change even possible, given the constraints imposed by the Port Authority’s bonded debt? Since the first question is irrelevant unless the answer to the second question is yes, the financing question must be addressed first.

Financing

The PA does not issue airport revenue bonds to finance airport capital projects, toll revenue bonds for bridge and tunnel projects, and port revenue bonds for port projects. Instead, the agency’s long-standing practice has been to issue consolidated revenue bonds. The PA’s revenue streams back the debts, and the agency’s board determines how it uses the funds raised. The financial statements, in other words, do not reveal which bond issues financed which facilities.

The PA board may allocate debt service among the lines of business, but that does not reflect any actual link between a facility’s source of capital and what it is required to pay in annual debt service. Bond markets accept this practice because robust cash flows from toll revenues (and historically, also from airports) have been enough to rate the debt as investment-grade. But this practice also makes it hard

for investors, customers, and citizens to see how the PA actually conducts its business.

The PA's Special Panel recognized that changes to the agency's 1952 Consolidated Bond Resolution would be necessary to divest the agency's noncore assets.³⁴ The bond resolutions of most other public agencies, it noted, "typically have a defeasance provision allowing the borrower to void the debt when they set aside escrow funds sufficient to service that advance-refunded debt." Many bonds do not allow the issuer to pay them off early, for example, if interest rates have decreased and the issuer could save money by refinancing at a lower interest rate. But many bonds do permit the agency to refinance by "defeating" the existing bonds. That means setting aside enough funds (often using very low-risk Treasury debt) to make the scheduled payments to the original bondholders.

The PA's Special Panel report calls for amendments to the agency's Consolidated Bond Resolution that would: (1) permit the sale of assets and the use of the sale proceeds; and (2) provide for the defeasance of debt. It notes that amendments can take effect only after the consent of 60% or more of the current bondholders has been obtained. The Special Panel suggests that this change could be phased in by including the new language in all new and refunding bond issues over the next five to six years. And "once the 60% threshold is reached, the amendments would apply to all outstanding bonds."

Assuming that such a process takes place over the next five-to-six-year period, the PA could develop a long-range asset-restructuring plan to effect a transition to the model that I recommend in this report. The first phase would be to sell noncore real-estate and economic-development projects. Since those projects do not provide *any* net revenue for debt service, this might be doable before the 60% bondholder approval is reached. After achieving that threshold, the PA could bid out the various airport, bridge/tunnel, and seaport facilities in phases, comparable with the recent long-term P3 concessions for the Indiana Toll Road and the San Juan International Airport. In each case, the concessionaire pays up front for the lease, providing funds to defease a comparable amount of PA bonds.

This process would be fully consistent with the PA's

Special Panel's recommendation to "[e]mploy public-private partnerships, tax increment financing, and other innovative financing tools to provide funding alternatives and enhanced operational opportunities."³⁵ In short, P3 agreements make it financially possible for the PA to gradually retire its consolidated bonds and divest its non-transportation and selected transportation assets. Cross subsidies would end, and the agency's finances would become far more transparent to the public.

Political Turbulence

Any proposal to end large-scale cross-subsidies from users of the airports and bridge/tunnel facilities would likely be opposed strongly by current recipients of those subsidies, including users of PABT, riders on PATH, and those employed at the money-losing ports. Other opponents include those who hope to use future cross-subsidies for major new projects such as new Amtrak tunnels beneath the Hudson River and a proposed Cross Harbor Freight Movement Project. The former project is now estimated to cost \$24 billion,³⁶ while the latter, though still largely undefined, has been estimated at \$7 billion–\$11 billion, if the alternative chosen is a rail/truck tunnel.³⁷

Against this predictable howl of protests are the benefits to the region's economy. These benefits are potentially quite large because the PA's core transportation assets will all need large-scale investment in coming decades.

Kennedy and Newark Airports urgently require more runway capacity. Paying for these improvements can best be met via a combination of existing airport revenue (no longer diverted to money-losing, non-airport projects) and net new revenues from market-priced runway access (as implemented by privatized London Heathrow and Gatwick Airports in recent years). These changes will enable air transportation to increase *pari passu* with the region's economic growth.

Trans-Hudson surface transportation will need very significant investment as the existing bridges and tunnels reach the end of their design lives. Better trans-Hudson goods movement will likely require a new tunnel for freight, possibly a truck/bus tunnel linked with a Bay Ridge Truckway in Brooklyn.³⁸ Serious congestion pricing, with lower than current

rates at nonpeak hours and higher rates during peak hours, could generate the same or increased toll revenue from the modernized tunnels while bringing about a meaningful reduction in peak-period congestion.

The PA's ports are entering a changed era of mega-ship ocean transport, in which they will be in serious competition with other East Coast deep-draft ports—such as Baltimore and Norfolk—for container traffic serving the Northeast and the Midwest. In a recent study, McKinsey proposed variable pricing by terminals to provide incentives for both vessel operators and terminal operators to load and unload more efficiently.³⁹

These changes will revitalize the PA's core infrastructure, with each airport, bridge, tunnel, and port facility separately managed and held accountable for performance under the terms of its long-term concession agreement. First-rate transportation infrastructure of this sort is essential for continued economic growth. This agenda should win the support of the entire region's business community, as well as that of airport, highway, and seaport customers.

Nevertheless, the users of the PA facilities will be concerned that the high prices that P3 concessionaires pay for their leases mean big price increases for them. That has not been the experience elsewhere. The San Juan International Airport concession competition required the bidders to agree to a five-year freeze on airline charges, followed by increases limited to the rate of inflation. Those limitations are built in to the long-term lease/concession agreement enforced by the Puerto Rico Ports Authority.

Likewise, the Indiana Toll Road concession limits annual toll increases to an inflation index; when the IFM Investors Global Infrastructure Fund acquired the concession in 2015, it had to accept all the provisions of the original agreement. Companies engaging in these kinds of leases seek long-term returns via growing the customer base, realizing increased operating efficiencies, and generating increased discretionary revenue (such as expanded retail sales at airport terminals and tollway rest areas)—not by charging sky-high rates.

The PA has made modest use of P3 concessions, but the agency may encounter political pushback if it

expands their number and scope. One way to overcome resistance is if public pension funds become investors.⁴⁰ Australian and Canadian pension funds have been the pioneers in large-scale infrastructure investment. For example, a consortium led by Canadian pension funds Borealis and the Ontario Teachers' Pension Plan submitted the winning bid for London City Airport in February 2016.⁴¹

Many U.S. public pension funds, grossly underfunded and faced with a critical need to increase their average rate of return on investments, have begun to allocate a portion of their portfolios to infrastructure in which they can make equity investments. Generally speaking, brand-new toll roads or bridges (called "greenfield" projects) are considered too risky for pension funds. By contrast, P3 projects to manage and rebuild/modernize existing infrastructure are considered lower-risk and suitable for pension funds.

Two recent U.S. examples illustrate this trend. In 2015, the company that had won the long-term concession for the Chicago Skyway in 2004 put the remaining 89 years of the concession up for bid. A consortium of three Canadian public pension funds won the bid, paying \$2.84 billion for the Skyway (which they will have to reconstruct at some point during the term of that concession). The lease for the much larger Indiana Toll Road was also put up for sale in 2015. The winning bidder, a consortium of Australian and U.S. pension funds—including the New York City Employees' Retirement System—paid \$5.73 billion for the remaining 66 years of that concession. That toll road will also have to be reconstructed and widened during the term of the concession.

The PA could require that qualified teams invited to bid on airport, bridge/tunnel, and port projects include one or more public pension funds. Another factor for winning the bid might be a conservative debt-equity ratio, aimed at ensuring financially conservative bids. The debt/equity of the winning Skyway bid was 46/54, and that of the Indiana Toll Road was 43/57.

Public pension fund investment in infrastructure addresses two major problems: the need for increased investment in renewing aging infrastructure; and the pension funds' need to earn higher returns.⁴²

VII. Conclusion

The Port Authority of New York & New Jersey has a long and storied history. Recent decades, however, have severely stressed the agency's original model, which was intended to create a sustainable, depoliticized way of ensuring the provision and proper stewardship of major transportation infrastructure. The public authority was state-of-the-art in the 1920s, but nearly a century later, its limitations have become evident: politicization, a growing array of money-losing facilities, and declining financial viability in the face of growing needs.

The new model suggested in this paper draws on global best practices that have mobilized large sums of new capital investment: long-term public-private partnerships with dedicated revenue streams. This model recognizes that large-scale infrastructure facilities in a growing metro area need ongoing investment: to add capacity as needed, to renew and replace facilities, and to keep pace with the latest technology. The PA's role would change from being financier, owner, and operator of the infrastructure to that of planner and regulator of an array of concession companies held accountable for performance, not only via bond covenants but also by performance criteria embedded in their long-term concession agreements.

It will hardly be easy to reinvent the Port Authority, but the need to do so is increasingly urgent.

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Abstract

The Port Authority of New York & New Jersey (PA) was established in 1921 to create a sustainable, depoliticized way to provide and manage bistate transportation infrastructure. At the time, the highly centralized, Progressive-era public authority model was state-of-the-art. Nearly a century later, however, the model's three key limitations have become evident: politicized decision making, money-losing facilities, and declining financial viability.

In light of these developments, outside organizations and, indeed, the PA leadership have called for reforms. The goal is generally to return the agency to its core transportation mission by divesting real-estate assets and taking a more businesslike approach to its transportation assets.

These changes are worthwhile but fail to address the way the agency finances its system. By treating airports, bridges, and tunnels as cash cows to subsidize its other lines of business, the PA has ended up with mediocre airports, congested and inadequate bridges and tunnels, money-losing seaports, a pathetic bus terminal, and the worst heavy-rail transit system in the nation.

The PA needs reinvention: it should abandon common-pool funding and extensive cross-subsidies, and move toward infrastructure facilities funded by dedicated revenue streams and facility-specific accountability. The mechanism to do so is long-term public-private partnerships (P3s), which today mobilize hundreds of billions in new capital for infrastructure around the world.

The endgame is that the PA would no longer own or operate transportation infrastructure. Instead, it would plan and regulate an array of concession companies that would be held accountable for performance through bond covenants and terms embedded in their long-term concession agreements. Public pension funds should be a key investor in the new P3 concessions.

P3s would produce major benefits. These include added runway capacity at Kennedy and Newark Airports; the reconstruction and expansion of aging bridges and tunnels; more productive seaports; a greatly reformed Port Authority Trans-Hudson (PATH) rapid-transit system; and a sensible replacement of the Port Authority Bus Terminal.