



Metropolitan Transportation Authority: An Overview of Capital Needs

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Highlights

- Every five years, the MTA conducts an assessment of its transit assets (e.g., bridges, rail cars and signals) to determine their condition.
- The MTA estimates that it will need to invest \$106 billion over the next 20 years to maintain and modernize its assets. Billions more will be needed to complete the East Side Access project and future phases of the Second Avenue Subway.
- Despite significant progress over the past 30 years by the MTA, 10 out of 12 subway asset categories have not been fully restored.
- The MTA estimates that it will need to invest \$15.6 billion over the next 20 years to modernize signal equipment in the subways, some of which dates to the 1930s.
- In 1999, the MTA estimated that all of its subway stations would be refurbished by 2022, but it no longer has a target date for completion.
- Nearly one out of every five elevators and escalators in the subway system have aged beyond their useful lives.
- The MTA estimates that 40 percent of the high-priority subway tunnel segments do not have adequate ventilation plants. Ventilation will not be brought up to industry standards at all of these critical locations until after 2034.
- The LIRR's only asset category that is not in a state of good repair is line structures (e.g., bridges and viaducts). The MTA had planned to address this deficiency by 2014, but those plans have been delayed to 2024.
- Metro-North's railcar fleet is older than the LIRR's, and travels 24 percent fewer miles before breaking down.
- The MTA estimates that over the next 20 years it needs to invest more than \$12 billion in its bridges and tunnels, more than half of which are at least 70 years old.

The regional transit system operated by the Metropolitan Transportation Authority (MTA) has improved dramatically over the past three decades. The MTA introduced its first capital program in 1982, after years of neglect had left the subway, bus and rail systems on the brink of collapse. Since then, the MTA and its funding partners have invested more than \$90 billion to make long-overdue repairs and to expand the system.

Despite this progress, achieving a state of good repair throughout the system has been elusive. The MTA has sought funding levels for its capital programs that have not materialized. The current five-year capital program, for example, invests 43 percent less (\$13.8 billion) than the amount identified by the MTA's own needs assessments. In addition, cost overruns have siphoned off resources that could have been used to modernize assets.¹ Consequently, transit assets that the MTA had expected would be restored to a state of good repair by now still need to be addressed.

The MTA estimates that it will need to invest an additional \$105.7 billion over the next 20 years, including \$26.6 billion during calendar years 2015 through 2019. Even if this need were fully funded, the MTA acknowledges that it would not be able to restore all of its existing assets to a state of good repair by the end of the 20-year period. Important assets would remain in disrepair or outdated.

Funding the capital program has been an ongoing challenge for the MTA. The current 2010-2014 capital program had an initial funding gap of \$9.9 billion, which was closed mostly by reducing the size of the program and by increasing borrowing. As a result, debt service is projected to exceed \$3 billion by 2018, three times higher than in 2005. Although the MTA plans to set aside substantial resources to help fund its capital needs, the next five-year capital program will likely have an even larger funding gap.

¹ For example, East Side Access will cost the MTA \$5 billion more than initially approved by the MTA Board.

Maintaining and modernizing the existing system must remain a top priority, but the MTA must also expand the system to accommodate ridership growth and to spur economic development. To achieve these objectives, the MTA will have to work closely with its funding partners to ensure that the MTA’s capital needs are adequately funded and that the financing program does not place excessive pressure on fares and tolls. If not, the goal of restoring the transit system to a state of good repair would be pushed even further into the future, and fares and tolls could rise even faster than already planned.

Current MTA Financial Outlook

The MTA’s financial outlook has improved appreciably in recent years, benefiting from a recovering economy. Ridership has largely recovered from the Great Recession. Subway ridership has increased by 8 percent since 2009 to reach its highest level since 1949; ridership on Metro-North reached an all-time high in 2013; and the Long Island Rail Road’s ridership, though still below its prerecession peak, has experienced two straight years of growth.

Collections from dedicated taxes have grown considerably and the MTA has been successful in reducing costs, especially in its paratransit program. It has also benefited from low interest rates, which have reduced the cost of borrowing, as well as slower-than-expected growth in health insurance and energy costs.

The MTA’s improved financial condition, coupled with additional cost-cutting proposals, has permitted it to reduce the size of planned fare and toll increases in 2015 and 2017, from 7.5 percent to 4 percent. The MTA also plans to set aside nearly \$3 billion as a down payment toward its next capital program, and has begun to enhance maintenance and improve services, including the restoration of some cuts made in 2010.

The MTA’s February 2014 financial plan projects a balanced operating budget from 2014 through 2016, and a budget gap of \$255 million in 2017. The MTA believes that labor agreements comparable to the agreement with the Transport Workers Union Local 100 (its largest union) can be accommodated within its financial plan without reducing services or raising fares and tolls beyond current plans. The MTA, however, still faces the challenge of funding its capital needs.

20-Year Needs Assessment

In October 2013, the MTA released its 20-year capital needs assessment for 2015-2034. The MTA estimates that it will need to invest \$105.7 billion (in 2012 dollars) during this period to rebuild and modernize the regional transit system it operates. (Additional resources are needed to expand and enhance services.) As shown in Figure 1, about two-thirds (\$68.2 billion) of the stated need relates to New York City Transit.

Figure 1
MTA Capital Needs, 2015-2034
(in millions)

Agency	Needs	Percentage
NYC Transit	\$ 68,237	64.5%
Long Island Rail Road	13,404	12.7
MTA Bridges and Tunnels	12,033	11.4
Metro-North Railroad	8,936	8.4
MTA Bus Company	2,507	2.4
MTA Police/Security	614	0.6
Total	\$ 105,731	100.0%

Sources: MTA; OSC analysis

A review of the MTA’s needs assessment follows.

A. New York City Transit

Even after more than \$50 billion of investment over 32 years, New York City Transit (NYCT) faces substantial capital needs. NYCT estimates that it needs to invest a total of \$68.2 billion over the next 20 years in the subway (\$59.8 billion) and bus systems (\$8.4 billion), with nearly half going to signal systems, passenger stations and subway cars (see Figure 2). NYCT acknowledges that some transit assets (including stations, ventilation and elevated structures) would not be restored to a state of good repair even if this need were fully funded because of operational limitations and funding constraints. Currently, 10 out of 12 asset categories for the subway system have not been fully restored to a state of good repair.

Subway Signals: NYCT estimates that it needs to invest \$15.6 billion to maintain and upgrade its extensive signal system. Signals are responsible for the safe movement of trains by controlling 727 miles of mainline track. More than one-third of the tracks are controlled by antiquated signals (some equipment dates to the 1930s).

In 1999, NYCT estimated that the entire signal system would be brought to a state of good repair by 2024 if funding were made available. Since

funding was not made available, NYCT now plans to replace outdated signal equipment that controls 40 of the system’s 183 interlockings² by 2029, to replace antiquated track signals by 2034, and to modernize half of the system with a more advanced signaling system known as communications-based train control (CBTC).

Figure 2
NYCT Capital Needs, 2015-2034
(in millions)

Category	Needs	Percentage
Signals	\$ 15,610	22.9%
Passenger Stations	9,449	13.8
Subway Cars	8,426	12.3
Buses	6,191	9.1
Track	5,671	8.3
Shops, Yards, Depots	4,745	7.0
Line Equipment	3,439	5.0
Traction Power	3,100	4.5
Miscellaneous/Emergency	3,068	4.5
Line Structures	3,015	4.4
Communications	2,644	3.9
Rockaway Line Reconstruction	1,500	2.2
Service Vehicles	714	1.0
Staten Island Railway	609	0.9
Passenger Security	56	0.1
Total	\$ 68,237	100.0%

Sources: MTA; OSC analysis

CBTC permits trains to operate closer together (which increases capacity), while providing enhanced safety through real-time monitoring of train speed and positions. CBTC is currently operable on the L line (21 miles of track), and is being installed on the No. 7 line (22 miles of track). The 20-year needs assessment calls for the installation of CBTC on an additional 323 miles of track, including the western portion of the Queens Boulevard line, the Broadway, Broadway-7th Avenue, Lexington Avenue, 6th Avenue, and 8th Avenue lines.

Introducing new technology to a system that is more than 100 years old has been challenging. CBTC installation on the L line exceeded original cost estimates by \$110 million, and service began four years later than the completion date established at the time the construction contract was awarded. Expansion of CBTC to lines more complex than the L line (which does not share track with any other lines) could prove difficult.

² Interlockings are an arrangement of tracks and switches that permit movement between routes.

Subway Stations: The subway system contains 468 stations, but only 80 are currently in a state of good repair. NYCT estimates that it needs to invest \$9.4 billion over 20 years to repair and modernize stations.

In 1999, NYCT estimated that all subway stations would be fully modernized by 2022 if funding were made available. However, given funding constraints and the complexities of major reconstruction work, NYCT no longer has a target date to fully restore all of its stations. Instead, it aims to repair the most deteriorated structural components by 2019, and make “continuous progress toward the long-term goal of eliminating all defects.” Nearly one out of every five elevators and escalators in the subway system are currently beyond their useful lives.

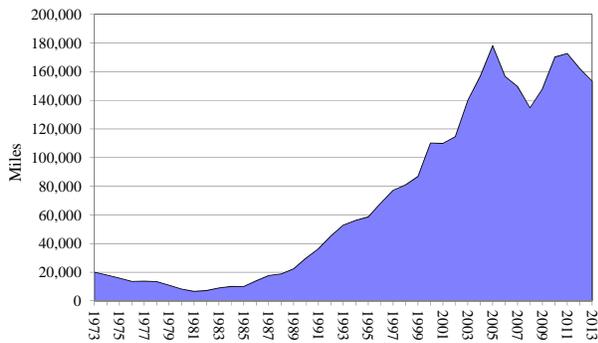
As part of an agreement to comply with the Americans with Disabilities Act, NYCT will make 100 key stations fully accessible by 2020. It has completed work at 82 stations; has 4 stations under construction; and plans to begin work on the remaining 14 stations by 2019.

NYCT would also fully renovate the Times Square shuttle station and adopt a new “contactless” fare payment system. As part of the subway station modernization program, NYCT had expected to begin implementing a new fare system by 2014, but that project is still under development.

Subway Cars: NYCT operates the largest subway fleet in the world, with over 6,000 railcars. NYCT estimates it needs to invest more than \$8 billion over the next 20 years to replace 2,500 cars (40 percent of its fleet) as they reach the end of their 40-year useful lives, as well as to buy an additional 168 railcars to address ridership growth.

The average distance traveled by subway cars before breaking down (i.e., the mean distance between failures) has improved dramatically over the past 32 years (see Figure 3). The mean distance between failures (MDBF) rose from 7,000 miles in 1982 to a record 178,000 miles in 2005 as new cars were phased in. The MDBF then declined by 24 percent between 2005 and 2008, which NYCT attributes to a decline in performance in its oldest car classes. Reliability rebounded from 2009 through 2011 with the introduction of newer R160 cars, but slipped over the next two years.

Figure 3
Subway Mean Distance Between Failures



Sources: Metropolitan Transportation Authority; OSC analysis

To hold down the cost of its capital program, NYCT will be keeping its oldest 222 cars, the R32s, in service beyond their useful lives. The R32s recently received limited overhauls, which will keep them in service until 2017, when replacement cars should be fully phased in. At that time, the R32 cars will be more than 50 years old. Even with the overhaul work, the cars are among the worst performers in the entire system; their 2013 MDBF was 53,716 miles, or about one-third of the fleet-wide average of more than 150,000 miles. NYCT also plans to extend the life of the nearly 40-year-old R46 car class until 2020 because of delays in buying replacements.

Buses: NYCT currently has a fleet of 4,428 buses, and it plans to purchase more than 7,000 buses through 2034 at a cost of nearly \$6.2 billion. Buses have a useful life of 12 years, and NYCT’s goal is to maintain an average fleet age of between 6 and 7.5 years. As of April 2014, the average age of the fleet was 8.37 years (30 percent of the NYCT buses were 12 years or older). The MDBF for buses declined from 4,100 miles in 2007 to 3,340 miles in 2011, but then increased to nearly 5,000 miles in 2013. NYCT attributes the improvement to newer buses and improved maintenance.

NYCT plans to shift the composition of its bus fleet toward articulated buses and convert additional high-volume routes to these larger models. In conjunction with the City of New York, the MTA also plans to continue expanding Select Bus Service, which uses larger buses, dedicated bus lanes and other features to speed service and increase capacity.

Subway Track: NYCT estimates that it needs to invest \$5.7 billion over 20 years to keep all 633 miles of mainline subway track as well as all 1,758 switches in a state of good repair.

Line Equipment: NYCT estimates that it needs to invest more than \$3.4 billion to repair and maintain subway tunnel lighting, ventilation plants, pump rooms and deep wells.

The subway system contains 320 tunnel segments, including 120 high-priority segments (e.g., under-river tunnels). These segments are protected by ventilation plants that remove smoke from the tunnels during fires. In 1999, NYCT anticipated that it would bring all ventilation plants into a state of good repair by 2022, but it now plans to focus on the 48 high-priority segments that do not meet current fire protection standards. NYCT would modernize the ventilation plants for 20 high-priority segments by 2034; the remaining 228 segments will not meet the standards until after that date.

NYCT reports that about one-third of underground track miles are lit by obsolete incandescent lighting; these segments would be upgraded by 2034, or 14 years later than expected in 1999.

Traction Power: More than one-third (38 percent) of the subway system’s power infrastructure is deficient, including 100 substations and 66 circuit-breaker houses, as well as cables and ducts system-wide. NYCT estimates that it needs to invest \$3.1 billion to correct these deficiencies and to support CBTC.

Line Structures: NYCT needs to invest \$3 billion to rehabilitate subway structures, such as tunnels and bridges. In 1999, NYCT anticipated that all such structures would be brought to a state of good repair by 2013, but now expects to repair subterranean structural defects by 2024, and only the highest-priority defects on elevated structures by 2034.

Communications: NYCT estimates that it needs to invest \$2.6 billion in its extensive voice and data communications network for personnel and riders. Currently, 28 percent of these assets are not in a state of good repair. NYCT would replace degraded and outdated components by 2034.

Shops, Yards and Depots: NYCT estimates that it needs to invest more than \$4.7 billion for these

critical support facilities, including \$2.5 billion for subway shops and yards, and \$2.3 billion for bus depots. More than half of the infrastructure at subway shops is not in a state of good repair, and 38 percent of yards have lighting in poor condition. Bus depots fare somewhat better, with 19 percent of their infrastructure rated poorly.

Other: NYCT is in the process of repairing the A subway line in the Rockaways that was damaged by Superstorm Sandy, but it estimates that it will need to completely rebuild the structure within the next 20 years, at an estimated cost of \$1.5 billion. The Staten Island Railway has multiple asset categories in disrepair and reports an investment need of \$609 million. The MTA would eliminate defects in the most critical assets (such as tracks and switches) by 2024, and then begin to address other needs (e.g., stations and shops).

B. Long Island Rail Road

The Long Island Rail Road (LIRR) estimates that it will need to invest \$13.4 billion over the next 20 years (see Figure 4). The only asset category currently not in a state of good repair is line structures (e.g., bridges and viaducts). In 1999, the LIRR expected to address these deficiencies by 2014, but now plans to do so by 2024 by investing \$1.1 billion.

Figure 4
LIRR Capital Needs, 2015-2034
(in millions)

Category	Needs	Percentage
Track	\$ 3,353	25.0%
Rolling Stock	2,318	17.3
Stations	1,953	14.6
Power	1,818	13.5
Communications and Signals	1,431	10.7
Line Structures	1,123	8.4
Miscellaneous	848	6.3
Shops and Yards	560	4.2
Total	\$ 13,404	100.0%

Sources: MTA; OSC analysis

The LIRR needs to invest \$3.4 billion for the routine replacement of 689 miles of LIRR track, as well as related improvements, such as reconfiguring track, signals and switches around Jamaica Station. The LIRR also plans to construct a second Main Line track from Farmingdale to Ronkonkoma, and will seek federal funding for the project because it would provide redundancy if other lines are compromised by severe weather.

The LIRR's second-largest need (\$2.3 billion) is for rolling stock, for both replacement and fleet growth. The fleet's performance has been improving sharply since 2006, and its MDBF reached an all-time high of more than 200,000 miles in 2013. The LIRR also projects a need of nearly \$2 billion to maintain its 124 stations in a state of good repair, as well as to rebuild the Babylon Station, improve access and aesthetics at Penn Station, construct a new Republic Hub station, and potentially reopen the Elmhurst station in Queens.

The LIRR plans to implement a component-based approach that it expects will address critical needs at more than 50 electrical substations within 15 years. Investments in power systems would total \$1.8 billion. Planned communication and signal projects (\$1.4 billion) include a major initiative to centralize train control at Jamaica Station.

C. Metro-North Railroad

Metro-North Railroad estimates that it will need to invest \$8.9 billion over the next 20 years (see Figure 5). Four of its asset categories are not in a state of good repair: stations and parking;³ the Port Jervis Line infrastructure; structures; and shops and yards. Only shops and yards would be brought to a state of good repair within the 20-year time frame, whereas the MTA's 1999 investment plan would have brought all four deficient categories to a state of good repair by 2014.

Figure 5
Metro-North Capital Needs, 2015-2034
(in millions)

Category	Needs	Percentage
Track and Structures	\$ 2,297	25.7%
Rolling Stock	2,027	22.7
Stations	982	11.0
Shops and Yards	859	9.6
Communications and Signals	821	9.2
Power	694	7.8
Grand Central Terminal	611	6.8
Miscellaneous	490	5.5
Parking	156	1.7
Total	\$ 8,937	100.0%

Sources: MTA; OSC analysis

³ This category includes Grand Central Terminal's extensive tunnel and track network.

The largest Metro-North capital needs include track and structures (\$2.3 billion) and rolling stock (\$2 billion). Metro-North's rolling stock is aging, particularly its electric cars which account for one-third of the Hudson and Harlem line fleet. These would be replaced during 2015 through 2019, after which Metro-North would begin to replace diesel locomotives and coaches. In 2013, Metro-North's MDBF performance was 24 percent lower than the LIRR's.

Metro-North would also invest \$1.6 billion in stations, including more than \$600 million to maintain and upgrade Grand Central Terminal. Other large needs include shops and yards (\$859 million), communications and signals (\$821 million) and power (\$694 million).

While both the LIRR and Metro-North report that their signal systems are in a state of good repair, they have begun steps to install positive train control (PTC), a technology designed to prevent collisions and over-speed derailments similar to the accident at Spuyten Duyvil in December 2013. The MTA's approved capital programs have allocated \$600 million for these safety systems, but the MTA now estimates that the total cost will likely exceed \$900 million, and that PTC will be completed after a 2015 federal deadline.

D. Bridges and Tunnels

More than half (56 percent) of the MTA's bridges and tunnels are over 70 years old, and these older facilities require high levels of capital investment. While previous capital plans have invested heavily in the MTA's oldest facilities from the 1930s, the MTA now intends to make large investments in 1960s-era bridges, such as the Verrazano-Narrows and the Throgs Neck bridges. The MTA has identified a need of \$4.5 billion for these two bridges during the 2015-2034 period (see Figure 6), mostly to address deficient structural elements such as toll plazas, approach ramps and anchorages.

The 78-year-old Robert F. Kennedy Bridge continues to have significant needs, including deck and cable work (\$1.8 billion). Similarly, the Bronx-Whitestone Bridge (opened in 1939) requires cable upgrades and a new toll plaza with widened lanes (\$1.3 billion).

The two vehicular tunnels operated by the MTA (the Hugh L. Carey and the Queens Midtown

tunnels) require \$1.4 billion over 20 years for continued maintenance and modernization. (Both facilities were flooded during Superstorm Sandy, causing significant damage that is being addressed with storm-related federal funding.)

Figure 6
Bridges & Tunnels Capital Needs, 2015-2034
(in millions)

Facility	Needs	Percentage
Verrazano-Narrows Bridge	\$ 2,443	20.3%
Throgs Neck Bridge	2,069	17.2
Robert F. Kennedy Bridge	1,840	15.3
Bronx-Whitestone Bridge	1,348	11.2
Marine Parkway Bridge	810	6.7
Hugh L. Carey Tunnel	775	6.4
Queens Midtown Tunnel	642	5.3
Cross Bay Bridge	619	5.1
Henry Hudson Bridge	479	4.0
Agency-Wide	1,008	8.4
Total	\$ 12,033	100.0%

Sources: MTA; OSC analysis

E. Security/Police

The State Comptroller has issued a series of reports on the MTA's capital security program, finding that, while the MTA's facilities are better protected from acts of terrorism than before September 11, 2001, progress has been slow and the program has cost far more than initially estimated. The MTA has budgeted more than \$1.3 billion and has identified an investment need of an additional \$500 million over 20 years to continue to protect MTA assets. In addition, the MTA Police Department estimates a need of \$114 million over 20 years, mostly to upgrade communications systems and facilities.

F. MTA Bus

MTA Bus was formed in 2004 to assume the operation of bus lines in Queens, Brooklyn and the Bronx that had been operated by private carriers. The MTA has identified a need of \$2.5 billion, with 72 percent of that amount devoted to fleet replacement (\$1.8 billion). More than 2,000 buses would be purchased by 2034, mostly to replace buses that will reach the end of their 12-year useful lifespans. Most of the balance (\$566 million) would be devoted to bus depots, since seven out of eight depots contain deficient conditions in areas such as lighting, roofs, and heating and ventilation systems.

Expanding and Enhancing Service

In addition to the \$106 billion that the MTA estimates it needs to maintain and modernize the regional mass transit system over the next 20 years, it will require billions more to expand and enhance the system to address growing population and ridership, and climate change.

The MTA reports that daily transit ridership is up 58 percent since 1992, and cites a growing demand for off-peak and reverse commuting services. Regional employment growth has been concentrated in areas such as education, health care, technology, tourism and entertainment, which are less bound to traditional “nine-to-five” commuting patterns. As a result, transit demand is growing outside of peak hours, as well as outside Manhattan’s central business district.

Part of this growing demand will be addressed by the Second Avenue Subway and East Side Access. However, the MTA has yet to identify funding for future phases of the Second Avenue Subway.⁴ The cost of East Side Access has grown from \$4.3 billion to \$10.7 billion, and the MTA will have to budget an estimated \$2.7 billion more of its own funds to finish the project.

The MTA has stated that given the fiscal constraints of the current economy, it will need to respond with “new strategies to boost capacity and accessibility, and which are more strategic in scale and location and are accomplished within customers’ commuting lifetimes.”

Potential new strategies include rebuilding constrained subway junctions and terminals, expanding station stairways and platforms, and converting available rights-of-way. The MTA cites the former LIRR Rockaway Beach Branch as an example of this approach. Restoring service on the Rockaway Beach Branch would be a less costly way to speed commutes between South Queens and Manhattan, improve travel within the borough, and promote economic growth.

The MTA is also considering introducing Metro-North service to Pennsylvania Station via the existing Hell Gate Line used by Amtrak. The cost is estimated at about \$1 billion, which would include four new stations in the eastern Bronx as

⁴ The MTA last estimated in 2008 that phases 2 and 3 would cost at least \$10 billion. It did not estimate a cost for the final phase to complete the line to Lower Manhattan.

well as new railcars and tracks. (The MTA has applied for nearly \$400 million in federal funding for this project.) The project would serve the dual goals of promoting resiliency (because it would provide additional Metro-North access to Manhattan) and economic growth.

Financing Capital Needs

Historically, the MTA funds its capital programs through a mixture of MTA debt (i.e., bonds payable from fares, tolls and other dedicated revenue streams); direct capital grants from federal, State and City sources; and various other sources, such as asset sales.

The first ten years of the MTA’s capital program concentrated mostly on restoring the system to a state of good repair after years of neglect. Over this period, federal, State and City grants funded more than half of the program, while MTA debt (including toll-backed bonds issued by the Triborough Bridge and Tunnel Authority) funded about 30 percent. MTA debt funded about 47 percent of the next three capital programs. The overall size of the capital programs increased as they began to reflect the large costs of expansion projects such as East Side Access and the Second Avenue Subway.

The MTA Board initially approved a \$28.1 billion capital program for 2010-2014. The capital program, however, allocated \$9.8 billion less for restoration than identified by the MTA’s own needs assessment, and the approved program still had a funding gap of \$9.9 billion.

Moreover, the MTA scaled back the program (by \$1.8 billion) when anticipated federal aid did not materialize. While New York State and New York City subsequently increased their contributions, the amounts were less than needed to fully fund the program.⁵ As a result, the MTA further reduced the size of the program (by \$2 billion) and increased borrowing to a record level. Borrowing for the 2010-2014 capital program is projected to reach \$14.8 billion, which represents 61 percent of the program’s \$24.3 billion estimated cost.⁶

⁵ The City agreed to sell or lease City-owned assets (such as 370 Jay Street) that are no longer used by the MTA and to dedicate the proceeds to capital improvements.

⁶ This estimate excludes \$10.5 billion in mostly federally funded Superstorm Sandy recovery and resiliency projects.

The current 2010-2014 capital program allocates \$18.4 billion for maintenance and modernization, which is \$13.8 billion less (43 percent) than the amount identified by the MTA's own needs assessment in 2009. The capital needs were underfunded for NYCT by \$10.5 billion (47.5 percent), the LIRR by \$1.2 billion (33.7 percent), Bridges and Tunnels by \$947 million (31.3 percent) and Metro-North by \$562 million (26.7 percent). The planned restoration of certain transit assets was consequently deferred to the future.

The MTA estimates that it needs to invest \$26.6 billion in its capital facilities during calendar years 2015 through 2019 for maintenance and modernization. Additional resources would be needed to complete East Side Access and other expansion projects. In May 2014, the Governor sent a letter to the MTA Chairman recommending that the MTA establish a Transportation Reinvention Commission to develop a plan for the future to address evolving needs before the capital program is presented to the MTA Board for its approval in September 2014. State law requires the MTA to submit its capital program to the State Capital Program Review Board by October 1, 2014. The Review Board then has 90 days to approve or reject the plan.

The MTA has yet to articulate a comprehensive financing plan for the 2015-2019 capital program, but financing a program of this magnitude will be challenging. So far, the MTA plans to dedicate \$370 million in annual operating budget resources, starting in 2015, to support the next capital program. Over an eight-year expenditure period, these funds would total nearly \$3 billion, a small portion of the total estimated need. The MTA is considering bonding against these resources, which would generate a total of \$6.5 billion (\$5.2 billion in bonds and \$1.3 billion in residual PAYGO funding).⁷

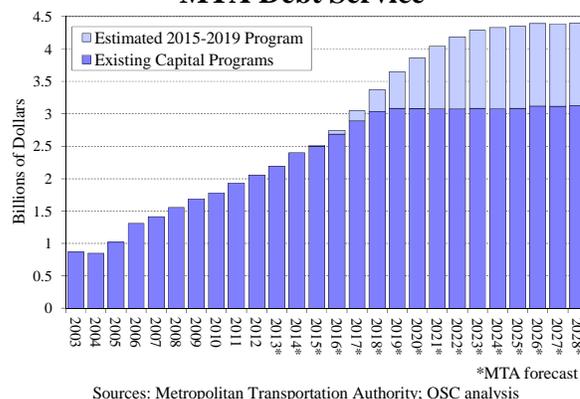
Additional sources of funding are less certain. Federal authorization for transportation funding expires in September 2014, and to date little progress has been made in funding a multiyear

reauthorization because of concerns over the size of the federal deficit. It is also unclear at this time whether the State or the City will increase their contributions to the MTA's capital program beyond traditional levels.⁸

The Office of the State Comptroller estimates that the MTA could reasonably expect about \$14 billion in resources for the 2015-2019 program, assuming that the MTA elects to bond against its \$370 million PAYGO down payment, and that federal, State and City resources remain consistent with traditional levels. These resources would fund about half of the capital needs identified by the MTA for the next capital program, leaving a large funding gap that could exceed \$12 billion.

How the MTA and its funding partners close the funding gap could have implications on future fares and tolls. For example, additional borrowing could increase pressure to raise fares and tolls unless new revenue streams were created to support it. Debt service is already projected to exceed \$3 billion by 2018, three times higher than in 2005, and would reach \$4.4 billion by 2025 if the MTA were required to borrow to fill the funding gap (see Figure 7). Even with biennial fare and toll hikes of 4 percent, debt service as a percentage of total revenue could rise from 16 percent in 2013 to more than 23 percent by 2025.

**Figure 7
MTA Debt Service**



⁷ The MTA, however, has indicated that it may use some of these PAYGO resources to help fund new labor agreements, which would reduce the amount available for capital purposes.

⁸ The City funded the \$2.4 billion extension of the No. 7 subway line, but that contribution was beyond the typical level of support for the MTA's capital program.