

# MTA Capital Program

*2010-2014*



As approved by the  
MTA CAPITAL PROGRAM REVIEW BOARD  
June 2010



Metropolitan Transportation Authority



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# The MTA 2010-2014 Capital Program

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# THE MTA 2010-2014 CAPITAL PROGRAM

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## INVESTMENT SUMMARY

On September 29, 2009 the MTA Board approved a proposed \$28.080 billion 2010-2014 Capital Program and submitted that plan to the MTA Capital Program Review Board (CPRB) in October 2009 requesting their approval of the \$25.572 billion CPRB portion of that plan. On December 31, 2009, the CPRB vetoed that plan without prejudice to permit additional time to resolve issues related to fully funding the program. The MTA prepared a revised CPRB program totaling \$23.812 billion. The MTA Board approved the revised plan on April 28, 2010 and the CPRB approved it on June 1, 2010 with the funding need noted in the next section.

The revised program was reduced to \$23.812 billion by sharpening the focus of the program to ensure the delivery of specific customer benefits for the lowest cost. Efforts to secure benefits at the lowest cost include examining options for extending the useful life of assets, replacing components rather than entire assets, forgoing non-critical investments entirely and scaling back non-essential project elements. In addition, given the projected deficits for the MTA's operating budget, capital projects will be expected to reduce the costs of operations. This new way of doing business to maximize investment benefits is discussed in the Executive Summary of this plan. These savings offset a comparable shortfall of federal funds expected to be available for the 2010-2014 period. The revised plan is summarized on Table 1 below.

**Table 1**  
**MTA 2010-2014 Capital Program**  
**All Agency Summary**  
**(\$ in millions)**

Program Elements	Approved 2010-2014
<b>Core Capital Program</b>	
New York City Transit	\$12,841
Long Island Rail Road	2,554
Metro-North Railroad	1,703
MTA Bus	325
MTA Wide Security Program	335
MTA Interagency	315
<b>Core Subtotal</b>	<b>\$18,073</b>
Network Expansion Projects	5,739
<b>Total 2010-2014 CPRB Program</b>	<b>\$23,812</b>
Bridges and Tunnels	2,453
<b>Total 2010-2014 Capital Program</b>	<b>\$26,265</b>

*Numbers may not total due to rounding*

## PROGRAM FUNDING

Funds currently projected to be available for the 2010-2014 MTA Capital Program are shown in Table 2 below and described in the following narrative. During its 2009 session, the New York State legislature approved new funding for the MTA's financial plan that includes recurring revenues adequate to support debt service on six billion dollars of new bonds that, in combination with the other funding sources on Table 2, are intended to allow two years of capital work to progress (exclusive of Bridges and Tunnels, which self funds its capital program). The aggressive federal funding assumption included in the original October 2009 submission has been reduced by \$1.760 billion to reflect flat 2010 projections and the expectation that these will remain flat in 2011 in the absence of federal transportation funding reauthorization. Since a comparable level of savings were achieved in the program of investments, the \$9.912 billion future funding need originally included in the October 2009 submission has not changed.

**Table 2**  
**MTA 2010-2014 Capital Program**  
**Funding Sources**  
**(\$ in millions)**

<b>Program Funding Plan</b>	<b>2010-2011</b>	<b>2012-2014</b>	<b>Approved 2010-2014</b>
Total CPRB Program Costs	\$9,142	\$14,670	\$23,812
<i>Funding Currently Projected:</i>			
Federal Formula	2,188	4,227	6,415
Federal Security	90	135	225
City Capital Funds	200	300	500
MTA Bus Federal and City Match	64	96	160
MTA Bonds (Payroll Mobility Tax)	6,000	0	6,000
Other	600	0	600
<b>Total CPRB Funds Available</b>	<b>\$9,142</b>	<b>\$4,758</b>	<b>\$13,900</b>
<b>Future CPRB State and Local Funding</b>	<b>\$0</b>	<b>\$9,912</b>	<b>\$9,912</b>
Bridges & Tunnels Dedicated Funds	\$954	\$1,499	\$2,453

*Numbers may not total due to rounding*

Federal Formula Funds: The MTA's 2010-2014 Capital Program was expected to coincide with the anticipated six-year 2010-2015 federal transportation funding reauthorization. As part of reauthorization, the MTA and transit agencies across the country will be seeking significant increases in federal transit subsidies consistent with the Federal Transit Administration's recognition of the substantial backlog in needed state-of-good repair across the country. However, congressional action on reauthorization has been deferred from the current federal fiscal year and it is unlikely that current funding levels will change in the next federal fiscal year either. As a result, the revised 2010-2014 plan that follows has been reduced by \$1.760 billion



to recognize this funding reality.

**Federal Security Funding:** In support of the MTA's ongoing capital security program the MTA is assuming 2010-2014 Department of Homeland Security (DHS) funding in amounts consistent with current grant funding receipts.

**City of New York Capital Funds:** The plan assumes increased contributions from the City of New York from the current approved level of \$80 million per year to \$100 million per year.

**MTA Bus Funding: Federal and City Match:** With the MTA takeover of the City private bus lines in 2004, federal funds previously allocated to the City for these properties are now transferred annually to the MTA. As part of the transfer, New York City has agreed to provide the match for the required grant funding.

**MTA Bonds (Payroll Mobility Tax):** During its 2009 session, the New York State legislature approved new revenue sources adequate to support debt service on \$6 billion of new bonds for the first two years of the program.

**Other:** The MTA anticipates \$600 million in asset sales, pay-as-you-go capital or other non-bond sources. This funding will provide support for the first two years of the capital program.

**Future State and Local Funding:** In addition to these resources, the MTA will continue to work with its funding partners to identify \$9.912 billion needed to meet all the needs identified in the MTA 2010-2014 Capital Program.

**Bridges and Tunnels Program Funding:** The MTA Bridges and Tunnels is self-funded through toll revenues.

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# THE MTA 2010-2014 CORE CAPITAL PROGRAM

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This capital program has been developed to maximize cost effectiveness and efficiency, in addition to improving safety, reliability and service. Sharpening the focus of the program to achieve these goals involves a rigorous project review process that looks at why and how we invest to secure the benefits for the lowest cost.

## PROJECT REVIEW

***Delivering specific customer benefits for the lowest life cycle costs.***

*Why should we invest?* The 2010-2014 Capital Program presented in the following sections embodies a new way of doing business. Each investment will address a documented and fully justified need, and deliver a specific and measurable customer benefit. It is no longer acceptable to replace an asset *simply* because it has been deemed a “state of good repair” or “normal replacement” based need. Assets will no longer be replaced simply because they are old or at the end of their “useful life.” Not only do we expect there to be fully documented condition assessments for assets slated for replacement, but there must also be clear and measureable connections between the investment in an asset and its expected performance in support of MTA and agency goals to improve our services. And there is an expectation that the documentation for the investment will verify a reduction in operating costs. These are the central reasons “why” we choose to invest.

*How should we invest?* Identifying and justifying the need for investment is just the first step; there can be several possible solutions to restoring or improving the performance of a deteriorated asset. For example, the asset can be wholly replaced; specific components of the asset can be replaced or rehabilitated; or the ongoing maintenance program can be enhanced to extend the useful life of the existing asset. Alternatively, the MTA could do nothing and either eliminate the asset or simply defer the investment while continuing maintenance (if failure risk is manageable). Determining which option is best requires a look at alternatives from a life cycle cost and performance perspective, taking into account both the capital and operating needs, as well as the projected performance profiles of the asset under varying investment scenarios. Cross-agency solutions that build on economies of scale must also be considered for their potential to reduce life cycle costs. Project scope and complexity, including proposed design standards and other performance standards, need to be similarly justified.

And, all capital investments must be designed to reduce the total costs of operations – producing a positive impact on the MTA’s operating budget and minimizing cost impacts on related capital assets. For example, reducing the weight of rail cars not only reduces their cost but also saves power costs – an operating need – and reduces track wear, which reduces the future capital need of this related asset.

This analysis applies to each asset category presented in the agency sections that follow and will inform specific project investments as the program is rolled out.

## PLAN ORGANIZATION

Following this introduction are detailed discussions of each operating agency’s program, the security program, the interagency program and the network expansion program. These program discussions are followed by detailed project listings in the same order.

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# **MTA NEW YORK CITY TRANSIT 2010-2014 CAPITAL PROGRAM OVERVIEW**

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Providing 2.4 billion trips annually, NYC Transit is the largest public transportation system in the United States. Indeed, NYC Transit subways supply nearly two-thirds of all heavy rail transit trips in the U.S. NYC Transit buses carry twice as many daily riders as the bus system of Los Angeles, the second largest bus fleet in the U.S. The NYC Transit system operates 24 hours a day, seven days a week, 365 days a year. Intensely used, the rolling stock, infrastructure, and other assets of this extensive 100-year-old network require substantial and sustained investments to deliver the level and quality of services expected by our customers.

Before the capital program was established in 1982, the NYC Transit system was reeling from years of deferred maintenance and severe underinvestment. Today, after more than 25 years of sustained capital investment, a large portion of NYC Transit assets have been restored to a State of Good Repair. Overall, improvements in service reliability and the customer environment have been dramatic and have attracted new customers to the transit system. NYC Transit ridership has increased steadily -- about 50 percent since the introduction of MetroCard fare incentives in 1997 -- and has reached near-record levels. Annual NYC Transit system ridership in 2008 (prior to the effects of the economic downturn) was the highest since 1965. Subway ridership was the highest since 1950.

## **THE 2010-2014 CAPITAL PROGRAM**

The 2010-2014 Capital Program totaling \$12.841 billion provides the resources to build upon the achievements of prior capital programs, to sustain the system's legacy for future generations and to avoid a repeat of the disinvestment and resulting crises of the past. Table 3 on the following page identifies these investments by asset category.

Priorities for this investment program stem from the agency's recently completed Twenty Year Needs Assessment, which identified a significant need to rehabilitate signal systems as well as the traditional core investment areas of rolling stock (cars and buses), track and switches and passenger stations. Signals and Communications have become the single largest category, both in terms of identified needs as well as investment. This is a reflection of the importance of the signal system to safety and reliability.

The 2010-2014 Capital Program includes investments to maintain service and safety, improve service delivery, and increase capacity using the existing infrastructure. These projects aim to meet established needs with cost-effective new approaches. The discussion below, which elaborates on these investment priorities, provides a capsule of the investments included in the 2010-2014 period.

**Table 3**  
**MTA NYCT 2010-2014 Capital Program**  
**by Investment Category**  
**(\$ in millions)**

<b>Category</b>	<b>Approved 2010-2014</b>	<b>Percent</b>
Subway Cars	\$1,039	8%
Buses	1,766	14%
Passenger Stations	2,287	18%
Track	1,404	11%
Line Equipment	415	3%
Line Structures	536	4%
Signals and Communications	3,192	25%
Power	306	2%
Shops & Yards	395	3%
Depots	538	4%
Service Vehicles	124	1%
Miscellaneous	681	5%
Staten Island Railway	158	1%
<b>Total</b>	<b>\$12,841</b>	<b>100%</b>

*Numbers may not total due to rounding*

### **Investments to Maintain Service and Safety**

The vast majority of investments are to maintain service and safety. Investments in NYC Transit's primary service delivery assets – trains, track, and buses – are the core of the 2010-2014 Capital Program, totaling over \$4 billion. The subway fleet not only is being equipped with replacement cars, but also is being expanded mainly to support service for the Flushing line. Bus purchases are larger than in previous capital programs to replace the large number of additional buses bought in the late 1990s to support the ridership surge resulting from MetroCard fare incentives.

The investments in the signal system are paramount to continued service reliability and safety. About 30 percent of signals (excluding interlockings) date to the original construction of the subway. As a result, signal failures are a leading cause of service delays. The \$2.4 billion in signal investments is a significant step to address this condition.

NYC Transit's commitment to preserve service and safety features an innovative and cost-effective strategy for station improvements. The prior station strategy was based on costly rehabilitations, performed station by station, each with an assumed useful life of 35 years. However, components were deteriorating well before the rest of the station. Under a new

approach, using the results of a systemwide condition survey of the over 14,500 station components, NYC Transit will make better use of capital dollars through targeted component repairs in addition to more extensive renewals at stations with clusters of deteriorated conditions. The goal of the new strategy is to eliminate the most deficient conditions (all components rated 3.0 or worse) within 15 years. Thereafter, stations will be kept in good condition with coordinated maintenance strategies.

### **Investments to Improve Service Delivery**

NYC Transit's program pursues opportunities to improve service delivery and enhance customers' experience.

***Bus System Enhancements*** - The bus system will be enhanced with the further implementation of new bus rapid transit routes and the introduction of bus lane enforcement cameras, both in partnership with the New York City Department of Transportation (NYC DOT). Building on the success of the Bx12 Select Bus Service (SBS) along Fordham Road in the Bronx, NYC Transit and NYC DOT will continue to work together to implement the four remaining routes of the six Phase 1 SBS corridors located throughout the city. The Fordham Road project has led to a 20 percent reduction in travel times, over 90 percent customer satisfaction, and more than a 10 percent increase in ridership. Lane enforcement cameras will help to ensure buses on select routes will be free of impedances and thus reduce travel times. These projects, together with the deployment of real-time customer information displays currently underway, will significantly improve the attractiveness and performance of the bus network for our customers.

***Subway Real-Time Information*** - By 2011, nearly all A-Division stations will have real-time train arrival information via public address systems and customer information screens (PA/CIS) funded in prior capital programs. Investments in 2010-2014 will equip all B-Division stations. This includes installing PA/CIS at the last 43 stations that do not have any form of public address, installing CIS signs at stations that lack them, upgrading older PA/CIS systems to receive digital information, and implementing new low cost technologies to provide real-time information to these systems and through the MTA website.

***Fare Payment Enhancements*** – This program begins implementation of the next generation of fare control equipment to replace the MetroCard system, now at the end of its useful life. This contactless “Smart Card” payment system may feature fare payment options such as bank-issued cards, pre-paid transit payment cards, key-tags and smart phones. In turn, these will improve the customer experience through simplified and expanded fare payment options within the MTA. Bus customers can expect faster service through a streamlined boarding and fare payment process.

***Accessibility enhancements*** – The program continues to improve accessibility for people with disabilities by making eight additional stations fully accessible.

### **Investments to Increase Capacity of the Existing Infrastructure**

Several initiatives are proposed to increase the capacity of the existing system. Advanced technology Communications-Based Train Control (CBTC) signals, for example, allow additional service with the closer spacing of trains. The program includes investments to finish the implementation of CBTC on the Flushing Line and to begin its installation on the Queens Boulevard Line. A project to modify existing signals on the Lexington Avenue line will improve the flow of trains in and out of stations and will help relieve congestion on that corridor. Lastly, continued implementation of the SBS routes will increase capacity and reduce travel time with dedicated lanes, off-board fare collection, traffic signal priority, and lane enforcement.

**MTA NEW YORK CITY TRANSIT  
PROGRAM PLAN**

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# **NEW YORK CITY TRANSIT NEW CARS CATEGORY T-601**

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*As the largest rapid transit network in the country, NYC Transit currently operates a fleet of about 6,300 railcars serving 468 stations and approximately five million customers daily. Due to differences in tunnel geometry, NYC Transit maintains two internal subway divisions, A and B, corresponding respectively to the numbered and lettered lines. There are approximately 2,800 A Division cars and 3,500 B Division cars.*

*Railcar investments play a crucial role in the customer experience by providing reliable service and a comfortable environment. Transit's proposed purchases reflect efforts to maximize its existing fleets; to this end, Transit will extend the useful life of the R32 and R42 fleets. Transit's fleet investments will look to maximize cost-effectiveness by reducing weight to lower car and energy costs and by identifying additional features to lower overall operating costs. New cars will also include features that improve safety, communication, and comfort.*

## **The 2010-2014 Capital Program - \$1.039 billion**

NYC Transit plans \$1.039 billion for subway railcar investments, including:

- 340 replacement railcars for the B Division (\$748 million)
- 123 fleet expansion railcars (\$291 million) for the A Division to accommodate service growth on the Flushing and Broadway/7<sup>th</sup> Avenue lines, including growth to provide service on the "7 West" extension of the Flushing line

# NEW YORK CITY TRANSIT BUSES CATEGORY T-603

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*As of year end 2009, the NYC Transit bus fleet contained 3,355 (74 percent) standard 40 foot buses, 624 (14 percent) 60 foot articulated buses, and 543 (12 percent) 45 foot express coaches for a total of 4,522 buses. Vehicles in the bus fleet had an average age of 8 years. In addition, NYC Transit also has 1,675 paratransit vans used in MTA's Access-a-Ride program to meet obligations under the Americans with Disabilities Act (ADA). Due to recent purchases intended to increase the fleet to meet growing demand for lift-equipped vehicles, the average age of the paratransit fleet is 3.7 years. All buses and paratransit vans are air-conditioned, heated and fully ADA compliant.*

*NYC Transit aims to improve travel times, enhance the customer experience and increase bus ridership by ensuring that its fleet consists of the appropriate mix of buses to provide planned levels of service. Transit continually reviews its bus investment strategies to incorporate refined service goals, conditions and performance of the existing fleet, emerging new technologies, environmental concerns, and total operating and capital costs. All of these considerations play a significant role in determining the proper size, mix, and replacement of the fleet to meet service needs cost-effectively. In this program, Transit has lowered investment costs by purchasing more cost efficient articulated buses for high volume routes and by reducing paratransit van purchases to align with new approaches to service provision.*

## **The 2010-2014 Capital Program - \$1.766 billion**

The 2010-2014 Capital Program includes \$1.766 billion for investment in NYC Transit's bus fleet. This includes 1,041 standard buses (\$765 million), 674 articulated buses (\$620 million), and 375 express buses (\$279 million) for a total of 2,090 vehicles. These purchases include 118 articulated buses for four new Select Bus Service routes. A major factor driving purchases is a high volume of vehicles now reaching the end of their useful life. These buses were purchased in the late 1990s due to increased ridership after MetroCard fare incentives were introduced. Lastly, NYC Transit also plans the purchase of 943 new paratransit vans (\$79 million) to replace vehicles reaching the end of their service lives.

# NEW YORK CITY TRANSIT PASSENGER STATIONS CATEGORY T-604

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*NYC Transit's 468 passenger stations are used by millions of customers each day. The system has 277 underground stations, 142 on elevated structures, and 49 on viaduct, embankment, or open-cut structures.*

*In 2008, NYC Transit completed a comprehensive condition survey of all stations conducted by independent engineering consultants. Over 14,500 components were rated on a scale of 1 (best) to 5 (worst) to identify structural and architectural defects. Overall, 28 percent of all station components need repair (rated 3.0 or worse). This backlog will be eliminated through dual investments in comprehensive station renewals and component campaign projects. Only 82 stations have no components in disrepair.*

*Transit's goal is to eliminate the most deficient conditions throughout the system within 15 years through a program of comprehensive and targeted component-based station projects, combined with coordinated maintenance strategies. These investments will target components such as stairs and platform edges that most affect safety and the customer experience. Investment in stations will be guided by an ongoing Condition Assessment Inspection Program and reevaluation of implementation approaches to improve efficiency and effectiveness of investments to benefit customers. When a station is identified as having several components in critical need of repair, a more significant renewal investment will be done, addressing these components along with major maintenance, painting and art to give the station a clean and fresh look.*

*As part of the long-range investment program to provide system accessibility under ADA, NYC Transit is on schedule to complete full accessibility at all of the 100 "Key Stations" by 2020. Furthermore, the stations program will continue normal replacement of passenger elevators and escalators to ensure the reliability and performance of these critical elements. In the area of fare control, NYC Transit will continue the implementation of the next generation of smart card fare control equipment, promising to transform travel in the region much like the MetroCard system did when first implemented.*

## **The 2010-2014 Capital Program - \$2.287 billion**

NYC Transit plans \$2.287 billion for station rehabilitations and renewals, component work, accessibility investments, and improvements in fare collection, signage, escalators and elevators.

### *Station Work - \$1.391 billion*

- Ten rehabilitations: nine stations on the Sea Beach line and the Smith-9<sup>th</sup> St station on the Culver line, all in Brooklyn (\$440 million).
- 29 renewals: Four stations on the Pelham line in the Bronx along with 25 other stations to be identified based on a high concentration of major components in need of repair as indicated by the station condition data (\$455 million).
- Component projects: \$496 million to focus on repair or replacement of individual components rated 4.0 or worse at approximately 130 stations systemwide.

### *Accessibility for the Disabled - \$303 million*

NYC Transit is on pace to make 100 stations fully accessible in accordance with ADA standards by 2020. With investments made through 2009, full ADA accessibility at 81 Key Stations will be complete or in progress. This program will:

- Provide accessibility at eight Key Stations: 68<sup>th</sup> St.-Hunter College, 23<sup>rd</sup> St./Lexington, and 57<sup>th</sup> St./Broadway in Manhattan; Kingsbridge Road/Concourse and Hunts Point in the Bronx; Forest Hills-71<sup>st</sup> Ave. and Ozone Park-Lefferts Blvd. in Queens; and Utica Ave./Fulton in Brooklyn (\$278 million).
- Improve platform edges at the Herald Square complex and accessible boarding areas at various stations (\$25 million).

*Fare Collection - \$275 million*

- NYC Transit will begin implementation of the next generation of fare payment equipment, including the use of contactless “smart card” payment systems, such as standard bank and credit cards, pre-paid transit payment cards, key-tags and smart phones (\$200 million).
- Electronic components in the current MetroCard fare equipment will be replaced to continue reliable service during the transition to the next generation of equipment. Also, 41 new High Entry-Exit Turnstiles (HEETs) will be purchased (\$75 million)

*Other Station Improvements - \$318 million*

The program includes

- Replacement of 5 escalators, 21 elevators, and signage and railings.
- Transportation improvements along the Church St. corridor in Lower Manhattan.
- A new entrance stair on the north side of the Times Square complex.
- Improved access at the Grand Central Station complex.
- Platform replacement at the 45<sup>th</sup> Road Court House Square station on the Flushing line.

# NEW YORK CITY TRANSIT TRACK CATEGORY T-605

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*The NYC Transit rail network consists of 659 miles of mainline track and 1,754 switches. Mainline track has been in good repair since 1991 and mainline switches since 1997. To maintain that condition, NYC Transit has a regular program of Normal Replacement. The useful service life of track and switches varies considerably depending on factors such as traffic, track type, geometry, and exposure to weather. Generally, the useful service life of track is significantly lower on grades and/or sharply curved sections of track than it is on tangent track.*

*Capital investment in track is essential to ensure service reliability and customer safety. Track investments are the basis for Transit's low track failure rate and high reliability. As a basis for projecting investment needs, Transit assesses the condition of its tracks and switches through its quadrennial surveys and frequent inspections. The work is implemented in close coordination with other capital work along the right-of-way in order to minimize impact on customers as well as cost.*

## **The 2010-2014 Capital Program - \$1.404 billion**

NYC Transit plans \$1.404 billion for mainline track and switch investments to be performed by in-house forces, maintaining a pace of cyclical replacement that is close to 100 percent of what is indicated by condition surveys. The work includes:

- Replacement of approximately 50 miles of mainline track (\$967 million).
- Replacement of 145 mainline switches (\$238 million).
- 6 track miles of welded rail, which lowers occurrences of rail breaks and cracks and provides a smoother, quieter ride for customers. (\$25 million).
- Various track projects, which include addressing obsolete rubber rail seats and container plate assemblies and the repair of tie blocks, walkways, and jointed rail (\$175 million).

# **NEW YORK CITY TRANSIT LINE EQUIPMENT CATEGORY T-606**

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*Line equipment consists of a diversity of equipment distributed along the subway right-of-way, including tunnel lighting, ventilation plants, pump rooms, and deep wells, which ensure the safety and reliability of the system. NYC Transit subway tunnels include 432 track miles of tunnel lighting, a safety system that assists in the event of an evacuation through the tunnels and provides a safer environment for workers along the trackway. There are 194 ventilation plants that provide tunnel ventilation in case of a smoke/fire condition. Lastly, there are 230 pump rooms within the subway that expel water that would otherwise flood tunnels on a daily basis and a system of deep wells that extract ground water before it infiltrates subway structures. These assets ensure the ongoing reliability of daily service.*

## **The 2010-2014 Capital Program - \$415 million**

NYC Transit plans \$415 million for line equipment investments, including:

- Replacement of 18 miles of incandescent lighting with brighter, more energy-efficient compact fluorescent lighting in tunnels (\$110 million) on the Culver and Queens Boulevard lines and the 60<sup>th</sup> St. Connection.
- Two new fan plants (\$199 million), featuring bi-directional turbine-type fans plus associated mechanical dampers and control systems. One protects the Queens Boulevard line in Queens and the other protects sections of the 7<sup>th</sup> Avenue and 8<sup>th</sup> Avenue lines in Manhattan.
- A feasibility study of a new fan plant on the Lexington Avenue line (\$2 million)
- Rehabilitation of six pump rooms (\$60 million) and repair of deep wells on the Crosstown and Nostrand lines (\$28 million). The work includes drain and discharge line repair and structural, electrical and control work, as well as replacement of pumps and motors.

# NEW YORK CITY TRANSIT

## LINE STRUCTURES

### CATEGORY T-607

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*Subway tunnels, elevated structures, and at-grade alignments are the backbone of the subway system. NYC Transit's network has 228 miles of line structures, including 136 miles of subway, 70 miles of elevated structures and viaducts, and 22 miles of at-grade alignments. All line structures require periodic investment to preserve their integrity. Primary threats to structures include water intrusion and vibration, which can lead to corrosion of steel members, spalled concrete, and other defects. NYC Transit monitors the condition of these structures through regular inspections. Severe defects are addressed promptly, while groups of defects on the same line are addressed together as part of larger rehabilitation projects. Rehabilitation of structures generally entails replacing deteriorated steel and concrete, waterproofing, grouting, and reconstructing drains. Steel elevated structures also require regular painting to protect against corrosion, extend the life of the structure, and improve neighborhood aesthetics. Subway tunnels also feature emergency exits, located at periodic intervals, which require comprehensive rehabilitation (there are 543 emergency exits systemwide).*

*Aside from the rehabilitation of structures, NYC Transit is undertaking a new program of structural enhancements to prevent flooding during extreme rainfall events, such as occurred in August, 2007. Investments include raising gratings above street level, permanently closing gratings, and constructing barriers to block the inflow of water.*

#### **The 2010-2014 Capital Program - \$536 million**

NYC Transit plans \$536 million for line structure investments for targeted rehabilitations and regular painting at a variety of locations, including:

- Phase 1 of subway structural repairs on the 4<sup>th</sup> Avenue line in Brooklyn (\$30 million).
- Repairs on 8.2 route miles of elevated structure on the Jamaica line and the Far Rockaway and Rockaway Park and Culver viaducts (\$97 million).
- Retaining wall and overpass repairs along 6.8 miles of the at-grade Dyre Avenue and Sea Beach lines (\$52 million).
- Stabilization of track on the Franklin Avenue Shuttle (\$27 million).
- Overcoat painting of 18.5 miles of elevated structures on the Brighton, Broadway/7<sup>th</sup> Avenue, Canarsie, Culver, Jamaica, Rockaway, and White Plains Road lines (\$207 million).
- Rehabilitation of 125 emergency exits throughout the subway system (\$29 million).
- Flooding alleviation at seven locations in Manhattan (\$79 million).
- Demolishing abandoned structures (\$15 million).

# NEW YORK CITY TRANSIT

## SIGNALS AND COMMUNICATIONS

### CATEGORY T-608

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#### Signals

*Signals govern the movement of trains along the right-of-way to ensure that trains operate at safe speeds and to prevent collisions. There are 728 track miles of signals throughout the mainline right-of-way and 183 interlockings to ensure the safe movement of trains at locations where tracks cross or merge/diverge.*

*Most of the NYC Transit system relies on conventional “fixed block” signal systems in which electric circuits are used to determine if a train is occupying a segment of track. Signals (colored lights) are displayed to train operators via wayside equipment. NYC Transit is continuing a transition to advanced technology Communications-Based Train Control signals, in which each train has an onboard computer that communicates by radio with a control center. Compared to fixed block signals, CBTC offers a variety of safety and operational benefits, including the ability to operate trains more frequently on crowded lines. CBTC is currently used on the Canarsie line and is planned for rollout on the Flushing and Queens Boulevard lines.*

*Transit’s signals investments reflect a phased approach to ensuring reliable service by addressing key interlockings and deploying new technology to expand the capacity of the existing system.*

#### Communications

*To meet unique and demanding communication needs and to minimize reliance on outside carriers, NYC Transit owns and operates an extensive carrier-grade communications network. The network is supported by 475 miles of fiber optic cable, extensive copper telephone cable installations, eight major PBX sites, communication rooms (to house equipment) in every passenger station, and radio systems supported by more than 190 miles of subway antenna cable.*

*Collectively, these assets are critical for transit operations, safety, security, and providing information to customers. A variety of mission-critical applications make use of NYC Transit’s communications infrastructure, including:*

- Radio systems used by subway and bus personnel and the police and fire departments.*
- A traditional telephone system used by virtually every department at NYC Transit.*
- A dedicated system for emergency communications with station agents.*
- Remote control and monitoring of traction power and other wayside equipment.*
- Emergency alarms to ensure the safety of workers on the trackway.*
- Advanced-technology signal systems.*
- Fare collection equipment.*
- Closed-circuit television (CCTV) cameras.*
- Public address and customer information screens (PA/CIS) for customer communications.*

*Communications investments are focused on supporting service delivery and providing better information to customers.*



## The 2010-2014 Capital Program - \$3.192 billion

NYC Transit plans \$2.397 billion for mainline signal modernization investments. The program puts the largest emphasis on the modernization of critical interlockings. In implementing these projects, productivity and cost saving opportunities will also be sought, including coordination with other projects on the right-of-way, and splitting work into multiple contracts.

- Complete rehabilitation of conventional signals on the Dyre Avenue line (9.8 miles), including two interlockings (\$265 million).
- Modernization of seven interlockings (\$1.394 billion) on the B-Division, including three on the Queens Blvd. line, one on the Culver line, and three on the 6<sup>th</sup> Avenue line.
- Completion of CBTC implementation on the Flushing line, including project support, removal of unneeded conventional signal equipment and conversion of existing R142 cars to CBTC operations (\$367 million). Initial investments for CBTC on the Flushing line were funded in the 2005-2009 Capital Program.
- The first phase of CBTC implementation on the Queens Boulevard line (\$125 million).
- Development of a test track on a non-revenue segment of the Culver line for integration testing of CBTC equipment (\$85 million).
- The replacement of degraded signal cable and other similar projects to address deficiencies and improve the operation of conventional signals systemwide (\$161 million).

NYC Transit plans \$795 million for communication system improvements including:

- Implementation of new technologies and upgrades to existing public address systems to display real-time train arrival information in all B Division stations (lettered subway lines). This includes the final phase of PA installation at the last 43 stations that never had any means of communicating with customers (\$276 million).
- Replacement of the subway's VHF radio system (\$296 million) and portable radio units (\$12 million).
- Upgrades to the network backbone cable infrastructure, including copper cable, fiber optic cable, and antenna cable (\$75 million).
- Improvements to communication rooms, which protect and consolidate communications equipment (\$84 million).
- Phase 1 of cutover of existing phone/data lines onto the new fiber optic (SONET) network (\$25 million).
- Correction of interference issues with the new police radio system (installed in a previous capital program) (\$28 million).

# NEW YORK CITY TRANSIT TRACTION POWER CATEGORY T-609

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*NYC Transit consumes 2.2 billion kilowatt-hours of electricity annually, including 1.8 billion kilowatt-hours for train propulsion. The agency operates 216 substations that receive high-voltage alternating-current (AC) power from the external electric utility grid and convert it to 600-volt direct current (DC) power for use in train propulsion. To accomplish this conversion, each substation includes one or more transformers (to reduce voltage), rectifiers (to convert from AC to DC), and switchgear (to turn the power supply on and off). Power is then transmitted to the third rail by means of the power distribution system, which includes protective duct banks that encase positive and negative cables, and 299 circuit breaker houses (CBHs) that feed power to the third rail.*

*For emergency removal of power from the wayside, 2,663 Emergency Alarm Units (EAUs) throughout the system allow NYC Transit personnel to shut off third rail power to a section of track and telephone in case of emergencies.*

## **The 2010-2014 Capital Program - \$306 million**

NYC Transit plans \$306 million for traction power investments focusing largely on the most critical sub-components of the power system. Projects include:

- Full modernization of one IND substation in Brooklyn, and initial cable work at another substation in midtown Manhattan (\$54 million)
- Repair or replacement of deficient roofs and enclosures at 10 substations (\$36 million) and hatchways at various substations throughout the system (\$33 million)
- Rehabilitation of seven circuit breaker houses at various locations (\$60 million)
- Replacement of traction power cables and ducts on the 4<sup>th</sup> Avenue and Lenox Avenue lines, plus funds for additional cable replacement (\$96 million).
- Replacement of emergency alarm units at selected locations (\$21 million)

# **NEW YORK CITY TRANSIT SHOPS AND YARDS CATEGORY T-610**

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*NYC Transit relies on its two rail car overhaul shops, 14 maintenance shops, 25 support shops, eight car washers, and 45 car-cleaning facilities to support the reliability of its fleets and infrastructure. The major overhaul and maintenance shops are used for the inspection, repair (particularly Scheduled Maintenance System repairs) and overhaul of railcars. The specialty support shops, which include track, signal, infrastructure, and electrical facilities, allow NYC Transit to repair and maintain specific infrastructure. Transit is exploring opportunities to utilize these facilities as MTA-wide resources and considering opportunities to minimize its own costs by utilizing capacity at other MTA agencies.*

*NYC Transit operates 23 yards located in four boroughs to provide secure storage for both revenue and non-revenue trains. NYC Transit maintains 118 miles of yard track and 41 miles of non-revenue track, along with signals, lighting and hydrants at each yard.*

## **The 2010-2014 Capital Program - \$395 million**

NYC Transit plans \$395 million for shop and yard investments. This includes \$320 million for the following shop investments:

- A group of improvements are planned for the maintenance complex at 207<sup>th</sup> St. Creation of a new sub-shop for rooftop A/C module repair (\$158 million) at the 207<sup>th</sup> St Overhaul Shop in addition to improvements to the electrical (\$33 million) and heating (\$21 million) systems. The work is needed to support the cyclical SMS program, critical to fleet reliability. (MTA-wide use of this facility is being evaluated.) In addition, an upgrade to the DC power system (\$20 million) at the 207<sup>th</sup> St Maintenance Shop is needed.
- Improvements to the ventilation system (\$9 million) at the East New York Maintenance Shop.
- Rehabilitation of component defects at various railcar shops (\$53 million).

Investments at yards total \$75 million and include:

- Replacement of yard track and switches (\$42 million).
- Replacement of yard lighting fixtures at two locations (\$15 million).
- Installation of closed circuit television systems at various yards (\$18 million).

# **NEW YORK CITY TRANSIT DEPOTS CATEGORY T-612**

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*NYC Transit currently operates 20 depots, two major base shops and seven support shops located throughout New York City to support about 4,500 buses. Two depots are equipped to service buses that run on compressed natural gas (CNG), and other depots have been modified to house new hybrid buses. Depots are necessary in order to collect revenue from buses, clean and fuel buses in preparation for service, perform routine maintenance and light repairs, and store buses when not in operation. Base shops and a number of smaller support shops extend the maintenance capabilities of depots, perform scheduled repairs, remanufacture components, and address other bus needs. In addition to the shops, the bus system has more than 40 bus washers, about 20 paint booths, and one non-revenue fleet maintenance facility. In addition, NYC Transit utilizes a central radio system to manage bus operations and communications with personnel.*

*This program largely represents a shift toward component overhaul of selected subsystems in depots. This shift to cost-effective component repairs allows NYC Transit to deal with priority repair needs on a timelier basis, to extend the useful lives of key assets and delay expensive replacements.*

## **The 2010-2014 Capital Program - \$538 million**

NYC Transit plans \$538 million for depot investments. Projects include:

- First phases of work for new Jamaica (\$75 million) and 126 St. (\$25 million) depots.
- Priority repairs at three depots (\$28 million).
- Replacement of the bus radio system (\$232 million).
- Continuation of the Select Bus Service program in coordination with NYC DOT (\$25 million).
- Component replacements for 18 bus washers (\$41 million).
- Initial deployment of the bus lane enforcement cameras, in coordination with NYC DOT (\$3 million).

# **NEW YORK CITY TRANSIT SERVICE VEHICLES CATEGORY T-613**

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*NYC Transit owns and operates specialized fleets of non-revenue rubber-tire vehicles and work trains. Work trains are used systemwide and are integral to NYC Transit's maintenance and capital investment program, and perform other critical functions vital to supporting effective and efficient operations.*

*The rubber-tire fleet consists of approximately 670 specialized vehicles which are replaced through the capital program. Vehicles include armored trucks, tow trucks, mobile station washer trucks, and other heavy-duty vehicles. NYC Transit's approximately 460 work trains include diesel locomotives, refuse cars, hopper cars, snow throwers, flat cars, track geometry cars, and other vehicles. Locomotives can propel various work cars for various track, signal, and electrical projects.*

## **The 2010-2014 Capital Program - \$124 million**

NYC Transit plans \$124 million for service vehicle investments, including:

- Purchase of 10 locomotives to replace existing units in poor condition and not suitable for reconstruction (\$41 million).
- Purchase of 54 flatcars to replace existing units scheduled for retirement (\$35 million).
- Purchase of eight snow removal cars which can no longer be maintained and are less effective than the new auger-style of car (\$10 million).
- Purchase of 329 non-revenue rubber-tire vehicles to replace heavy vehicles at the end of their useful lives (\$39 million).

## **NEW YORK CITY TRANSIT MISCELLANEOUS / EMERGENCY CATEGORY T-616**

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*This category includes various investments to support the work of the capital program. They include insurance, management information systems, engineering services, environmental and safety, and employee facilities.*

### **The 2010-2014 Capital Program - \$681 million**

The 2010-2014 Capital Program includes \$681 million for miscellaneous investments. The program support components included in this category are in scale with previous capital programs. This investment includes insurance, engineering services, scope-development, and the MTA independent engineer to support oversight of the program.

Other investments include improvements and repairs at assorted facilities including the Maspeth warehouse, Livingston Plaza, the rail and power control centers, and many employee facility rooms located in various stations. Certain management information systems such as network infrastructure and WAN/LAN equipment will be addressed. NYC Transit will address various environmental and safety needs, such as asbestos monitoring and removal, installation of fire alarms/sprinklers at various facilities, and environmental soil remediation.

# STATEN ISLAND RAILWAY

## CATEGORY SIR

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*Staten Island Railway was created in 1971 when the City of New York purchased the railroad from the Baltimore and Ohio Railroad Company. SIR serves an average of 23,000 weekday riders and includes 23 stations, 64 rail cars, 30 miles of mainline track, five track miles of yard track, 33 mainline switches, 42 yard switches, three support/maintenance shops, 23 work trains, 29 bridge structures, and five power substations.*

### **The 2010-2014 Capital Program - \$158 million**

NYC Transit plans \$158 million for investments in the Staten Island Railway, including:

- Construction of a new station at Arthur Kill allowing retirement of two sub-standard adjacent stations (\$23 million).
- Rehabilitation of eight bridges and one culvert (\$28 million).
- The first phase of the St. George terminal track and switch modernization (\$15 million).
- Construction of a new substation at Huguenot (\$32 million).
- Installation of low-resistance composite contact rail (\$14 million).
- Rehabilitation of the five circuit breaker houses (\$12 million).
- Modifications to the SIR rail fleet (\$20 million).

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# **MTA LONG ISLAND RAIL ROAD 2010-2014 CAPITAL PROGRAM OVERVIEW**

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LIRR is an essential component of the region's transportation infrastructure. Past capital programs have significantly improved on-time performance and service reliability. They have also provided opportunities for ridership growth, incorporated modern technology, and improved accessibility for all riders. The 2010-2014 Capital Program furthers these achievements, including a variety of investments to enhance service capacity, create new system capabilities, increase customer satisfaction and support new LIRR service to Grand Central Terminal (GCT).

## **THE 2010-2014 CAPITAL PROGRAM**

The MTA LIRR's 2010-2014 Capital Program demonstrates the agency's ongoing commitment to maintaining and enhancing mobility, economic health, and quality of life in the region. The 2010-2014 Capital Program includes investments of \$2.554 billion over the course of the program (Table 4). These investments will maintain reliability and safety by investing in the State of Good Repair of its most essential components - rolling stock, stations, track, communications/signals, power, shops and yards, and bridges/viaducts. In addition, there are crucial improvements that will support new East Side Access service to GCT.

Building on the success of M-7 fleet, the LIRR will initiate the next phase of its fleet modernization effort in this program, to begin replacement of the M-3 electric fleet, which has reduced reliability and dated system technology.

In addition, the LIRR will initiate purchases of a new, lower cost fleet type for scoot services on its diesel branches. This new fleet will allow the LIRR to improve service to portions of its network that are not electrified, thereby addressing customer requests for more frequent service.

**Table 4**  
**MTA LIRR 2010-2014 Capital Program**  
**by Investment Category**  
**(\$ in millions)**

<b>Category</b>	<b>Approved 2010-2014</b>	<b>Percent</b>
Rolling Stock	\$437	17%
Stations	139	5%
Track	861	34%
Line Structures	189	7%
Communications and Signals	494	19%
Shops and Yards	134	5%
Power	130	5%
Miscellaneous	170	7%
<b>Total</b>	<b>\$2,554</b>	<b>100%</b>

*Numbers may not total due to rounding*

#### **Investments to Maintain the Core Infrastructure**

Investments to maintain the core infrastructure account for almost 60 percent of the 2010-2014 Capital Program. This intensive level of investment assures system reliability, avoiding the service disruptions and added maintenance expenses that occur when components unexpectedly fail.

Key projects include:

- Advancing Reliability Centered Maintenance (RCM) investments at the Hillside Maintenance Complex (HMC), to enable a more reliable maintenance program, reducing unscheduled repairs and increasing fleet reliability for all EMU and Diesel fleets
- Replacing the air conditioning system in the LIRR area of Penn Station to ensure customer and employee comfort
- Infrastructure improvement programs such as the Annual Track Program, replacement of communication cables in the East River and Atlantic Avenue tunnels and the normal replacement of traction power substations
- Final phase of the Atlantic Avenue Viaduct Rehabilitation, which includes rebuilding of Nostrand Avenue station and the installation of two new ADA elevators

These investments maintain service levels and on time performance. All system components must work reliably to continue to deliver the high quality of transportation which is so vital to the region and its economy.

#### **Investments to Improve Service and Capacity of the Existing System**

There are a number of infrastructure investments which are required to prepare the LIRR for future East Side Access service to Grand Central Terminal. This includes expanding track and yard capacity along its busiest rail corridors: the Main Line, Babylon and Port Washington Branches. Also critical is reconfiguration of track level infrastructure in Jamaica along with the construction of a new platform at Jamaica Station to serve the new cross borough scoot service between Jamaica and Atlantic Terminal in Brooklyn.

Investments in the 2010-2014 Capital Program, combined with those that are funded in the 2005-2009 Capital Program, will accommodate greater train capacity and reliability along the Main Line, supporting East Side Access opening day service. These near-term improvements in Hicksville, Mineola and Westbury, will reduce congestion in the corridor, speed recovery time following service disruptions, and improve train service reliability.

In addition, the LIRR remains committed to additional East Side Access related investments in future capital programs, including construction of added track capacity on the Main Line in Nassau and Suffolk County, corresponding with future increases in service. The LIRR anticipates undertaking a revised Main Line Corridor environmental review process in the soonest possible timeframe, but no later than the 2015-2019 Capital Program.

Key East Side Access opening day readiness projects in the 2010-2014 Capital Program include:

- Phase 1 Jamaica Capacity Improvements to increase station throughput in conjunction with ESA service expansion. The infrastructure investments in this capital program will begin to address the operational requirements associated with train service to two Manhattan terminals, while also operating dedicated Brooklyn to Jamaica service, as well as diesel fleet operations between Long Island City Yard and Long Island.
- Two Pocket Track Initiatives to facilitate additional mid-branch train starts, which will improve service and seating availability for customers, including future service to Grand Central Terminal.
- Design of Double Track Farmingdale to Ronkonkoma to expand track capacity on the main line to address future travel demand which cannot be accommodated by existing track constraints.
- A new Mid-Suffolk electric yard to address electric train storage needs east of Ronkonkoma Station allowing the LIRR to increase service frequency and reliability on this heavily traveled branch.

These investments will supplement core infrastructure investments, preserving the LIRR's ability to serve as a stimulus to the Long Island and regional economy.

**MTA LONG ISLAND RAIL ROAD  
PROGRAM PLAN**

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# **MTA LONG ISLAND RAIL ROAD ROLLING STOCK CATEGORY L-601**

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*MTA Long Island Rail Road currently has a fleet of 836 M-7 EMU cars, 170 M-3 EMU cars, 45 locomotives, 134 bi-level coaches, and a fleet of work locomotives and other maintenance rolling stock. Rolling stock investments play a crucial role in the customer experience by improving on-time performance, while providing a safe, reliable, comfortable passenger environment. To ensure this, the LIRR will reduce costly maintenance and repair needs associated with the M-3 electric fleet by beginning to replace the worst performing vehicles. By seeking opportunities to maximize cost effectiveness, such as eliminating unnecessary elements which impact the weight of the car, the new fleet can reduce rail car costs, track wear and energy usage.*

## **The 2010-2014 Capital Program - \$437 million**

### **M-9 Purchase for M-3 Replacement - \$356 million**

This project will begin the replacement of up to 84 cars of the LIRR's aging M-3 electric fleet, which evince service reliability problems and have dated system technology, beginning with the worst performing cars.

### **Alternative Diesel Equipment - \$81 million**

In addition, LIRR will evaluate opportunities for a new type of diesel equipment to support selected "scoot-type" service on diesel branches, which will better address service needs of customers in the LIRR's non-electrified territory. If proven cost effective, purchase of this equipment will be initiated later in this program.

# MTA LONG ISLAND RAIL ROAD STATIONS CATEGORY L-602

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*The Long Island Rail Road operates 11 rail branch lines and serves customers at 124 stations in Nassau and Suffolk Counties and New York City. Maintaining the stations throughout the system is not only vital to preserving safe, convenient access to the system, but it is also important because stations play an integral role in defining the communities they serve across Long Island and neighborhoods in Queens and Brooklyn.*

*This work focuses on component needs like staircases, elevators, escalators, platforms and canopies, as well as restoring station buildings. Investments are prioritized to improve the customer experience as cost-effectively as possible by addressing the most deficient components based upon asset inspection, condition assessments and structural engineering standards. By rehabilitating or upgrading those components most in need of repair, like the platforms at Massapequa and Wantagh, the LIRR addresses safety concerns and avoids more extensive future capital needs.*

*In addition, the parking program improves access to the system and works with communities to identify development opportunities to meet growth demands.*

## **The 2010-2014 Capital Program – \$139 million**

This program includes \$139 million to address priority station and parking needs.

### **Massapequa and Wantagh Station Platform Replacement - \$42 million**

To address numerous component deficiencies, both projects include reconstruction of the station platform and platform waiting room and replacement of the canopy roofing system, platform lighting, stairways and escalator. At Massapequa, the existing elevator will be replaced, while at Wantagh, a new elevator will be constructed, making that station wheelchair accessible.

### **Mets / Willets Point Station Renovation - \$6 million**

This project will complement planned work in existing programs to provide a station renovation and operational improvements for the station. Work includes installation of new passenger elevators to connect the north and center platform with the passerelle, infrastructure improvements to allow for train operation from the center platform, installation of tactile warning strips, and canopy and stair improvements.

### **Station Component Replacement Work - \$32 million**

The LIRR plans a number of station component replacement projects, including \$5 million to replace passenger elevators at Rockville Centre and Woodside stations. Elevators at Woodside have experienced high levels of utilization because the complex serves both LIRR and NYC Transit customers. The Woodside elevator to be replaced is vital to customers, connecting the street level with the station. A \$16 million East Side Access (ESA) readiness support project will also address elevators and infrastructure to support GCT operations when ESA service begins. Penn Station component work in the amount of \$11 million focuses on replacing the air conditioning units serving the LIRR's area of Penn Station, which have shown increasing failures.

**Smart Card Improvements - \$10 million**

In the 2010-2014 program, LIRR will advance a pilot program and associated studies for new fare media technology – utilizing smart chip technology as part of an MTA-wide fare technology initiative.

**Parking - \$50 million**

The 2010-2014 Capital Program provides for the development and expansion of commuter parking through the construction of a multi-story parking garage to increase the availability of commuter parking. The LIRR currently has a commuter parking space deficit at its busiest stations, and the need for commuter parking will grow in the future, particularly after direct LIRR service to Manhattan’s East Side becomes available. While parking deck locations have not been determined yet, candidates are Level 1 stations (having more than 6,000 passenger trips per weekday) and Level 2 stations (having between 2,000 and 6,000 passenger trips per weekday) on the busiest electric branches. Priority consideration will be given to stations also served by multiple bus routes and other transit connections in order to provide multi-modal transit opportunities.

In addition, in conjunction with MTA’s Transit Oriented Development (TOD) initiative, the LIRR will, in collaboration with communities and stakeholders, identify feasible development opportunities near stations meeting the above criteria. Properly scaled and designed retail and residential uses near transit can enhance existing communities, providing many benefits including reduced auto-dependency and improved transit convenience. In determining investment priorities, LIRR will evaluate where structured parking could facilitate redevelopment of surface parking lots or other undeveloped sites near transit. This review will be coordinated with station area planning to improve station access including intermodal connections, “kiss and ride” and pedestrian/cycling improvements. LIRR will also identify partnership opportunities such as joint parking and will evaluate where these investments can best coordinate with local land use initiatives to support TOD.

# MTA LONG ISLAND RAIL ROAD TRACK CATEGORY L-603

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*MTA Long Island Rail Road has 594 miles of main line track and 107 miles of yard track. The LIRR utilizes a cyclical track replacement program, informed by routine inspections to assess condition, to maintain safety and reliability by keeping the track infrastructure in good repair and complying with all Federal Railroad Administration (FRA) track standards.*

*Track investments are prioritized based upon the condition of the track components, while advancing a more frequent replacement cycle for segments of track in the busiest track areas of the LIRR network. Scheduled replacement of track elements lessens the operating impact by greatly reducing the need for emergency track repairs, thus avoiding service suspensions. These track investments ensure on-time, reliable service, continuing to provide the valuable transportation service that is critical to our region's economy and quality of life.*

*In addition, the LIRR will advance a number of system improvement initiatives in key locations designed to expand service for customers, increase train lay-up capacity on some of the railroad's busiest branches, and prepare for East Side Access opening day service needs.*

## **The 2010-2014 Capital Program - \$861 million**

Track investments build upon significant investments in previous programs in full support of LIRR long-term goals, based on its Track Strategy, to maintain and upgrade the track system.

### **Track Program - \$286 million**

The track program consists of the Normal Replacement of track components, based upon component condition.

### **Atlantic Branch Half-Ties - \$40 million**

This project will replace the existing deteriorated track structure, which dates back to 1940-41, when the tunnel between East New York and Jamaica was constructed.

### **Merrick / Bellmore Direct Fixation - \$37 million**

This project will design and construct the replacement of the direct fixation track system on the viaduct along portions of the Babylon Branch, which is in need of replacement.

### **Right-of-Way (ROW) Improvements - \$15 million**

LIRR will also make various right-of-way improvements, including work to address drainage and culvert deficiencies. Approximately fifteen miles of high security fencing will also be installed at priority sites. This category also includes a project to repair or replace retaining walls along the ROW, which will further protect the track structure.

### **Jamaica Capacity Improvements - \$400 million**

Due to the critical location and vital role it plays in the LIRR's operations, infrastructure investments need to be made in the vicinity of Jamaica Station to increase station throughput in conjunction with ESA service expansion. Current constraints in track and station capacity limit the number of trains which Jamaica station can accommodate during peak periods. By implementing new configurations for the interlockings both east and west of Jamaica station, this complex will be modernized through a new track layout, new signals, and new higher speed crossover switches. The infrastructure



investments in this capital program will begin to address the operational requirements associated with train service to two Manhattan terminals, while also operating dedicated Brooklyn to Jamaica service, as well as diesel fleet operations between Long Island City Yard and Long Island. Jamaica Capacity Improvements are anticipated to take place over multiple capital programs, with this program's Phase 1 constructing a new station platform and associated track-level infrastructure necessary to operate cross borough scoot service between Jamaica and Atlantic Terminal in Brooklyn.

**Pocket Track Initiatives - \$46 million**

LIRR will also advance two pocket track projects: one at Massapequa and one at Great Neck. The Massapequa Pocket Track will design and construct a new lay-up track east of the Massapequa station on the Babylon Branch to accommodate a 12-car consist, facilitating additional mid-branch train starts. This will improve service for customers at central Babylon Branch stations, including future service to Grand Central Terminal. Similarly, the Great Neck Pocket Track Extension project extends the existing Great Neck Pocket to accommodate a second 12-car train consist, providing additional train storage capacity east of Great Neck station and increasing service to Great Neck and stations west, including future service to Grand Central Terminal.

**Double Track Farmingdale to Ronkonkoma - Design - \$30 million**

To address current and future travel demand that cannot be accommodated because of infrastructure constraints, the LIRR will prepare for expanding track capacity on the Main Line. A design for double track from Farmingdale to Ronkonkoma prepares for an entire second track segment between Farmingdale and Ronkonkoma, positioning the railroad to construct the second track in future capital programs.

# MTA LONG ISLAND RAIL ROAD

## LINE STRUCTURES

### CATEGORY L-604

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*The LIRR Line Structures category is comprised of 640 bridges, 30 viaducts and 4 tunnels which allow for railroad travel across the region's waterways, highway crossings, and dense urban and suburban areas. As a system with over 175 years of service, many structures are in need of investment to address structural deficiencies. The LIRR's bridge and viaduct strategy is based upon condition ratings established through regular inspections and prioritized to first address red flag elements which, if not repaired, could result in adverse service impacts, such as slow zones and load reductions. Through a combined mix of capital and operating solutions, the LIRR cost-effectively preserves safe structural conditions in support of on-time performance and system reliability goals.*

#### **The 2010-2014 Capital Program - \$189 million**

This program consists of the renewal / replacement of bridges and viaducts, as well as improvements to the East River Tunnels. These investments will allow LIRR to continue to move towards addressing backlogged capital investment in this category.

#### **Atlantic Avenue Viaduct – Phase IIb - \$67 million**

Completing the viaduct investments initiated during the 2005-2009 Capital Program, this project replaces the remaining steel superstructure components along the length of the viaduct. This project will also restore the elevated Nostrand Avenue passenger station at the viaduct's far western end, including the installation of two new elevators to facilitate wheelchair access.

#### **Renewal of Railroad Bridges - \$101 million**

A number of bridges in Queens, Nassau and Suffolk Counties have been identified for investment. Repairs to these bridges will address elements from damaged retaining walls and undermined bearings, to timber and bracing deterioration. The total investment planned for these efforts is \$25 million.

In addition, construction work will be advanced for three bridge renewal projects totaling \$66 million for which design was completed in the 2005-2009 Capital Program. The Shinnecock Canal (built in 1931)/North Highway (built in 1907)/Montauk Highway Bridge (built in 1929) project will renew these bridges on the Montauk Branch in Hampton Bays, Suffolk County. The Broadway (Port Washington Branch built in 1926) & 150<sup>th</sup> St. (built in 1913) bridge project will renew these Queens structures. The Woodhaven Boulevard Bridge, located on the Main Line in Rego Park, will also be renewed. Finally, the \$10 million Colonial Road highway bridge replacement project will replace this overgrade bridge, located in Great Neck on the Port Washington branch. Originally built in 1897, this obsolete structure was not designed to accommodate modern levels of vehicular traffic, and is in deteriorated condition requiring total replacement.

#### **Bridge and Viaduct Painting - \$5 million**

In order to continue to address capital investment needs on bridges and viaducts, the railroad will continue the bridge and viaduct painting program established in the 2005-2009 Capital Program. By addressing past deferred painting, these line structures will be protected from the elements, as painting provides a protective covering in addition to improving the structure's aesthetics. The cost of this project is \$5 million.

**East River Tunnels (ERT) - \$17 million**

As part of the ongoing Fire & Life Safety efforts for the East River Tunnels, the LIRR allocated \$17 million in the 2010-2014 Capital Program to replace/restore various systems within the tunnels to address safety and prolong the life of the structures.

# MTA LONG ISLAND RAIL ROAD

## COMMUNICATIONS AND SIGNALS

### CATEGORY L-605

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*The Communications system transmits information between trains and operational control centers, including train dispatchers, train crews, tower operators and others involved in the movement of trains, while also providing information to LIRR customers. This asset category also includes crucial safety and security systems, such as intrusion alarms and fire detection alerts. By investing in the communication infrastructure, including rehabilitation / replacement of assets based upon functionality, condition and technological obsolescence, the LIRR is able to ensure that the vital communication service, which contributes to safety, on-time performance and customer satisfaction, continues.*

*Signal assets allow the safe operation of trains systemwide at high speeds in close proximity – currently 732 scheduled trains each weekday. Operational failures in signal system elements would compromise service levels and reliability, so capital investments are programmed based on regular inspections and testing according to FRA mandate to measure functionality and performance. Previous programs have modernized high traffic interlockings in Queens and Valley Stream, going from 1930s relay technology to 21<sup>st</sup> century microprocessor technology, which greatly diminishes train delays and service disruptions due to signal failures, improving reliability and on-time performance. This work now continues with the Babylon Interlocking. This program also includes investments to comply with the Rail Safety Improvement Act of 2008, requiring installation of Positive Train Control (PTC) by December 31, 2015. Finally, Centralized Train Control is a key strategic initiative for the LIRR, which will generate significant operating efficiencies by consolidating separate tower dispatching activities into a central train control operation, allowing better management of dispatch operations based on “real time” information.*

#### **The 2010-2014 Capital Program - \$495 million**

The program advances the efforts of the LIRR’s Communications and Signals Strategies, addressing current and future needs, progressing component replacements and system improvements.

##### **Communications - \$49 million**

The Long Island Rail Road’s 2010-2014 Capital Program invests \$10 million to continue the multi-program build out of the fiber optic network, installing fiber and fiber optic hardware throughout the LIRR network to facilitate the transmission of voice and video data from stations, signal and communication huts, substations, employee facilities, and other key locations.

This program also includes the first phase of replacement of the private branch exchange (PBX) and wayside phone systems used by LIRR Transportation employees to allow train crew members to communicate with train control towers and the Movement Bureau in Jamaica. Also included is continued replacement of communications poles and hardware and deteriorated copper cable infrastructure at various locations along LIRR right-of-way. In addition, the Federal Communication Commission (FCC) – Project 25 Compliance project will continue system migration to a narrow-band radio frequency by constructing new radio towers and other infrastructure to increase radio coverage in areas which have been identified as deficient. These efforts are budgeted at \$28 million.

Finally, this program includes \$12 million to commence a Penn Station radio retrofit project that includes the replacement of deteriorated radiax cable in the East River Tunnels and a radio cable replacement project to address deteriorating cable in the Atlantic Avenue Tunnel, improving radio communications on the Atlantic Branch.

**Signals - \$445 million**

The Long Island Rail Road's 2010-2014 Capital Program includes funds to advance LIRR's long-term signal strategy. As part of its ongoing efforts to maintain signal assets, \$15 million is programmed to renew and upgrade existing signal component equipment at locations throughout the LIRR system. In addition, to address one of the most critical signal needs, \$77 million is budgeted for the renewal of the Babylon Interlocking to replace signal equipment in the vicinity of Babylon Station, including switches, signals, and cables.

In order to increase safety and comply with federal mandates, a \$265 million project is included to advance Positive Train Control (PTC) investments, which will include wayside and on-board train control elements. This project will construct and install the hardware and infrastructure for PTC in accordance with the study / design efforts ongoing in the 2005-2009 Capital Program.

A \$50 million project will signalize the current dark territory on the Montauk Branch between Speonk and Montauk. It is a necessary first step to advance the installation of automatic speed control as described in the LIRR's 20 Year Needs. Existing grade crossings will also be upgraded. This project will facilitate compliance with PTC but will provide independent benefits should PTC not be implemented on this track segment.

One of the LIRR's most crucial efforts is Centralized Train Control. This program includes \$30 million to advance the next phase of investments which includes the construction of a new control theater in the Jamaica Central Control (JCC) building. The key focus of this project will be the relocation of the Movement Bureau, which manages train dispatching and train supervision, into the theater. Related to this effort, a \$9 million project will upgrade and renew supervisory control hardware at Divide tower in Hicksville.

# MTA LONG ISLAND RAIL ROAD

## SHOPS AND YARDS

### CATEGORY L-606

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*Currently, the Long Island Rail Road operates 25 shops and yards. These assets ensure proper storage, cleaning, inspection, repair and maintenance of the fleet in support of the Reliability Centered Maintenance (RCM) Program to avoid costly emergency repairs. RCM implements preventative fleet maintenance practices to reduce operating costs and diminish equipment-related train delays, thus favorably impacting on-time performance and fleet availability during peak periods. Increased fleet availability results in the full operation of scheduled service and fewer “short trains”, enabling LIRR to meet the car requirement needed for rush hour operations. Investments in shop assets are based on engineering assessments of the condition and functionality of the components that comprise the facility. LIRR is planning to minimize its own costs by utilizing capacity at MNR’s Harmon shop and is evaluating the potential for capacity opportunities at other MTA agencies.*

*Additional yard capacity is critical in this program to support the growth in ridership associated with the opening of East Side Access service to Grand Central Terminal.*

#### **The 2010-2014 Capital Program - \$134 million**

Program highlights include the construction of a new storage yard for the electric fleet, an increase in train storage capacity at Port Washington Yard, replacement of facility elements at the Hillside Maintenance Complex, and renewal of Employee Facilities.

#### **Yard Improvements - \$100 million**

Yard investments feature the \$79 million construction of a new Mid-Suffolk Yard to address electric train storage needs east of Ronkonkoma Station, allowing the LIRR to increase service on this heavily traveled branch. This new electric fleet yard is a critical component in the LIRR’s preparation for East Side Access opening day service to increase service frequency and reliability. In addition, to address train storage needs on the Port Washington Branch, a \$12 million project will reconfigure the tracks at the Port Washington yard to increase the number of cars that can be accommodated, allowing the LIRR to meet service demands on this heavily traveled branch, including preparation for East Side Access service. Finally, an \$8 million project will make improvements to the Montauk Diesel Yard to allow for the installation of a timber wall for sound protection, electrical upgrades, wayside power, security fencing and lighting.

#### **Shop Improvements - \$34 million**

Investments supporting the Reliability Centered Maintenance (RCM) program in the amount of \$10 million will continue work begun in the 2005-2009 capital program to facilitate more efficient maintenance and repair of the M-7 and M-3 EMU fleets. The majority of the work effort will be in the support shops at the Hillside Maintenance Complex (HMC). The RCM program will allow the LIRR to replace vital components prior to failure, resulting in a more predictable, reliable and stable maintenance program, which will reduce costly unscheduled repairs and increase fleet reliability.

Improvements totaling \$9 million are also planned for the facilities at Hillside, including roof repairs and upgrades to various systems within the Hillside Maintenance Complex (HMC) to address deficient conditions. Finally, the program includes a \$10 million capital project for restoration and improvement of select employee facilities to address various building systems in need of repair.

# MTA LONG ISLAND RAIL ROAD

## POWER

### CATEGORY L-607

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*Train service within the LIRR's electric territory relies upon a network of infrastructure which includes 108 substations/breaker houses and 328 miles of third rail systemwide to deliver the traction power supply necessary for train operations. This infrastructure includes substations, cable, third rail, protection board, and numerous other elements. Investments in power infrastructure are critically important in order to provide reliable electric train service. Without the needed voltage to operate peak period service, LIRR trains would be stalled, causing costly delays and forcing the cancellation of trains. In addition, this asset includes tunnel lighting, station platform lighting, and other assets which provide power to communications, signals and station operations. These power system components ensure safety of LIRR customers and employees and provide the support necessary to operate other critical railroad systems.*

*The long-term goal of the LIRR power strategy is to minimize operating cost impacts by addressing components necessary to maintain the system and ensure its reliability and safety. To prioritize these component life cycle investments, asset condition inspections are performed. In addition, this strategy includes critical investments to replace traction power substations, as identified by a traction power load study completed in 2005 based on the power needs of the M-7 electric fleet and growth and expansion of service to Grand Central Terminal.*

#### **The 2010-2014 Capital Program - \$130 million**

The 2010-2014 Capital Program will replace traction power substations in Queens and Nassau County, many of which were built in the late 1940s and have been identified as priority replacement under the load study. One new substation, located in Queens, will also be constructed to address an area of critical power demand that will accompany ESA's expansion of service to Grand Central Terminal. The total cost for these substation replacement and new substation construction investments is \$82 million.

The plan also calls for component-based power investments, including \$30 million for the replacement and/or upgrade of sections of third rail protection board and replacement of conventional third rail with aluminum rail. Other projects within the power asset category totaling \$18 million include replacement of substation batteries and signal power motor generators among others.

## **MTA LONG ISLAND RAIL ROAD MISCELLANEOUS CATEGORY L-609**

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*Projects in this area provide for costs associated with the support and management of the Capital Program and projects with program-wide applicability such as systemwide environmental remediation, protective liability coverage, independent engineer services, value engineering services, and scope development.*

### **The 2010-2014 Capital Program - \$170 million**

This allocation is planned to fund miscellaneous projects. Included are: program administration, insurance, scope development, independent engineer services, small business mentoring administration and systemwide environmental remediation.

#### **Environmental Remediation - \$21 million**

Environmental remediation efforts include the Yaphank Landfill, investigation of twenty substations and Smithtown Viaduct remediation of existing soil contamination and replacement of all excavated material with clean-fill.



# MTA METRO-NORTH RAILROAD 2010 - 2014 CAPITAL PROGRAM OVERVIEW

Metro-North Railroad operates one of the largest commuter railroads in the country, carrying 81 million riders in 2009 on the Hudson, Harlem and New Haven Lines east of the Hudson River, and on the Pascack Valley and Port Jervis Lines west of the Hudson River. From an annual ridership of 41 million in its year of establishment (1983), this is an increase of 98 percent. To preserve this vital service to the region, Metro-North is committed to cost effective investments to maintain safety and reliability while addressing capacity and service improvement needs.

The 2010-2014 Capital Program demonstrates this commitment with investments totaling \$1.703 billion, largely focused on core investments to maintain service and safety. Investments in essential components include rolling stock, stations, track, line structures, communications/signals, power, and shops and yards. In addition, there are select service improvements, including customer benefits like delivery of real-time train information to all stations east of the Hudson River in New York Territory. Details of these investments follow the category summary table below.

**Table 5**  
**MTA Metro-North 2010-2014 Capital Program**  
**by Investment Category**  
**(\$ in millions)**

Category	Approved 2010-2014	Percent
Rolling Stock	\$259	15%
GCT, Stations and Parking	304	18%
Track and Structures	335	20%
Communications and Signals	278	16%
Power	103	6%
Shops and Yards	325	19%
Miscellaneous	100	6%
<b>Total</b>	<b>\$1,703</b>	<b>100%</b>

*Numbers may not total due to rounding*

## Investments to Maintain the Core Infrastructure

Maintaining the core infrastructure remains one of the most critical elements of the 2010-2014 Capital Program. This infrastructure work, over 70 percent of the program, is dedicated to preserving safe, reliable service for customers. Key projects include:

- Beginning the replacement of the EMU shop to provide the required facility for performing M-7 consist-based maintenance at Croton-Harmon, advancing the next phase of the multi-program Croton-Harmon shop replacement initiative.

- Continuing investment in station facilities to renew station elements in need of repair, extending their useful life.
- Continuing to address infrastructure components, based on condition, for service reliability. Includes the Cyclical Track Program, the trainshed structure in Grand Central Terminal, and Undergrade and Overhead bridge programs east and west of the Hudson River.
- Continuing traction power improvements essential to reliably meet operational demands on all East of Hudson Lines. Includes replacement of Substation Bridge 23, the only substation that feeds the New York State section of the New Haven Line.

### **Investments to Improve Service Delivery**

As a critical element to the region's transportation infrastructure, the Metro-North system must build on early successes in restoring the reliability of the basic infrastructure by providing opportunities for further ridership growth, incorporating modern technology to benefit the customer and improving accessibility to the system. The 2010-2014 Capital Program includes a variety of these investments to enhance service capacity, create new system capabilities, and increase customer satisfaction. Key projects include:

- Completing Metro-North's New Haven Line fleet plan to modernize and expand the fleet to meet projected ridership demand. The M-8 car purchase will anchor a strategy to replace the M-2 fleet and modernize select components of the remaining fleet to ensure reliability through their remaining useful life.
- Improving customer communications in Grand Central Terminal and at outlying stations. Metro-North will deploy the latest customer information technology to provide real-time performance information including departure time and destination, status, and track to customers and employees at all East of Hudson stations.
- Expanding station facilities and parking through the development of key Strategic Intermodal Facilities. This promotes increased rail ridership and revenue while meeting current and projected customer demands for station and parking access, coordinating with local governments to promote economic development.

The combination of these investments will enhance regional mobility through projects that reduce travel times and increase reliability and dependability throughout all aspects of the railroad.

**MTA METRO-NORTH RAILROAD  
PROGRAM PLAN**

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# MTA METRO-NORTH RAILROAD

## ROLLING STOCK

### CATEGORY M-601

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*Upon completion of the delivery of purchases made under the 2005-2009 Capital Program, the revenue fleet available for service will total 1,229 units. This includes 213 push-pull coaches, 870 electric cars, 52 locomotives, and 14 buses for East of Hudson service; and 15 locomotives and 65 coaches available for service on the Port Jervis and Pascack Valley Lines, operated by New Jersey Transit per an agreement among the parties. Through the 2010-2014 investments, Metro-North will continue fleet modernization and expansion efforts to meet ridership growth and enhance the quality of service for New Haven Line customers by completing replacement of the worst performing railcars. MNR's fleet replacement strategy identified a cost savings of \$113 million by eliminating the need for the costly overhaul of these cars. The new fleet will improve on-time performance and safety, while providing a more reliable, comfortable ride for passengers.*

#### **The 2010-2014 Capital Program - \$259 million**

Metro-North's purchase of rolling stock is needed to replace equipment which is no longer delivering service at an acceptable performance level and to provide additional seating for ridership growth. Rolling Stock projects total \$259 million and represent approximately 15 percent of the program.

#### **M-8 Procurement - \$221 million**

Metro-North will complete the purchase of up to 380 M-8 cars in a joint procurement with CDOT to modernize the New Haven Line electric fleet, two-thirds of which is comprised of M-2 cars originally built in the early 1970s, and to accommodate projected New Haven Line ridership growth. Metro-North provided \$100 million in the 2005-2009 Capital Program for the order of the first 300 cars. CDOT provided an advance of \$166 million to facilitate this order. The total cost in this program includes Metro-North's repayment of that advance and its share of an additional 80 cars to be ordered for New Haven Line service.

#### **EMU Replacement/Repair - \$25 million**

This project will allow for replacement or major repair of New Haven Line equipment based on a strategy to eliminate costly maintenance and repair needs of the fleet and retain a high service quality for customers.

#### **Purchase of Switcher and Shuttle Locomotives - \$13 million**

This project provides for the acquisition of five 2,000 horsepower diesel locomotives suitable for road and switching service and equipped with head end power for shuttle service. Completing this program, begun in the 2005-2009 Capital Program with the purchase of eleven locomotives, will create a uniform fleet of sixteen diesel locomotives universally suitable for all duties outside Grand Central Terminal. These locomotives will complete the replacement of nineteen unreliable 40 to 60-year old units with a uniform fleet which will provide operational flexibility, improved reliability, and efficiencies as a result of standardized maintenance procedures.

# MTA METRO-NORTH RAILROAD STATIONS CATEGORY M-602

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*There are 86 Metro-North passenger stations in New York State, 74 east of the Hudson River and 12 more west of the Hudson, including Grand Central Terminal, outlying stations and parking assets. The long-term objective for this category is to improve the customer experience while maintaining safe, convenient access to the system, improving operations, and conserving the historic stations. In addition, where cost-effective, Metro-North seeks to construct new facilities to accommodate increased ridership and improve access and parking opportunities, while supporting local development opportunities.*

*Capital station and parking work primarily maintains and modernizes, targeting station component needs like staircases, elevators, escalators, platforms and canopies, as well as restoring station buildings. Investments are prioritized to address the most deficient components based upon asset inspection and condition assessments and structural engineering standards. Stations with several components in need of repair may trigger a more significant investment to address all deficient components. Rehabilitating or upgrading those components most in need of repair, like the trainshed in Grand Central or platform supports on the New Haven Line, addresses any safety concerns and avoids more extensive future capital needs. While these efforts maintain service and safety, Metro-North also strives to improve the customer experience with a major communications investment to provide real-time train information to customers at all stations east of the Hudson River in New York State.*

## **The 2010-2014 Capital Program - \$304 million**

Included in Metro-North's 2010-2014 Capital Program is the continuing renewal of the historic Grand Central Terminal complex, as well as stations on the Hudson, Harlem, and New Haven Lines, and parking and strategic facilities.

### **Grand Central Terminal Renewal Projects - \$101 million**

Renewal of Grand Central Terminal infrastructure continues in the program. Major continuing work includes the ongoing structural work on the GCT trainshed and the elevator renewal program, adding investments for the GCT/Park Avenue expansion joints, trainshed track structure improvements, leak remediation (under an Agreement with the City of New York), platform improvements and GCT utility improvements. A Grand Central Terminal Trash Recycling Facility, a cost-saving joint project with Long Island Rail Road for ESA, will return an additional platform in GCT to customer service.

### **Harlem Line Stations Improvements - \$27 million**

This project will improve safety, customer comfort and convenience, investing in key station elements in need of repair. Work includes deteriorated component repair of platforms, canopies and stairs along with miscellaneous amenities.

### **New Haven Line Stations improvements – Phase II- \$35 million**

Component rehabilitation work on the New York State portion of the New Haven Line continues with deteriorated platform and canopy repairs and assorted stair and ramp repairs to meet ADA standards. Work will be completed at Mount Vernon East, Pelham, New Rochelle, Larchmont, Mamaroneck and Harrison.

### **Station Building Renewal - \$24 million**

Many of Metro-North's station buildings are historic, built in the late 1800s/early 1900s, and in varied condition. Costs to renovate these structures can often be high because of building age and condition. Under the 2010-2014 Capital Program, Metro-North will implement the following station building projects:

- **Poughkeepsie Station Building - Phase II** This project will continue the phased approach to improving the historic Poughkeepsie Station building. With repairs begun in the 2005-2009 Capital Program, this phase will address remaining outer building work to make it watertight and protect the existing structure. Total cost is \$6 million.
- **Fordham Station** This project will continue the improvements to the Fordham Station begun under the 2005-2009 Capital Program, allowing for the widening of the crowded outbound platform by utilizing land Metro-North acquired from Fordham University. In addition to a wider platform, the project includes new canopies and new customer communication systems. The total cost is \$13 million.
- **Station Building Renewal** The purpose of this project is to provide critical improvements to station building elements at various Metro-North station buildings, including the Hartsdale Station. Funding is also included to progress net lease opportunities with private commercial entities if opportunities arise. Total cost is \$5 million.

### **Customer Communications/Connectivity Improvements - \$61 million**

This project will provide real-time customer information to new and existing Visual Information System (VIS) displays at all East of Hudson stations through the installation of new train information and public address system field equipment, which will connect to a new central Public Address system currently being implemented and funded under the 2005-2009 Capital Program. The real-time information equipment will provide departure time and destination, status, and track information to customers and employees at all East of Hudson stations through new Visual Information System (VIS) displays and Ethernet-based technology. Ethernet-based network connectivity at each station will support the new system, provide ticket selling machine data communication upgrades, provide new ticket office workstations at key stations, and allow capability for remote CCTV and elevator monitoring/control. This project also begins a phased approach to improving communications for customers in GCT through the replacement of the current Visual Information System (VIS) with a system with expansion capabilities, allowing Metro-North to introduce cost-effective future technologies that will benefit its customers. Metro-North will pursue advertising opportunities in concert with the improved communications. Connecticut Department of Transportation (CDOT) participation will supplement funding for this important project.

### **Smart Card Improvements - \$9 million**

This project will provide for pilot studies and other analyses during the 2010-2014 plan period aimed at allowing customers to use a single smart card, or cell phone with a smart chip to ride the entire MTA network. The MTA-wide initiative will ultimately provide subway, bus and commuter rail customers with faster bus boarding, regional interconnectivity and a wide array of fare options via the web and telephone while lowering the cost of fare collection. Connecticut Department of Transportation (CDOT) participation will supplement this funding.

**Strategic Intermodal Facilities - \$46 million**

The Strategic Intermodal Facilities and Parking Expansion project will implement strategic station and parking investments by constructing intermodal transportation hubs in Metro-North territory. Key candidate locations initially identified for the program include North White Plains, Southeast, Purdy's and Poughkeepsie. A specific project focus will be for the Southeast Strategic Intermodal Facility to address multiple needs at this growing regional transportation hub. The multi-phased project improves access, replaces a crucial bridge currently closed due to structural condition, expands station and passenger facilities that are now overcrowded, adds parking capacity (lots are full now) and provides a new, secure access road / entry point to the Brewster Yard.

In some cases, Transit Oriented Development (TOD) may be the focus of a project. TOD initiatives, joint use of parking facilities and access provided in partnership with developers can enhance Metro-North's opportunities to expand rail access, grow ridership, reduce capital costs, increase revenues and establish a more sustainable, mixed-use station area. To progress these projects, Metro-North partners and coordinates with many third party groups such as counties, local towns, communities and private organizations as well as New York State agencies such as the New York State Department of Transportation.

**Parking Renewal - \$3 million**

Investments in select parking facilities in this program will support continued efforts to improve safety, attract new riders and increase parking revenues by addressing critical deficiencies. Work includes resurfacing, restriping, bringing facilities up to current ADA standards, implementing drainage improvements, improving and replacing lighting, fencing and guard rails, upgrading and adding revenue collection devices, shelters, signage, emergency communications, landscaping and security enhancements.

# MTA METRO-NORTH RAILROAD

## TRACK AND STRUCTURES

### CATEGORY M-603

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*There are 387 route miles and 795 track miles that constitute the Metro-North system in New York State and Connecticut, 545 miles are electrified. The ongoing renewal of system track is essential to providing customers with a safe, reliable, and comfortable ride. To accomplish this, Metro-North has developed a cyclical program of track and turnout renewal and replacement that maintains track structure components and switch facilities in safe, efficient operating condition. Similarly, line structure investments, informed by routine inspections to monitor asset conditions, ensure the continued integrity of these assets along the railroad right-of-way, including overhead and undergrade bridges, viaducts, tunnels and retaining walls, is vital to smooth, safe operations.*

*Track investments are prioritized based upon the condition of the track components, as identified through regular inspections and track geometry measurements and in conformance with Federal Railroad Administration track standards. By replacing track components, costly delays due to broken rails and other track conditions can be prevented, minimizing operating costs associated with emergency repairs and avoiding service suspensions. Track investments optimize capital and operating solutions to ensure on-time, reliable service continues in support of regional transportation needs.*

*Line structure investments are based upon condition ratings established through regular inspections and prioritized to first address red flag elements which, if not repaired, could result in adverse service impacts, such as slow zones and load reductions. Yellow flags are also given high priority, as they are likely to deteriorate further and turn into red flags if the structural deficiencies are not corrected. Through a combined mix of capital and operating solutions, safe structural conditions in support of on-time performance and system reliability goals are also preserved.*

#### **The 2010-2014 Capital Program - \$335 million**

##### **Cyclical Track Program – Wood Ties and Surfacing - \$67 million**

This project provides for the replacement of ties and rail along with cyclical surfacing on the Hudson, Harlem and New York portion of the New Haven Lines. In segments due for tie replacement, track is inspected and all split, cracked or decayed ties (by FRA standards) are identified for replacement. Approximately 600 ties per mile are typically replaced. Track resurfacing occurs on a 3 year cycle; if not, deviations in track alignment may require lower train speeds with a corresponding increase in travel times for customers. The purchase of rail, ties, track ballast and other track materials associated with installation as included.

##### **Turnout Replacement – Mainline High Speed - \$70 million**

This project provides for the replacement of interlocking switches at select locations throughout the Metro-North territory in New York State. For some locations, this includes turnout replacement in kind; and for other locations, improving existing standard turnouts with high-speed turnouts. By installing high-speed turnouts, the territory can accommodate increased speeds, which result in reduced travel time for customers and greater operational flexibility. Locations include a new interlocking at CP109 on the Harlem Line near Fordham Station in the Bronx and potential new turnouts at other select locations.



**Grand Central Terminal Switch Renewal - \$14 million**

This project continues to replace the switches located in Grand Central Terminal. In the upper and lower level of GCT, the high volume of traffic and tight configuration accelerates the wear of the switches. This project provides for the removal of existing switches and the annual renewal of switches within the terminal and tracks in the platform areas. These investments ensure that the terminal can operate reliably.

**Turnout Replacement – Yards and Sidings - \$4 million**

This project addresses turnouts in need of replacement and makes track improvements at various yard and siding locations in New York State. Locations include: Mount Vernon West Yard, Mott Haven Yard and Brewster Yard.

**West of Hudson Track Improvements - \$21 million**

This project will replace rail and ties, as well as perform surfacing on selected track areas on the Port Jervis Line. The Port Jervis Line track and structures were in deteriorated condition when Metro-North acquired the line from Norfolk Southern in 2003. The 2010-2014 Capital Program includes the replacement of 75,000 ties, 100 miles of resurfacing and 6 turnouts.

**Undergrade and Overhead Bridge Program \$54 million**

The focus of these projects is the repair and replacement of bridges over or supporting the railroad's right-of-way East of the Hudson River, which are in need of repair or do not meet current loading standards.

The Undergrade Bridge program includes the superstructure replacement of the bridge carrying Hudson Line Track 4 over the Croton River in Croton-on-Hudson, superstructure replacement of the Willet Avenue Bridge in Port Chester and the renewal of approximately ten additional undergrade bridges - three on the Hudson Line, three on the Harlem Line and four on the New Haven Line. The project also includes two consultant contracts: one for consultant inspection, load rating and underwater inspection of all bridges and one for design of repairs. Total project cost is \$37 million.

The Metro-North Overhead Bridge program is coordinated with New York State Department of Transportation and includes repairs to overhead bridges located over the Metro-North right-of-way. Metro-North allocates \$17 million for these needs.

**Remove Obsolete Facilities - \$3 million**

This safety initiative demolishes and removes old, unsafe facilities. It includes removing structures, small and large buildings, abandoned station buildings, signal cases and bungalows, switch machines, and track and signal field equipment and materials.

**Employee Welfare and Storage Facilities - \$10 million**

This project provides for the improvement of employee welfare facilities. There are numerous employee reporting locations in deteriorated condition. Targeted areas include locker rooms, bathroom facilities, meal and rest areas, and storage/work spaces in GCT and outlying field locations.

**Harlem River Lift Bridge Cable Replacement - \$11 million**

This project replaces all 128 lift cables connecting the Harlem River Lift Bridge lift spans to the counterweight located at each end of the bridge. The cables must be maintained in operable condition as the Harlem River is a navigable waterway subject to the requirements of the U.S. Coast Guard. This project will be constructed in conjunction with the project to Replace Harlem River Lift Bridge Breaker Houses and Controls to maximize efficiencies.

**Moodna and Woodbury Viaducts – West of Hudson - \$10 million**

On both viaducts, components such as girders and floor beams are deteriorated to varying degrees, which require either repair or total component replacement.

**Undergrade Bridge Program – West of Hudson - \$12 million**

This project provides for the continuing design and repair of the undergrade bridges on the Port Jervis Line. There are approximately 80 undergrade bridges on the Port Jervis Line; this project provides for the continuing renewal of structures determined as top priorities based on condition surveys.

**Other Track and Structures Projects - \$59 million**

Additional projects in the 2010-2014 Capital Program include improvements to drainage and undercutting, remediation of rock slopes, rail top culvert work, and inspection and design for improvements to the Otisville Tunnel (West of Hudson). Normal Replacement projects include rebuilding retaining walls, purchase of maintenance of way equipment and rolling stock, replacement of DC substation and signal house roofs, and replacement of undergrade bridge timbers. Safety projects include security fencing along the right-of-way, and replacement of bridge walkways. System improvement projects include the purchase of specialized structures equipment.

# **MTA METRO-NORTH RAILROAD COMMUNICATIONS AND SIGNALS CATEGORY M-604**

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*There are 387 route miles and 795 track miles that constitute the Metro-North system in New York State and Connecticut. Of that amount, 579 track miles are signaled. The signal system includes 471 miles of cable transmission systems, 59 centralized control systems, and a 223 route-mile signal network. The long-term objective of investments in this area is to replace obsolete and underperforming assets with the latest technology to accommodate current operations and provide capacity for future needs. Over the previous capital programs, Metro-North has invested in a centralized control system and the right-of-way infrastructure to operate it. To protect the past investment and keep the system functional and up to current standards, Metro-North has established a cyclical program to replace and upgrade the elements of the overall signal system. In addition, Metro-North looks to optimize train capacity to accommodate the railroad's current needs, future service plans and future ridership projections. Metro-North will also make investments in Positive Train Control (PTC) as required under the Rail Safety Act of 2008.*

*The communications infrastructure is intended to support the rail operations and business functions of the railroad, providing control of trains, communications to trains and communications to customers and services for business requirements. Railroad communications systems consist of: radio systems used to support police, train operations, maintenance and emergency services; a fiber optic network; a public address system for all stations; telephone systems for operations and maintenance with multiple PBX locations; fire alarm systems in stations and buildings; and CCTV cameras and monitors located at stations, yards and facilities. Investments are determined based on regular inspections and maintenance work. Condition of the current infrastructure as well as new initiatives or opportunities to improve work efficiency, are evaluated.*

*Signal assets allow the safe reliable operation of trains systemwide at high speeds in close proximity. Operational failures in signal system elements would compromise safety, service levels, on-time performance and reliability, so capital investments to maintain this functionality are programmed based on regular inspections and testing according to FRA mandate and reflect the signal element's condition. A targeted approach is taken whereby signal components/systems with the greatest risk of failure and the greatest impact on service are prioritized. Another key investment in this program is installation of Positive Train Control required by December 31, 2015 to comply with the Rail Safety Improvement Act of 2008.*

## **The 2010-2014 Capital Program - \$278 million**

### **Positive Train Control - \$187 million**

In order to increase safety and comply with federal mandates, this project will advance Positive Train Control (PTC) investments throughout Metro-North territory in New York State. An Implementation Plan is currently being prepared for review and approval by the Federal Railway Administration (FRA). This supplements study/design efforts in the 2005-2009 Capital Program.

**West of Hudson Signal Improvements - \$68 million**

This project will modernize West of Hudson signal elements on the Port Jervis Line including the installation of a cab signal system on the line. This will provide a system similar to Metro-North's east of Hudson territory and provide capacity improvements to accommodate current and future demand. These investments will also facilitate compliance with PTC but will provide independent benefits should PTC not be implemented on this track segment.

**Other Communications and Signals projects - \$24 million**

The remainder of the communications and signals projects address the most critical components of the system in need of repair, including fiber/communication and signal cables; the field code system at Mott Haven; track relays on the Harlem and Hudson lines; electric switch machines; high cycle relays; the PBX; mobile/portable radios, rolling stock radios, and radio base station equipment.

# MTA METRO-NORTH RAILROAD

## POWER

### CATEGORY M-605

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*There are 387 route miles and 795 track miles that constitute the Metro-North system in New York State and Connecticut. Of that amount, 545 track miles are electrified with 256 track miles of DC 3<sup>d</sup> rail power and 289 track miles of AC catenary power. The power supply for this system in New York State includes 49 DC substations, seven AC substations and three yard distribution systems. The long-term objective of investments in this area is to maintain the condition of the existing assets, minimizing operating costs and increasing traction power capacity to support current service levels and projected service growth over the next 20 years. Without adequate traction power infrastructure, including substations, cable, third rail, catenary, protection board, and numerous other elements, the reliability of train service is placed in jeopardy. This can result in stalled trains and stranded customers, force service reductions and limit the ability to add cars to existing trains or add new service to meet demand. In addition to traction power elements, other power infrastructure includes high tension elements, station platform lighting and power components that support various other systems, including signals, communications and station operations. Investments are determined based on condition assessments and operational data collected during routine asset inspections. In investing, productivity and cost saving opportunities are sought to more efficiently replace Power elements as identified from best practice reviews and life cycle cost analyses.*

#### **The 2010-2014 Capital Program - \$103 million**

##### **Substation Bridge 23 Construction - \$28 million**

This project will replace the existing Substation Bridge 23 located at Mount Vernon East. The substation has reached the limit of its electric traction power capacity and is the only feed to the New York State portion of the New Haven Line. Replacement is also required to prevent the leakage of potentially hazardous materials. The new substation will double the capacity and provide redundancy that the existing substation does not have. When complete this project will also provide an energy savings through regenerative power with the rolling stock. The design of Bridge 23 and the procurement of long lead items are funded under the 2005-2009 Capital Program.

##### **Harlem/Hudson Power Improvements - \$36 million**

This project will continue the multi-program phasing of improvements recommended in the Traction Power Study completed under the 2000-2004 Capital Program to support service reliability, reduce equipment failures due to low voltage conditions, and ultimately provide for future growth in ridership and service. The traction power system is currently operating at full capacity with no backup contingency in some locations systemwide. Specific investment in this program include upgrading critical circuit breaker houses at 86<sup>th</sup> St. and 110<sup>th</sup> St., as well as real estate for the Claremont Parkway circuit breaker house and additional critical substation work on the Harlem/Hudson Lines.

##### **Other Power Projects - \$39 million**

Other power projects include: renewal of Harlem and Hudson Line substations, replacement of motor alternator power supplies for signal power; Harlem River Lift Bridge breaker houses and motor controls; cyclical replacement of substation batteries; construction of the Park Avenue Tunnel and Viaduct Alarm system; and replacement of sectionalizing switches.

# MTA METRO-NORTH RAILROAD

## SHOPS AND YARDS

### CATEGORY M-606

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*Maintenance facilities are critical to the ability to provide excellent service quality to our customers in the region by enabling the proper maintenance of the rolling stock used to meet the daily demands for service. Metro-North operates 11 shops and/or yard facilities systemwide, including three shops at diesel/electric yards (Brewster, Harmon, Highbridge), two diesel yards East of Hudson (Poughkeepsie and Wassaic) and two diesel yards West of Hudson (Port Jervis and Woodbine), one electric yard at North White Plains, Grand Central Terminal and two yards for non-revenue equipment at MO Tower and Mount Vernon West. These facilities provide for fleet storage, maintenance and inspection services in support of the Reliability Centered Maintenance program to improve On-Time Performance and ensure customers are provided with a safe, reliable and comfortable ride. To accomplish this, Metro-North will continue to replace and upgrade its shop and yard infrastructure at Croton-Harmon yard and other critical locations to meet the demands of the current (and planned) fleet, and support efficient, cost-effective operating and maintenance practices. Maintenance facility investment needs are determined based on an engineering assessment of the condition and functionality of the components that comprise of each facility.*

*When maintenance facility needs are identified, a variety of options are analyzed to determine the most effective investment strategy. The strategy weighs capital and operating costs, benefits accrued to customers through operating and maintenance efficiencies, and potential economies of scale either within the agency or across agencies through joint procurements or use of common facilities. By focusing on an Electrical Shop for this phase of the Harmon rehabilitation, MNR reduced the estimated cost by \$123 million. In addition, capacity created by this Harmon investment will provide an opportunity for LIRR to make use of this facility.*

#### **The 2010-2014 Capital Program - \$325 million**

These projects address the replacement of outdated facilities at the Croton-Harmon Shop, and improvements at the Wassaic Yard and Port Jervis Yard to expand train storage yard capacity to meet projected demand growth on the Harlem and Port Jervis Lines, respectively.

#### **Croton-Harmon Shop Replacement - \$290 million**

Continuing the Harmon shop replacement program, investments support an expanded fleet of electric and diesel hauled rail cars, improving productivity as a result of a more modern and efficient complex. Phase I (South Diesel Yard) and Phase II (Site Preparation for the Coach and Locomotive Shops) were completed in the 2000-2004 Capital Program; Phase III (Coach and Locomotive Shops and Wheel True Facility) was completed in the 2005-2009 Capital Program. Phase IV will be the focus of this program, making priority repairs to the existing Electric Shop, further refining the Harmon Shop Master Plan and designing the next phase. The current plan is to construct two consist maintenance tracks that complement Metro-North's successful Reliability Centered Maintenance (RCM) Program. These tracks will provide the required facility to perform M-7 Consist-Based Maintenance outside of the new Coach Shop allowing for consist-based maintenance on the Coach Fleet to transition into the Coach Shop.

**Wassaic Yard Improvements - \$3 million**

The extension of two yard tracks in the yard will allow both tracks to be used for the storage of full-length through trains, increasing the usable capacity of the yard from 23 to 38 spots to address increases in service demand on the Harlem Line.

**Port Jervis Yard Improvements - \$7 million**

To meet the service plan requirement for two additional trains and longer trains on the Port Jervis Line, this improvement will provide the design of a two track storage yard expansion, and construction of one additional yard storage track and service aisle, an increase to yard spots from 58 to 71. Other supporting services and facilities will be constructed as well.

**Other Shop and Yard Improvements - \$24 million**

Other shop and yard projects will cover various priority needs including potential purchase of land for right-of way and/or yard upgrade or expansion.

# **MTA METRO-NORTH RAILROAD MISCELLANEOUS CATEGORY M-608**

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Projects in this area provide for costs associated with the support and management of the Capital Program and projects with program-wide applicability such as systemwide environmental remediation, protective liability coverage, independent engineer services, small business mentoring administration, value engineering services, scope development and security. Total cost in the 2010-2014 Capital Program is \$100 million.



# MTA BUS COMPANY

## 2010-2014 CAPITAL PROGRAM

### OVERVIEW

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MTA Bus was created in September 2004 to merge the services formerly provided by seven private bus companies under franchise agreements with the City of New York into one organization. The MTA Bus Company operates the 10th largest bus fleet in the United States and Canada, serving nearly 400,000 riders daily. With a fleet of over 1,300 buses, the agency operates 45 local bus routes serving the Bronx, Brooklyn, and Queens and 35 express bus routes between Manhattan, the Bronx, Brooklyn, and Queens.

MTA Bus inherited a substantial bus fleet and maintenance network in need of significant operating and capital improvements; service was irregular, maintenance was substandard, bus reliability was poor, and passengers' dissatisfaction was high. MTA Bus has taken many steps to improve customers' experience and satisfaction. Capital funding has enabled retirement of overage and unreliable fleets and reduced the fleet average age from approximately 13 to approximately seven years. Through evaluations of customer demand and operating constraints, MTA Bus has made improvements in running times, crowding, service frequency, hours of service, and route structure.

These efforts have increased ridership 10 percent on weekdays and 14 percent on weekends. A centralized Road Operations Unit, Training Center, and Command Center have been introduced to ensure consistent service. The agency also has instituted new maintenance practices and other measures that have increased its MDBF (mean distance between failures) from 2,154 miles in 2005 to 3,372 miles in 2009.

#### THE 2010-2014 CAPITAL PROGRAM

The MTA Bus Company's 2010-2014 Capital Program, totaling \$325 million, builds upon these past successes and provides the resources needed to restore, replace, and modernize significant portions of the agency's fleet and infrastructure. Table 6 identifies these investments by asset category.

**Table 6**  
**MTA Bus 2010-2014 Capital Program**  
**by Investment Category**  
**(\$ in millions)**

Category	Approved 2010-2014	Percent
Bus Company Projects:		
- Buses / Real Time Information	\$220	68%
- Facilities and Equipment	87	27%
- Project Admin / Engineering	17	5%
<b>Total</b>	<b>\$325</b>	<b>100%</b>

*Numbers may not total due to rounding*

## **Investments to Maintain Service and Safety**

The primary focus of MTA Bus' 2010-2014 program is meeting the needs of bus fleet and depots, the core of its service. The 2010-2014 Capital Program includes \$212 million to purchase 285 new buses, including: 32 high-capacity express buses, 72 articulated buses and 181 standard buses. Given current funding levels in the 2010-2014 Capital Program, however, the number of overage buses at the end of the five-year period will be approximately 50 buses, or four percent of the total fleet. The continued replacement of buses is crucial to furthering the reliability that has been generated by past investments.

Additionally, \$87 million is planned for facility and equipment investments. This amount represents a handful of targeted investments at many of its facilities, keeping them in good working order. It also includes upgrading CNG systems at two depots and modifying two more to support the new articulated buses aimed at diversifying the fleet

## **Investments to Improve Service Delivery**

MTA Bus will also make investments to improve service delivery for its riders. The agency plans to begin the process of providing real-time customer information for its routes. This improvement, along with the improved reliability and comfort that come with new buses, represent considerable service improvements for MTA Bus customers.

**MTA BUS COMPANY  
PROGRAM PLAN**

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# **MTA BUS COMPANY BUS COMPANY PROJECTS CATEGORY U-603**

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*The MTA Bus Company operates the 10th largest bus fleet in the United States and Canada, serving nearly 400,000 riders daily. As of February 2010, the fleet consists of 795 standard buses and 511 high capacity buses for express service for a total of 1,306 buses.*

*The fleet operates out of eight depots. The City of New York owns three of the depots and leases the others from private owners. The facilities are needed to collect revenue from buses, clean and fuel buses in preparation for service, perform routine maintenance and repairs, and store buses when not in operation. In addition to the maintenance areas, the depots have 13 bus washers and three paint booths.*

## **The 2010-2014 Capital Program - \$325 million**

MTA Bus plans \$325 million for investments, including:

- 72 articulated, 181 standard, and 32 high capacity express buses (\$212 million)
- Real-time customer information (\$8 million)
- Modification of Baisley Park and JFK depots to support articulated buses (\$6 million)
- Upgrading bus washers and HVAC systems (\$13 million)
- Installing a new elevator at College Point depot (\$2 million)
- Construction of a new green roof at Far Rockaway depot (\$2 million)
- Upgrading the CNG systems at Spring Creek and College Point depots (\$5 million)

# MTA-WIDE SECURITY 2010-2014 CAPITAL PROGRAM OVERVIEW

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In the wake of the September 11, 2001 terrorist attacks on the World Trade Center, the MTA initiated a comprehensive review of its infrastructure to determine how to best protect its customers and key assets from a terrorist incident. Security experts defined critical vulnerabilities and determined appropriate protective strategies. The result of these efforts was the implementation of a multi-faceted program including operating and capital investments. The capital investments included hardening vulnerable assets and implementing the networks and equipment necessary to conduct targeted surveillance, control access, stop intrusion and provide command and control systems to support incident response. MTA began implementing these investments in the 2000-2004 Capital Program and continues to progress this program using Federal funds. While the program is being implemented, continuing police presence supplements these efforts. This program of investments and policing are constantly recalibrated and vulnerabilities reassessed based on up-to-the-minute security intelligence in partnership with local, state and federal law enforcement, using the Federal grants to prioritize and progress work as informed by MTA PD and NYPD. As recognized in previous NYS Comptroller's reports, the overall security environment has been enhanced with the completion of many capital security improvements and the implementation of these other policing initiatives.

**Table 7**  
**MTA-wide Security 2010-2014 Capital Program**  
**(\$ in millions)**

Category	Approved 2010-2014
Capital Security Projects	\$250
MTA Police Department	85
<b>Total</b>	<b>\$335</b>

*Numbers may not total due to rounding*

**Capital Security and Police Projects:** The 2000-2004 Capital Program allocated \$591 million for a program to advance an initial set of capital investments addressing the highest priority vulnerabilities, including \$144 million of grant support from the Department of Homeland Security (DHS). Subsequent funding allocations, including capital program amendments have increased MTA funding to support these projects to a total of \$859 million, including an additional \$81 million of DHS grant support under the Transit Security Grant Program and \$12 million under the American Recovery and Reinvestment Act of 2009.

The 2005-2009 Capital Program originally allocated \$495 million to fund the next phase of projects with the intent of pursuing funds from Homeland Security and other federal sources. However, the federal level of support for Phase II, \$156 million, has been significantly lower than provided in Phase I. As a result, MTA added \$155 million of its own funds to progress \$312 million of critical work.

For the 2010-2014 Capital Program, the MTA is planning a \$250 million security program to continue addressing capital security needs at critical locations throughout the system (Table 7). The MTA will continue to vigorously pursue funding from Homeland Security and other federal sources.

The MTA's Police Department provides police protection for the MTA commuter railroad and the Staten Island Railway. The MTAPD was included for the first time in the MTA's capital program as a separate investment category in the 2005-2009 Capital Program; it had previously been included in the agencies' capital programs. The MTA Police Department was consolidated in 1998 from separate departments at the Long Island Rail Road and Metro-North Railroad and subsequently added the Staten Island Rapid Transit Police in 2005. The 2010-2014 Capital Program continues to fund the capital needs for the MTA Police Department, including two district offices and the police radio system.

## **MTA-WIDE SECURITY PROGRAM PLAN**

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Due to the sensitive nature of the security effort, the 2010-2014 Capital Program identifies a single budgetary reserve for \$250 million, which will be used to progress the next projects.

# MTA POLICE DEPARTMENT

## CATEGORY E-610

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The MTA Police Department is responsible for ensuring the safety and security of MTA's customers, employees, and facilities throughout the MTA service area. The service area encompasses over 4,400 square miles covering 14 counties in New York and Connecticut. On January 1, 1998, the MTA consolidated the police forces of the LIRR and Metro-North Railroad under the jurisdiction of the MTA Police. Subsequently, the Staten Island Rapid Transit Police was added to MTA Police on June 1, 2005. Prior to the consolidation, capital improvements associated with police needs at these Operating Agencies were addressed as part of the respective agency capital programs. Building upon the work begun with the 2005-2009 Capital Program, the MTA PD 2010 -2014 Capital Program will continue to assist the MTA Police to accomplish its mission of providing safety/security throughout the MTA network.

### The 2010-2014 Capital Program

The MTA Police Department's 2010-2014 Capital Program includes projects to invest in facilities and communication systems to allow the Police to effectively protect our customers and the overall transportation system (Table 8).

**Table 8**  
**MTA Police Department 2010-2014 Capital Program**  
**by Investment**  
**(\$ in millions)**

Project	Approved 2010-2014
Staten Island District Office	\$12
Nassau County District Office	13
Public Safety Radio - Phase 2	60
<b>Total</b>	<b>\$85</b>

*Numbers may not total due to rounding*

### Staten Island District Office: District 9 - \$12 million

The MTA Police Department will work with the Staten Island Railway (SIR) to construct a facility on Staten Island to be used as the District 9 Office. Currently, MTA Police personnel for this district share space with personnel at an existing SIR Maintenance of Way facility. The space allocated for police personnel does not provide adequate facilities to operate an effective District Office, resulting in overcrowding and use of other police facilities outside MTA's jurisdiction to complete necessary functions.



**Nassau County District Office: District 2 - \$13 million**

The MTA Police Department will work with MTA Real Estate to secure property and construct a facility in Nassau County to be used as the District 2 Office. As a result of the pending sale of the Mineola facility, personnel for this district currently report out of mobile trailers located in Garden City on Commercial Avenue. The trailers and land where they are located is costly to rent and does not provide adequate facilities required to operate an effective district office.

**Public Safety Radio – Phase 2 - \$60 million**

The goal of this investment is to have a dedicated MTA Police public safety radio system, built seamlessly to ensure systemwide radio coverage, allowing future interoperability among participating agencies and standardization of one system for the MTA Police. The 2005-2009 Capital Program included \$45 million to fund design and early construction work intended to integrate the MTA police radio system with the New York State Wireless Network. However, with the future of this statewide system uncertain, alternative approaches for integrating the MTA Police system are being evaluated; design and construction will be advanced upon completion of this evaluation.

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# MTA INTERAGENCY 2010-2014 CAPITAL PROGRAM OVERVIEW

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The interagency section of the program includes several categories of investment that benefit the MTA family of agencies. It includes investments for MTA Planning and MTA Headquarters.

This section of the capital plan budgets for a number of MTA-wide integrated initiatives, including completion of the MTA-wide integrated system for the business service center initiative, rehabilitation of a facility to consolidate various inter-agency leaseholds and an allocation for Planning studies to support the MTA's capital program.

**Table 9**  
**MTA Interagency 2010-2014 Capital Program**  
**(\$ in millions)**

<b>Category</b>	<b>Approved 2010-2014</b>
MTA Business Service Center	\$75
Jay Street Building Rehabilitation	184
MTA Planning Initiatives	56
<b>Total</b>	<b>\$315</b>

*Numbers may not total due to rounding*

**MTA INTERAGENCY  
PROGRAM PLAN**

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# MTA INTERAGENCY BUSINESS SERVICE CENTER / FACILITIES REHABILITATION CATEGORY N-611

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In April 2005 the MTA board commissioned the consulting firm Booz Allen Hamilton to assess the feasibility of implementing a shared services organization across the MTA and its operating agencies. The areas reviewed include Finance, Human Resources and Information Technology. The study concluded that the MTA could realize efficiencies and save money by streamlining back-office processes into a Business Service Center. The Center could achieve substantial long term savings.

In 2009 MTA undertook to implement the Business Service Center human resources and financial system integration over two capital programs, with \$45 million funded from the 2005-2009 Capital Program and the remaining \$75 million in the 2010-2014 program. This initiative will extend the Metro-North and MTA Headquarter PeopleSoft Platform throughout the MTA.

This program also includes the rehabilitation of the former NYC Transit headquarters building at 370 Jay St. in Brooklyn (418,000 square feet). This building offers the MTA an opportunity to satisfy a number of its office space needs, both short and long term; since the building is largely unoccupied, it will allow MTA to reprogram other MTA leased spaces such as 180 Livingston St., 3300 Northern Blvd. and 340 Flatbush Avenue. To meet the above described needs, the building will require a full interior rehabilitation as well as the replacement of the façade and all windows. The expected cost for this project is \$184 million.

**Table 10**  
**MTA Business Service Center/Facilities Rehabilitation**  
**2010-2014 Capital Program**  
**by Investment**  
**(\$ in millions)**

Project	Approved 2010-2014
MTA Business Service Center	\$75
Jay Street Building Rehabilitation	184
<b>Total</b>	<b>\$259</b>

*Numbers may not total due to rounding*

# MTA INTERAGENCY MTA PLANNING INITIATIVES CATEGORY N-612

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The 2010-2014 Capital Program includes funds for various planning initiatives to support ongoing research and analytical activities in support of the MTA's Long Range Planning Framework which identifies long term capital transportation needs and solutions to address those needs.

**Table 11**  
**MTA Planning Initiatives 2010-2014 Capital Program**  
**by Investment**  
**(\$ in millions)**

<b>Project</b>	<b>Approved 2010-2014</b>
MTA Long Range Core Planning Support	\$13
MTA Long Range Corridor Planning Support	13
Tappan Zee Bridge Rail Study	30
<b>Total:</b>	<b>\$56</b>

*Numbers may not total due to rounding*

Budgeted activities include:

- \$13 million is allocated for Modeling and Surveys for compliance with federal planning guidelines and upgrading MTA's travel model:
  - Maintaining and upgrading MTA's ridership model used to identify the need and conceptual scope for the MTA's network expansion projects and other key initiatives. In the past this model supported the development of the Second Avenue Subway, East Side Access and the #7 Extension projects which are now all underway. This model will be used for all future network expansion planning and analysis as well as other critical MTA planning initiatives.
  - Conducting travel surveys to remain eligible for New Starts funding (each survey costs between \$2 and \$3 million).
  - Strategic planning evaluations responding to short and long term policy questions, such as new regional rail initiatives and analyses of regional trends
- This program also includes \$13 million in planning funds to initiate or continue research into travel corridors in need of congestion relief and greater connectivity as identified in the MTA Twenty Year Needs Assessment:
  - Queens Blvd. Corridor Study
  - Staten Island North Shore Corridor Study
  - Staten Island West Shore Corridor Study
  - Regional Bus Study
- Finally, this program also includes \$30 million for the MTA share to complete the Tappan Zee Bridge Rail Study, progressed jointly with the New York State Department of

Transportation and the New York State Thruway Authority. This will cover the work necessary to complete the draft and final environmental impact statements and achieve an FTA record of decision (ROD) for both the highway and transit strategies in the corridor.

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**MTA CAPITAL CONSTRUCTION  
COMPLETING CURRENT EXPANSION PROJECTS**

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# MTA CAPITAL CONSTRUCTION 2010-2014 CAPITAL PROGRAM OVERVIEW

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In July 2003, the MTA Board authorized creation of the MTA Capital Construction Company (MTACC) as a new subsidiary with the specific mission to plan, design, and construct major MTA system expansion and security projects for the operating agencies. Since that time, the MTACC's expansion portfolio has focused on the construction of East Side Access, which will bring Long Island Rail Road commuters into Grand Central Terminal; and the initial phase of a new Second Avenue Subway, which will relieve the pressure on New York City Transit's overcrowded Lexington Avenue Line and improve access to downtown Manhattan. In addition, the MTACC has been responsible for the construction of several other large scale projects. The extension of the #7 subway line to support the redevelopment of the far West Side of Manhattan is funded by the City of New York and is carried in its entirety in the 2005-2009 Capital Program. The construction of a new subway terminal at South Ferry and the construction of the Fulton St. Transit Center are largely federally funded, although local funds have also been provided to complete each of these. Finally, MTACC is responsible for the implementation of inter-agency security investments.

Since the MTA 2005-2009 Capital Program was first approved, these key projects have seen significant progress. Full Funding Grant Agreements have been secured for both East Side Access and the Second Avenue Subway, ensuring the receipt of \$3.9 billion in financial support from the federal government. Ground has been broken to construct the first phase of the Second Avenue Subway, as well as the #7 line extension. East Side Access also reached project milestones when two massive tunnel boring machines (TBM) recently completed excavation of four tunnel tubes in Manhattan. Work has also begun on the new caverns to be mined under Grand Central Terminal.

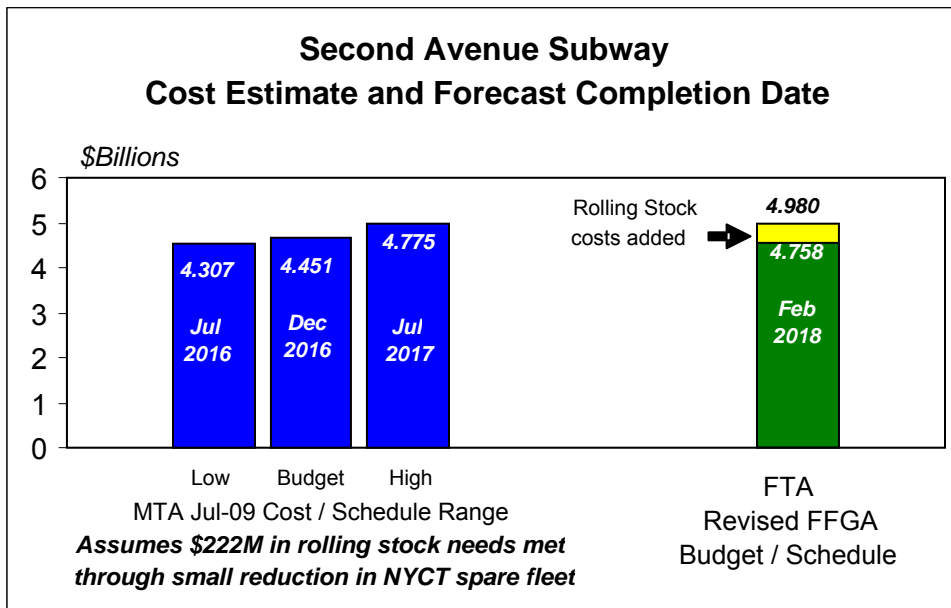
As construction work progressed on both projects, a comprehensive review was launched in early 2008 in reaction to growing costs and delays caused largely by an overheated national and international construction market that was affecting virtually all large, complex, infrastructure projects at that time; a number of other factors, including geotechnical risks, design and construction management issues and procurement delays. The process began with a 30-day review in March 2008 which was done in a very short time frame as required to support NYC's and USDOT's ultimately unsuccessful congestion pricing initiative. This review yielded revised budgets and timetables for each project but also made clear, by identifying a risk reserve, that a more comprehensive study was necessary to fully understand new risks associated with the overheated construction market and the limited pool of contractors available for such large, complex projects. It also resulted in MTA developing a complete repackaging strategy for Second Avenue Subway as well as an assessment of possible scope changes.

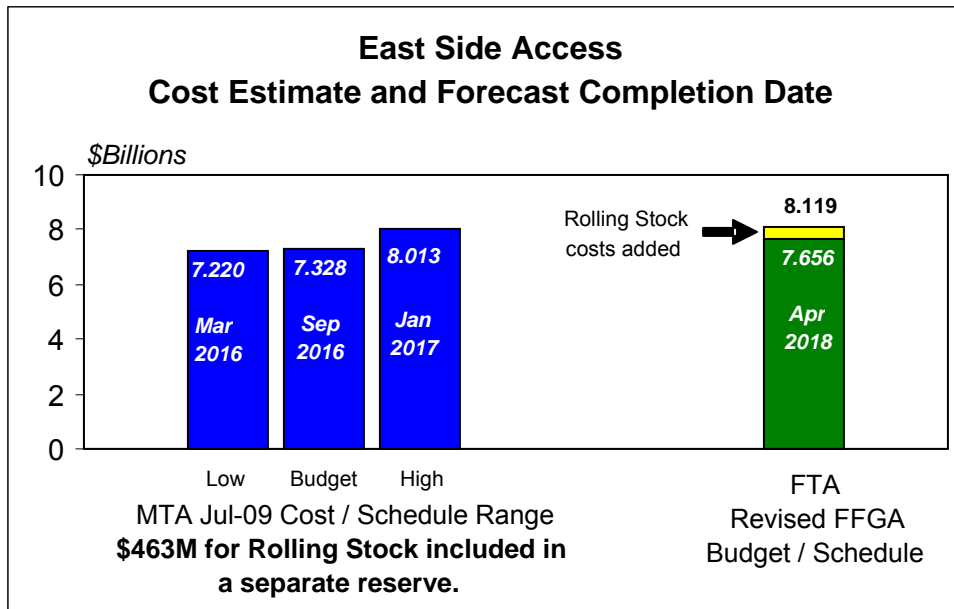
A more comprehensive review of the cost and schedule was completed in 2009 by the MTA Capital Construction Company (CCC), the MTA Office of Construction Oversight (OCO) and the Independent Engineering Consultant (IEC) that identified project budget and schedule ranges and allocated the risk contingencies, previously identified as a separate reserve, as necessary to the project budgets. The FTA, with its Program Management Oversight Consultant (PMOC), also conducted its own Risk Assessment that resulted in project budgets and schedules which, while higher than MTA's target budgets and schedules, were within the ranges identified by the MTA.

**MTA and FTA SAS and ESA Review Results:**

The MTA and FTA agree that it is prudent to consider the costs and schedule of mega projects in the form of ranges that bracket the lower and higher cost and schedule scenarios for each project and to establish a specific target budget within this range to which the projects will manage. The cost reviews that were performed by both the MTA and by the FTA, with its PMOC, concluded that additional construction costs were being driven by a number of factors, including geotechnical risks, design and construction management issues, procurement delays and escalation. In addition, professional service costs were reviewed against experience and adjusted, and the potential for higher than originally budgeted real estate costs were also factored in. Finally, additional contingency reserves were identified for both projects, based upon remaining work to be performed.

FTA’s review, done in conjunction with the PMOC, has resulted in a proposed FFGA budget that assumes a certain level of management capacity and mitigation capability and strategies. The fact that this FTA FFGA budget is within the MTA’s identified range, as indicated in the charts shown below, provides significant affirmation that with the appropriate mitigations, the projects can be delivered within the identified budget ranges. As required in both FFGA agreements, local funds will be used as needed to cover the costs of completing the projects.





**Management Plan to Mitigate Risks:**

To manage to and deliver the two projects within the identified ranges, the MTA will rely on the following enhanced management strategies and principles that are detailed in the January 15, 2010 Enterprise Level Project Execution Plan (ELPEP) that has been developed for both projects:

- The technical capabilities identified in Section III.
- The cost and schedule contingency management plans in Sections IV. A and B which include minimum requirements and recovery responsibilities by MTA.
- The mitigation capacities in Section IV. C

These enhanced strategies will be further reflected in specific revisions to the respective Project Management Plans for each project.

**Rolling Stock:**

The treatment of rolling stock within the revised FFGA budgets must still be finalized. For the purposes of the above scenarios the full estimated costs of the vehicles is included in the FFGA budget. The MTA’s budgets deal with these costs in a different fashion: for ESA, a separate ESA rolling stock reserve is included in the 2010-2014 Capital Program to fully fund the FFGA rolling stock need, but the final need will be defined as part of an ongoing simulation that is being conducted by the Long Island Rail Road; in the case of SAS, the proposed project budget does not include the rolling stock costs since the MTA has concluded that the rolling stock needs can be met through a modest reduction in the current spare ratio of NYC Transit. A draft of a revised Rail Fleet Management Plan which provides justification on this matter was recently submitted to FTA’s Program Management Consultant and this will be the subject of further review and discussion.

The use of the ranges, along with the enhanced management approaches, will provide a solid framework in the path forward for delivering ESA and SAS to our customers within the revised costs and schedules. These efforts will track each component of these projects more closely and will allow CCC to respond before cost increases and delays are incurred.

While completion of these projects presents challenges, the revised budgeted costs for these projects are fully included in this Capital Program; the 2010–2014 Capital Program plans to award all contracts needed to complete the first phase of the Second Avenue Subway and East Side Access. Table 12 sets forth the funding commitment necessary to accomplish this work. With this fuller understanding of the project costs, risks and mitigation strategies associated with these “mega” construction projects, CCC can adhere to these budgets and schedules despite difficult conditions. The FTA’s assistance in identifying mitigation strategies will also ensure the delivery of these projects, which are critical to our region’s transportation network.

### The 2010-2014 Capital Program

The 2010-2014 Capital Program includes budgets required to complete Phase 1 of the Second Avenue Subway, the East Side Access Project, regional investments to support the East Side Access improvements and enhance travel quality, an ESA rolling stock and liability reserve and miscellaneous project costs. A total of \$5.739 billion is planned.

**Table 12**  
**MTACC 2010-2014 Capital Program**  
**By Investment Category**  
**(\$ in millions)**

<b>Project</b>	<b>Funding In Prior Capital Program(s)</b>	<b>Approved 2010-2014</b>	<b>Project Total</b>
Second Avenue Subway (Phase I)	\$2,964	\$1,487	\$4,451
East Side Access	4,374	2,954	7,328
Regional Investments	0	401	401
ESA Rolling Stock and Liability Reserve	0	697	697
Miscellaneous	91	200	291
<b>Total</b>	<b>\$7,429</b>	<b>\$5,739</b>	<b>\$13,168</b>

*Numbers may not total due to rounding*

# MTA CAPITAL CONSTRUCTION PROGRAM PLAN

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# MTA CAPITAL CONSTRUCTION

## SECOND AVENUE SUBWAY

### CATEGORY G-610

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*The purpose of the full-length Second Avenue Subway (SAS) is to address the problems and deficiencies in access and mobility associated with an overburdened transit infrastructure that is struggling to accommodate existing customers as well as new customers from the continuing growth of Manhattan's East Side.*

*The East Side is densely populated with residential, retail, and commercial office use. Every day, more than two million people travel in the area that would be served by a full-length Second Avenue Subway as they commute to and from work. Over three-quarters of people working in the area use the subway, bus, rail, or ferry to get to and from their jobs during rush hours.*

*NYC Transit's Lexington Avenue subway is the only north-south route serving the East Side. Carrying more passengers than any other subway line in the United States, the "Lex" alone carries 1.3 million riders each weekday, which is greater than the ridership of the entire transit systems in San Francisco, Chicago, and Boston combined.*

*The Lexington Avenue service operates significantly above guideline capacity during peak hours, resulting in overcrowded trains, congested stations, and delays for customers. During the morning peak hour, 29 southbound trains per hour are scheduled to run on the Lexington Ave. express line. However, due to the frequent congestion south of 125<sup>th</sup> St., only 25 or fewer trains depart Grand Central-42<sup>nd</sup> St. during the peak hour. Because of excessive congestion, travel times are markedly longer than at other times, reducing service levels.*

*In addition, because the Lexington line is the only route serving most of the East Side, residents and workers often have to contend with poor access and long walks to and from the subway.*

*The Second Avenue Subway will address all of these issues, providing additional service and access to the East Side's dense residential, commercial and retail populations, and relieving overcrowding and service limitations currently experienced on the Lexington Avenue line by hundreds of thousands of people who travel to, from, and through the East Side of Manhattan.*

#### **Project Description**

The goal of the project is to relieve crowding and improve reliability on the Lexington line and to improve mobility for commuters on Manhattan's East Side and throughout New York City and the metropolitan area. Numerous alternatives have been developed and analyzed for a new Second Avenue Subway since it was first conceived in the 1920s. The project is the result of the MTA's MESA (Manhattan East Side Alternatives) major investment study and subsequent environmental impact statements.



Specific project construction details for the full length SAS include:

- Construction of a two-track 8.5 mile subway line from 125<sup>th</sup> St. to Lower Manhattan
- Connection to the rest of the subway system via the 63<sup>rd</sup> St. line
- Construction of 16 new, fully accessible subway stations
- Construction of new transfers with other MTA services, including 125<sup>th</sup> St. (serving Metro-North and NYC Transit passengers) and Grand St. Other transfers are being evaluated for 55<sup>th</sup>, 42<sup>nd</sup>, 14<sup>th</sup>, and Houston Sts.

The full-length Second Avenue Subway will provide two new subway services. One will operate along the full length of the route between 125<sup>th</sup> St. and Hanover Square. The other will operate along Second Ave. from 125<sup>th</sup> St. to 63<sup>rd</sup> St., then travel west along the existing 63<sup>rd</sup> St. line and join the Broadway (N/R/Q/W) line via an existing connection and serve express stations along 7<sup>th</sup> Ave. and Broadway before crossing the Manhattan Bridge to Brooklyn. Passengers traveling to Lower Manhattan on this line can transfer to local services for destinations south of Canal St.

The project will be implemented to provide for four operational phases. These could potentially overlap and include: 1) 105<sup>th</sup> St. to 62<sup>nd</sup> St., including connection to the 63<sup>rd</sup> St. line; 2) 125<sup>th</sup> St. to 105<sup>th</sup> St.; 3) 62<sup>nd</sup> St. to Houston St.; and 4) Houston St. to Hanover Square. The MTACC is currently progressing Phase 1, which extends from 105<sup>th</sup> St. and Second Avenue to 63<sup>rd</sup> St. and Third Avenue with new stations along Second Avenue at 96<sup>th</sup>, 86<sup>th</sup>, 72<sup>nd</sup> Sts. and new entrances to the existing Lexington Ave./63 St. Station at 63rd St. and Third Avenue. By 2030, SAS Phase I is projected to carry 191,000 riders.

The total project cost for Phase I of the Second Avenue Subway is estimated to be \$4.451 billion with a Revenue Service date of December 2016.

## **Prior Program Highlights/Accomplishments**

### **The 1995-1999 Capital Program**

- Funded the MESA (Manhattan East Side Alternatives) study.

### **The 2000-2004 Capital Program**

The 2000-2004 Capital Program included \$1.05 billion to complete planning and environmental studies, begin design, acquire real estate, and begin construction of the initial contracts of the first phase of the project. Major highlights include:

- Started preliminary engineering for all phases in December 2001. P.E. for Phase 1 was completed in May 2004.
- Completed Draft Environmental Impact Statement in March 2003
- Completed the Final Environmental Impact Statement in April 2004 with FTA approval.
- Received Record of Decision from FTA in July 2004.
- Awarded Contract One: construction of tunnels for two tracks using a tunnel boring machine from 92<sup>nd</sup> St. to 62<sup>nd</sup> St. A tunnel section built in the 1970s between 96<sup>th</sup> St. and 105<sup>th</sup> St. will be incorporated into the work, and will provide for train storage. March 2007
- Reached a Full Funding Grant Agreement with the FTA for \$1.300 billion in November 2007
- Began acquisition of required real estate interests.

### **The 2005-2009 Capital Program**

The 2005-2009 Capital Program contains \$1.914 billion to continue Phase 1 construction. Major highlights include:

- Completed design of Phase 1.
- Awarded contracts to build the structural cavern for the 96<sup>th</sup> St. station (May 2009) and

relocate utilities in the 86<sup>th</sup> St. Station area (July 2009).

- Contracts for structural work for new stations at 72<sup>nd</sup> St. and 86<sup>th</sup> St.
- Rehabilitation of the existing 63<sup>rd</sup> St. Station.
- Begin installing the necessary systems and equipment to operate the new line, including signals, pumps, lighting, and fans.

### **The 2010-2014 Capital Program**

The 2010-2014 Capital Program budgets \$1.487 billion to complete construction of Phase 1. All elements of project management, design, construction management, insurance, and real estate necessary to support construction are also budgeted. The program includes the following major construction elements:

- Installing finishes and equipment in the three new stations at 96<sup>th</sup> St., 86<sup>th</sup> St., and 72<sup>nd</sup> St.
- Completing installation of track and systems from 105<sup>th</sup> St. to 63<sup>rd</sup> St.

Funds totaling \$2.964 billion have been allocated in the MTA's 2000-2004 and 2005-2009 Capital Programs. The balance required to complete Phase 1 is being budgeted for in this program. The SAS project Federal Full Funding Grant Agreement approved in November 2007 will provide \$1.3 billion in federal new starts funds. Through January 2010 the project has committed over \$1.5 billion and expended \$900 million.

# MTA CAPITAL CONSTRUCTION

## EAST SIDE ACCESS

### CATEGORY G-609

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*Improved access between the Long Island transportation corridor (Suffolk, Nassau and Queens Counties) and the East Side of Manhattan is recognized as a critical transportation link in the New York Metropolitan region. The roadways, transit system, and Pennsylvania Station, which serve this area, have reached their capacity and restrict travel options for residents and commuters in the region. The creation of direct LIRR service from the Long Island/Queens corridor into Grand Central Terminal (GCT) will have a number of significant regional transportation benefits. They include providing the LIRR with more opportunities to maintain and capture a greater share of the Long Island/Queens-to-Manhattan commuter market by offering more services and better reliability into Penn Station. Furthermore, after completion, ESA is expected to provide more than 160,000 rides per day. The travel time savings and convenience of the new service will directly benefit the 76,000 daily customers who will use the new terminal as well as provide a significant benefit to the over 30,000 daily customers who currently arrive at Penn Station on overcrowded trains.*

#### **Project Description**

The East Side Access Project will connect the Long Island Rail Road's Port Washington and Main Lines to a new station at GCT. The connection will be made by constructing seven miles of new tunnels (3.5 miles in each direction) beginning in Queens, going under Amtrak's Sunnyside Yard, connecting to the lower level of the existing 63<sup>rd</sup> St. tunnel, and traveling under Park Ave. in Manhattan to reach GCT. Tail tracks under Park Avenue will extend to 38<sup>th</sup> St.

Specific project construction details include:

- Construction of a new LIRR station at GCT
- Construction of a new concourse and entrances at GCT
- Construction of a new mid-day storage yard in Queens
- Complete construction and reconfiguration of LIRR's Harold Interlocking, including boring soft ground tunnels in Queens under Sunnyside Yard
- Reconstruction of a portion of Yard A for storing trains that serve GCT
- Complete excavation of tunnels in Manhattan using Tunnel Boring machines

The total project cost for bringing the LIRR to GCT is estimated to be \$7.328 billion with a Revenue Service date of September 2016.

#### **Major milestones and forecasts**

Start Preliminary Design	March 1999
Obtain Record of Decision	May 2001
Start Early Construction Activities	September 2001
Award TBM Tunneling	July 2006
Award of the FFGA	December 2006
Complete Construction	September 2016
Begin Revenue Service to GCT	September 2016

## **Prior Program Highlights/Accomplishments**

### **The 1995-1999 Capital Program**

The 1995-1999 Capital Program included \$157.7 million to fund preliminary engineering, preparation of the final environmental impact statement and early construction activities of ESA.

### **The 2000-2004 Capital Program**

The 2000-2004 Capital Program included \$1.5 billion of ESA funds and \$33.5 million in non-ESA funds to continue design and to begin construction of major elements of the project. This included the following:

- Clean-up and preparation of the existing LIRR yards in Sunnyside, Queens and excavation of the existing 63<sup>rd</sup> St. tunnel bellmouth structure. This work is completed.
- Construction of a new Metro-North Railroad Highbridge maintenance facility and storage yard in the Bronx, replacing MNR's Madison Avenue Yard in GCT. This work is completed.
- Construction of the Arch St. LIRR Maintenance and Repair facility for the rail cars that will support LIRR's GCT service. This work is completed.
- Major demolition, civil and structural work and relocation of existing MNR tracks in the GCT Madison Avenue Yard in preparation of future construction of a passenger concourse for LIRR passengers. This work is on-going.
- Open-cut excavation adjacent to the existing Sunnyside Yard in Queens and construction of permanent tunnel structures. This work is on-going.
- Excavation of tunnels and station caverns in Manhattan from the existing 63<sup>rd</sup> St. tunnel at 2<sup>nd</sup> Ave. to the new station at GCT. This work is on-going.
- Procurement underway of long lead materials for force account construction at Harold Interlocking and construction of new interlockings.

### **The 2005-2009 Capital Program**

The 2005-2009 Capital Program contains \$2.672 billion in ESA funds and \$10.5 million funded directly in the LIRR capital program to continue major construction elements. All elements of project management, design, construction management, insurance, and real estate necessary to support construction are also funded. The program includes the following major construction elements:

- Construction of the new tunnels in Manhattan
- Construction and fit-out of the new LIRR concourse and mezzanines at GCT
- Begin the reconfiguration of the Harold Interlocking
- Construction of bored tunnels under Sunnyside Yard and Harold Interlocking in Queens
- Purchase/acquisition of required real estate interests

### **The 2010-2014 Capital Program**

The 2010-2014 Capital Program budgets \$2.954 billion for ESA to complete the construction and begin revenue service in 2016. All elements of project management, design, construction management, and insurance necessary to support construction are also funded. The program includes the following major construction elements:

- Construction and fit-out of the new LIRR concourse and mezzanines at GCT
- Construction of new entrances for LIRR customers at Grand Central Terminal
- Reconfiguration of the Harold Interlocking and yard lead
- Construction of a mid-day storage yard in Queens for rolling stock
- Construction of ventilation, track, power, signals and ancillary systems
- Procurement of electric rail cars for opening day service (some rolling stock costs are included in the reserve described later in this section pending a full simulation of opening day fleet needs)

The scope of the East Side Access project remains unchanged. Funds totaling \$4.374 billion have been allocated in the MTA's 1995-1999, 2000-2004 and 2005-2009 Capital Programs. The balance required to complete the project is being budgeted in this program. The ESA project Federal Full Funding Grant Agreement approved in December 2006 will provide \$2.632 billion in federal new starts funds. Through January 2010, the project has committed over \$3.9 billion and expended almost \$2.0 billion.

# **MTA CAPITAL CONSTRUCTION REGIONAL INVESTMENTS CATEGORY G-614**

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## **Regional Investments**

In the course of designing the East Side Access project, the MTA identified \$401 million in additional investments to be progressed concurrently with East Side Access in this capital program in order to achieve ESA revenue service. These investments, while not required to meet the ESA project objectives, are necessary to meet the operational flexibility of the LIRR, Amtrak and New Jersey Transit within Harold Interlocking and Sunnyside yard and contribute to the long term growth potential in the region.

Regional investments include work at Harold interlocking, serving the busiest passenger rail corridor in the United States. The introduction of ESA service will result in an additional 24 trains in the peak hour traveling through this already busy interlocking. The MTA's Metro-North Railroad is also assessing the feasibility of bringing trains from the Hudson Valley and Connecticut through Harold to Penn Station. Recognizing the long term regional benefit of building an operationally "robust" complex through Harold interlocking that would accommodate the future needs of the LIRR, Amtrak, N.J. Transit and MNR, regional investments will provide critical operational flexibility for all the railroads to meet their long term service plans. Investments include: an East Bound Reroute, which eliminates existing train conflicts between Amtrak and LIRR and increases speeds heading east and north; a West Bound Reroute, which will allow Amtrak and MNR to travel through the Harold complex without conflicting with trains heading into or out of Penn Station; and a Loop Track Interlocking, which allows flexibility for access to both Penn Station and the Mid-day Storage yard and increases capacity and speeds for Amtrak and NJT entering Sunnyside Yard.

Regional investments also include the purchase of a small number of LIRR cars to support ESA growth. Construction of an LIRR Sunnyside Station in Queens will be funded by regional investments in the next capital program.

# MTA CAPITAL CONSTRUCTION

## ESA ROLLING STOCK AND LIABILITY RESERVE

### CATEGORY G-615

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The new East Side Access service is estimated to require a fleet of 172 rail cars to meet opening day service needs. However, a full simulation of the opening day service plan is needed from LIRR to confirm the optimal operating plan and the full fleet need. This simulation will need to evaluate service in the context of the capacity enhancements proposed by LIRR as part of their 2010-2014 Capital Program (including Jamaica enhancements— signal upgrades and interlocking reconfigurations, infrastructure to facilitate new Cross-Borough Scoot service between Jamaica and Brooklyn; yard enhancements, such as new Mid-Suffolk yard and pocket tracks at strategic locations on the Port Washington and Babylon branches. This reserve includes \$463 million budgeted for 110 rail cars (in addition to \$202 million included within the project budget for 50 cars and \$50 million for 12 growth cars in Regional Investments) pending completion of this simulation and the subsequent confirmation of the opening day fleet need. Any constraints identified by this simulation could reduce the total opening day service and associated fleet need. The investment will remain in the reserve as a provisional budget, pending the results of the above simulation (Table 13).

The reserve also budgets to address final court awards or settlements for real estate acquisitions associated with all of the mega projects.

**Table 13**  
**ESA Rolling Stock and Liability Reserve**  
**2010-2014 Capital Program**  
**By Investment**  
**(\$ in millions)**

<b>Project</b>	<b>Approved 2010-2014</b>
Rolling Stock Reserve	\$463
Liability Reserve	234
<b>Total:</b>	<b>\$697</b>

*Numbers may not total due to rounding*

# **MTA CAPITAL CONSTRUCTION MISCELLANEOUS CATEGORY G-616**

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*A key objective of the new MTA Capital Construction Company is to establish a cost efficient program management structure to oversee and manage the MTA system expansion projects. The structure will maximize the sharing of expertise and support services from project sponsor agencies and avoid redundancies and duplication of functions between agencies.*

*To accomplish this, MTA Capital Construction Company established an organization of core management personnel. Project support for planning, design and construction management is also provided by staff that is matrixed from the sponsor operating agencies and MTA headquarters. MTA Capital Construction Company established consistent procedures, standards and guidelines that are applied to all the projects under its management.*

## **The 2000-2004 and 2005-2009 Capital Programs**

The preceding capital program includes \$91 million to manage these projects and for incidental project costs not eligible for federal reimbursement, and for work related to restoration of Lower Manhattan transportation facilities.

## **The 2010-2014 Capital Program**

The 2010-2014 Capital Program budgets \$200 million for these functions. MTACC will continue major construction and design of the MTA's system expansion projects and implementation of the systemwide safety program. All major underground construction contracts will be awarded by the end of 2009. There will be four tunnel boring machines in operation in Manhattan and two more machines in procurement for construction of tunnels in Queens. Funds have been budgeted for MTACC staff, the provision of company-wide construction support from specialty contractors, independent engineering oversight, legal support, environmental, archeological and other specialty engineering resources and miscellaneous project-related costs. Such expenditures are non-project specific or may not be eligible for reimbursement by the Federal Transit Administration and will be funded through MTACC Administration. Remaining funds have been budgeted for testing and safety services, claims and disputes resolution, reimbursement of NYCT for administrative support staff and services, and other project office costs such as communications and supplies.



# MTA BRIDGES AND TUNNELS

## 2010-2014 CAPITAL PROGRAM

### OVERVIEW

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MTA Bridges and Tunnels operates seven bridges and two tunnels that form essential links for vehicular highway transportation in the New York City metropolitan area. In 2009, the nine crossings generated close to \$1.3 billion in toll revenue and over the last five years have carried an average of nearly 300 million annual vehicle trips. With more than half of its toll revenue dedicated to mass transit operations, Bridges and Tunnels performs a unique and vital function in support of regional transportation. The 2010-2014 Capital Program is shaped by detailed analyses of long-term needs based upon bridge and tunnel inspections and condition ratings of the various bridge and tunnel elements. The program demonstrates the agency's ongoing commitment to both maintain the structural integrity of its facilities and to enhance mobility, economic health, and the quality of life in the region while ensuring the most cost effective approach in carrying out work. It is built around two major themes: maintaining the core infrastructure and improving service, the latter of which includes projects that will help improve mobility, customer satisfaction, safety and security.

#### The 2010-2014 Capital Program

Bridges and Tunnels' capital program totals \$2.453 billion over the next five years (Table 14). The most significant investment needs have been identified in the category of Roadways and Decks (\$1.54 billion or 63 percent of the five-year plan) with major deck replacement/rehabilitation programs at six facilities scheduled to begin or continue during this period. The entire program builds upon investments made in the current and past capital programs and fits into a master plan developed for each facility.

**Table 14**  
**MTA B&T 2010-2014 Capital Program**  
**by Investment Category**  
**(\$ in millions)**

Category	Approved 2010-2014	Percent
Structures	\$358	14%
Roadways & Decks	1,549	63%
Toll Plazas & Traffic Mgmt/Safety Systems	116	5%
Utilities	205	8%
Buildings & Sites	13	1%
Miscellaneous	39	2%
Structural Painting	173	7%
<b>Total</b>	<b>\$2,453</b>	<b>100%</b>

*Numbers may not total due to rounding*

### **Investments to Maintain the Core Infrastructure**

The replacement of aging facility components constitutes almost the entire program, allocating approximately 95 percent to address existing assets in need of repair. To determine the most immediate structural needs, B&T's seven bridges and two tunnel facilities undergo periodic, comprehensive condition inspections. The bridges are inspected every two years, in accordance with the New York State Biennial Bridge Inspection Program. In addition, separate underwater and substructure inspections are periodically performed and in-house engineering staff assesses the overall condition of all B&T facilities on an ongoing basis. Unlike bridges, federal and state mandated inspection cycles are not specified for tunnels; however, regular tunnel inspections are being carried out by B&T.

In preparing the 2010-2014 Capital Program, B&T utilized inspection results to develop a State of the System Assessment and 2010-2029 Twenty Year Needs Assessment for each facility. The condition of critical bridge and tunnel elements were analyzed and the resulting evaluations were a key factor in determining B&T's near and long term needs and the group of projects that comprise the capital program. The major projects include deck replacement/rehabilitation work at the four major bridges: Robert F. Kennedy, Verrazano-Narrows, Bronx-Whitestone and Throgs Neck. Core infrastructure work will also be carried out at other facilities including the rehabilitation of tunnel ventilation systems; upgrade of electrical systems and repairs to the ceilings and walls at the Brooklyn Battery and Queens Midtown Tunnels; rehabilitation of the substructure at both the Cross Bay and Marine Parkway Bridges; and replacement of the sidewalk, curb stringers and toll plaza deck on the upper level of the Henry Hudson Bridge.

### **Investments to Improve Service**

No project in B&T's history has done more to improve regional mobility and the overall economic competitiveness of the region than E-ZPass. Bridges and Tunnels was a founding member of the E-ZPass Interagency Group (IAG), originally comprised of toll authorities in New York, New Jersey and Pennsylvania and now including 25 agencies in 14 states. The IAG's goal was a compatible electronic toll collection system for the entire region. This goal has been achieved and all members provide inter-operability among agencies for their customers. By the end of 2009, 74 percent of B&T's traffic (and 88 percent of commercial vehicles) were using E-ZPass. Over three million tags are in active use today with weekday market share often exceeding 80 percent at most facilities during peak hours. It is estimated, based on recent traffic data, that E-ZPass saves the average weekday commuter more than 40 hours of waiting time annually and that the reduction in toll plaza waiting time saves an estimated 12 million gallons of fuel each year.

Looking ahead, more than two dozen toll agencies worldwide have implemented or are planning to implement All-Electronic Toll (AET) collection. Using this information and experience, B&T is currently moving forward with plans in the 2010-2014 Capital Program to test state-of-the-art technology that allows all motorists to pay tolls without stopping at the Henry Hudson Bridge. The results of this pilot, as well as information gained from other agencies that have implemented or are studying such systems, will help inform B&T's decision-making as it moves forward to design or construct new toll plazas at other facilities.

In the 2010-2014 Capital Program, the MTA will begin transitioning to new fare and toll payment methods focused on the customer using a single account linked to a smart card or an E-ZPass to ride the entire MTA rail and road network. B&T will participate in the development efforts, particularly as it relates to providing additional opportunities for customers to establish and replenish E-ZPass accounts.

# MTA BRIDGES AND TUNNELS PROGRAM PLAN

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# MTA BRIDGES AND TUNNELS STRUCTURES CATEGORY D-601

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*Structural improvements on Bridges and Tunnels facilities focus on maintaining the structural integrity of the facilities while ensuring safety and minimizing customer inconvenience. The projects address either the components of the bridge superstructure, which are the parts of the bridge above the foundation such as the suspension system and roadway deck supporting system, or the substructure, which are those elements which support the superstructure such as anchorages, piers, abutments and the foundations themselves. As components of both the superstructure and/or the substructure deteriorate over time, investments must be made or the bridge will require much larger and more costly capital investments in the future. At the tunnels, the strategy is to continue previously phased tunnel rehabilitation work planned at these facilities that include work on tunnel ceilings and walls, as well as plaza structural needs.*

## **The 2010-2014 Capital Program - \$258 million**

Projects planned in the 2010-2014 Capital Program under the category of structures total \$358 million and comprise fifteen percent of the total 5-year program. Major projects include:

### **Cross Bay Bridge: Substructure and Underwater Rehabilitation Work - \$30 million**

The scope for this project includes rehabilitation of unsound concrete on the all substructure elements. This project will also provide scour protection, as necessary, to other substructure elements.

### **Robert F. Kennedy Bridge: Miscellaneous Steel & Concrete Rehabilitation of the Manhattan Approach and Ramps - \$75 million**

The rehabilitation and replacement of the roadway deck and support structure of the Manhattan Approach and Ramps is scheduled to begin in 2020. However, based on the most recent inspections, the condition of some of the approach ramp elements needs to be addressed at this time. This project will complete the necessary replacement of the roadway decks and parapet walls of the 124<sup>th</sup> and 125<sup>th</sup> Ramps, including seismic retrofits and superstructure repairs.

### **Queens-Midtown Tunnel: Tunnel Walls and Ceiling Repairs including Leak Control - \$23 million**

This project will continue work that was previously carried out under the 1992-1999 capital program. The various tunnel structural elements have continued to age with some portions of the elements approaching the need for rehabilitation. This project will design and perform the first phase of construction for the tunnel's ceramic tile wall and ceiling metal veneer panels. The concrete catwalk will also be addressed with the consideration of a complete new surface for the full length of the tunnel.

### **Queens-Midtown Tunnel: Plazas Structural Rehabilitation - \$21 million**

This project will design and construct the first phase of rehabilitation to address Manhattan exit plaza deficiencies identified in the most recent tunnel inspections. The plazas will also be repaved and plaza sidewalks and concrete gutters will be rehabilitated.

### **Verrazano Narrows Bridge: Steel Repair and Concrete Rehabilitation - Belt**

**Parkway Ramps; Rehabilitation of Storm Water Drainage Systems - \$19 million**

This project will address needs identified in the most recent biennial inspection, including repairs to various elements of the floor and truss members and replacement of deteriorated rivets on various bridge components. Spalling concrete will also be repaired. Storm water drainage system components will also be rehabilitated or replaced as required.

**Brooklyn-Battery Tunnel: Rehabilitation of Tunnel Walls, Roadway Drainage and Firelines and Miscellaneous Ceiling Repairs - \$79 million**

This project is a continuation of the Phase I work previously carried out under the 2000-2004 capital program. Work will include the rehabilitation of the tile walls, drainage, firelines, tunnel ceiling veneer panels, and miscellaneous leak repairs.

**Marine Parkway Bridge: Substructure and Underwater Work and Scour Protection - \$17 million**

This project will address needs identified in the most recent biennial inspection, for the concrete substructure. A diving inspection will be performed to inspect the piers and evaluate their structural integrity. Upon completion of the inspection and repairs, a bridge piers and scour protection restoration program will be instituted to protect the substructure from being undermined by the flow and ebb action.

# MTA BRIDGES AND TUNNELS

## ROADWAYS AND DECKS

### CATEGORY D-602

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*Major deck replacement/rehabilitation work at the major bridges focuses on preserving primary bridge elements, upgrading structures to modern design standards and emphasizes a broader regional context geared towards increasing mobility for customers and improving access to facilities. The rehabilitation of bridge and tunnel roadways, decks, approaches and drainage systems ranges from resurfacing, which requires removing the top layer of deteriorated concrete and then re-covering to smooth out the riding surface, to total replacement of the roadway deck in which the steel support system is reconstructed. Drainage system projects are designed to convey runoff of heavy rains away from the supporting structures of the bridge or tunnel. These investments not only help ensure a safer trip for customers using the facilities, but they forestall the need for more extensive work that would entail long term lane closures and greatly reduce throughput on the facilities.*

#### **The 2010-2014 Capital Program - \$1,549 million**

Deck replacement/rehabilitation work represents the highest level of investments planned in the 2010-2014 program (\$1,549 million or 63 percent of the total program) and continues to carry out work identified in Facility Master Plans and begun in previous capital programs. While this represents a significant level of work, the agency, as in the past, will schedule this work to minimize disruption of bridge and tunnel traffic. Major projects in this category of work are:

#### **Robert F. Kennedy Bridge: Reconstruction of the Bronx Toll Plaza Deck, Superstructure and Substructure Rehabilitation, New Tollbooths and Ramp, Utility Relocation and the design for the Manhattan Toll Plaza Deck - \$436 million**

This work is part of the overall Robert F. Kennedy Bridge Rehabilitation program that began in 1997. The design for the Bronx Toll Plaza Reconstruction was carried out under the 2000-2004 and 2005-2009 Capital Programs. This project will address the rehabilitation and replacement needs of the Bronx toll plaza deck area including two ramps (the Queens-Manhattan and Manhattan-Queens). A design for similar work planned for the Manhattan Toll Plaza area will be carried out as part of this project, with the construction phase to be carried out in the 2015-2019 time period. The final design and construction decisions regarding this project will be informed by B&T's All-Electronic (video) Tolling study (expected to be completed in 2010).

#### **Verrazano-Narrows Bridge: Replacement of Upper Level Decks on Suspended Spans - \$414 million**

This project continues work begun in previous capital programs. Conceptual design was carried out in the 2000-2004 program followed by a full design and the first phase of construction (relocation of utilities) under the 2005-2009 program. In the 2010-2014 time frame, the second construction phase will be carried out and will involve the removal and replacement of the existing concrete deck in the upper level suspended span with an orthotropic deck, replacement of the median and outside parapet walls with new concrete barriers, replacement of roadway joints, seismic retrofits, suspended span drainage system and sign structures. The upper level and lower level lighting system, including the tower floodlights will also be replaced, along with elements of the fire standpipe system. The replacement of the bridge communication system that operates the lighting controls, emergency communications, closed circuit television, lane

indicators on gantries, fire standpipe controls, weather reporting system, and other communication devices is also part of this project. The active roadway will be widened by eliminating the elongated curbs adjacent to the existing median and side barriers. This will potentially improve BUS/HOV access across the VN Bridge.

**Bronx-Whitestone Bridge: Elevated and On-Grade Queens Approach Structure Replacement - \$292 million**

The design for this project was carried out in the 2000-2004 Capital Program and construction work on the Bronx approach is in progress under the 2005-2009 Capital Program. Similarly, this 2010-2014 work on the Queens approach will replace the elevated approaches and reconstruct the on-grade roadway and end ramp concrete decks. Full replacement of the approach structures will include installation of a fire standpipe main and risers, replacement of the power and communication systems and installation of new roadway lighting.

**Verrazano-Narrows Bridge: Rehabilitation of Toll Plaza East and West Bound Ramps - \$106 million**

This project will rehabilitate the eastbound and westbound ramps and the eastbound mainline, and the eastbound toll booths will be removed. The eastbound roadway will be constructed to meet current AASHTO standards. New traffic interchange work will be carried out in and around the toll plaza. New entrance ramps onto the Staten Island Expressway (SIE) in the eastbound direction to the new SIE bus lane will be constructed.

**Throgs Neck Bridge: Suspended Span Replacement (Phase A) - \$97 million**

Design and phase one of construction for the deck replacement on suspended spans will be performed under this project. The new deck will permit the future implementation of a seventh lane with a moveable median barrier. The project will also contain initial construction elements including utility relocations, underdeck traveler system installation, and roadway lighting replacement. The deck will be designed to meet the higher load criteria for current and anticipated commercial traffic volumes crossing the TNB on the I-295 corridor.

# **MTA BRIDGES AND TUNNELS TOLL PLAZAS & TRAFFIC MGMT/SAFETY SYSTEMS CATEGORY D-603**

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*Bridges and Tunnels' projects in this category focus on expanding and improving the condition of the toll plazas by addressing all components of the bridge toll plaza, including the tollbooths and islands, lighting and utilities, and approaches. With the exception of the usual rehabilitation work, investments in this category are typically viewed as system improvements to enhance safety and enable customers to proceed through the toll plazas more quickly.*

*The other focus of projects in this category is geared towards implementing advanced traffic management and traveler information systems, as well as replacement of obsolete components of B&T's toll collection system. The various traffic management systems now in place and planned over the next 10 to 20 years, utilize Intelligent Transportation Systems (ITS). ITS encompasses a broad range of diverse technologies including information gathering and processing and communications and control systems to improve transportation management and safety. Integrating and using these technologies at B&T facilities enhances safety and security, improves customer service, and fosters economic growth in the region. The utilization of ITS also increases the efficiency of facility operations and minimizes the need for construction of new facilities by improving capacity utilization.*

## **The 2010-2014 Capital Program - \$116 million**

Toll Plaza Improvements and Traffic Management/Safety Systems comprise \$116 million. As several projects in this category move forward, the results of B&T's All-Electronic (video) Tolling study will be utilized to inform design and construction decisions. Project highlights in this category of work include:

### **Henry Hudson Bridge: Upper Level Toll Plaza Deck - \$52 million**

This project will replace the existing upper level toll plaza and will be informed by the results of the All-Electronic Tolling pilot study at this facility. The toll plaza booths, canopy, toll collection equipment, utilities, electrical services, HVAC System and toll plaza roadway lighting will also be replaced. The plaza will be reconfigured so that service options are grouped in a way that best serves the customer. In addition, traffic alignment will be improved and intermediate columns that obstruct sight lines in the lower level toll plaza will be removed.

### **Traffic Management and Safety Systems - \$64 million**

B&T plans to continue to implement various initiatives in the ITS area in this program, including advanced weather information systems for use in gathering real-time information (including temperature, wind speed and direction) at most facilities; construction of an extensive fiber optic network and installation of CCTV cameras at several facilities; and upgrading the systems at the operations centers with advanced technologies. As part of these initiatives, B&T will replace power and communication infrastructure for the E-ZPass system at each of its toll plazas. In addition \$2 million for development efforts is aimed at allowing customers to use a single account linked to a smart card or an E-ZPass to ride the entire MTA network. For B&T specifically, the MTA will partner with a bank or other financial institution to develop opportunities for customers to establish and replenish E-ZPass accounts. A \$10 million AET pilot study at the Henry Hudson Bridge is also included.



Other key ITS systems such as traffic detection and sensor technologies for better data collection, response and clearance of incidents and efficient facility and traffic management will be designed and implemented, enhancing regional mobility and investments in customer satisfaction. One of the goals in the 2010-2014 ITS Program is to complete the deployment of these key systems and make them fully operational. Efforts to interconnect with the regional ITS systems will also continue.

# MTA BRIDGES AND TUNNELS

## UTILITIES

### CATEGORY D-604

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*Investments in utilities are being made to ensure efficient operation of life safety equipment at the tunnel by replacing, rehabilitating or upgrading the mechanical, electrical and power distribution systems, including tunnel ventilation equipment. In addition, electronic signage needs at the facilities are being addressed in this category. The long-term objective of investments in these areas is to replace worn out parts and equipment and carry out cost-effective improvements to enhance customer safety and convenience.*

#### **The 2010-2014 Capital Program - \$205 million**

Work in this category constitutes mostly Normal Replacement work totaling \$205 million or 8 percent of the total program and include the following projects:

#### **Brooklyn Battery Tunnel: Replacement of Electrical Switchgear & Power Distribution Equipment - \$64 million**

One of the major goals for the Brooklyn Battery Tunnel is to ensure the electrical and ventilation systems continue to meet current standards and expectations relating to emergency operations and improved systems monitoring and control. The existing obsolete switchgear will be replaced to greatly enhance the flexibility and reliability of the tunnel's electrical power system. Newly installed generators will be placed on an automatic transfer switching system and new tunnel feeders will be installed to complete the emergency power portion of the project. This will advance tunnel life safety systems by ensuring tunnel power can be maintained, per safety standards, and eliminating power downtime in the event of power failure requiring the need for emergency power.

#### **Queens Midtown Tunnel: Facility Wide Electrical Upgrade, Vent Bldg. Switchgear & Motor Control Center Replacement - \$70 million**

This project will replace the existing electrical switchgear, fan motor control equipment and all 46 fan motors for the tunnel ventilation at both ventilation buildings. In addition to replacing the switchgear, two new features will be added to safeguard tunnel operation during partial or complete power outage emergencies. One feature is the new automatic transfer switches between different switchgear sections and the other is new external connections for portable diesel generators.

#### **Agency-Wide: Advanced Traveler Information Systems - \$19 million**

Continuing installations of variable message signs across B&T facilities, approximately 25 older VMS signs will be replaced at several crossings and 8 new signs will be installed for regional messages. The work will include a study for new VMS locations.

#### **Verrazano-Narrows Bridge: Rehabilitation of Substation #1 - \$17 million**

This project plans to replace five medium voltage breakers and four medium voltage switches. The rehabilitation will be designed to meet all Con Edison requirements. The new design/relays will have flexibility for proper coordination with all down stream devices and Con Edison breaker settings.

**Bronx-Whitestone Bridge: Necklace Lighting and Acoustic Monitoring System Replacement - \$11 million**

This project will replace the unreliable necklace lighting of the Bronx-Whitestone Bridge with more energy efficient lighting. In addition to providing improved security lighting for the main part of the suspension system, the necklace lighting is a major aesthetic attribute. In addition, the existing acoustic monitoring system will be replaced with a more reliable state of the art system.

**Marine Parkway Bridge: Programmable Logic Controller, Electrical & Mechanical Rehabilitation - \$20 million**

The operation of the lift span is dependent on the proper function of the electrical and mechanical machinery of the bridge which is controlled by the Programmable Logic Controller (PLC). This project will design and carry out the rehabilitation and repairs necessary to the controller, electrical and mechanical machinery, installation of a back-up generator and fire standpipe.

**Queens Midtown Tunnel: Controls/Communication System Room and Related Work (Design) - \$4 million**

This project will design for the modernization and expansion of the existing Supervisory Control Systems and the Facility Control Centers' layout. A similar modernization has already been implemented at the Brooklyn-Battery Tunnel. The new Supervisory Control System will be connected to other tunnel and operational systems for control and monitoring. These systems include: traffic control and signaling, variable message signs, traffic speed sensors, radio rebroadcast, overheight detection, drainage pumps, tunnel lighting, and digital CCTV recording.

## **MTA BRIDGES AND TUNNELS BUILDINGS AND SITES CATEGORY D-605**

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*The ongoing objective of investments in this area is to enhance the efficiency of the bridge and tunnel operations by maintaining a Normal Replacement cycle for the components of each building and by improving employee working conditions. Projects in this category involve assets such as service buildings, ventilation buildings and garages, as well as removal of hazardous materials and asbestos abatement.*

### **The 2010-2014 Capital Program - \$13 million**

Work in this category comprises \$13 million or one percent of the total program. The major projects are:

#### **Agency-Wide: Hazardous Materials Abatement (2010-2014) - \$9 million**

This project will remove hazardous materials at various facility work sites.

#### **Brooklyn Battery Tunnel: Service Building Rehabilitation - \$4 million**

This project will provide design and construction services for the modernization of the service building. The service building rehabilitation includes structural, mechanical/HVAC, electrical, and plumbing, including the replacement of the service building heating plant.

## **MTA BRIDGES AND TUNNELS MISCELLANEOUS CATEGORY D-606**

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Projects in this area provide for costs associated with the support and management of the capital program. The 2010-2014 Capital Program contains \$39 million for projects with program-wide applicability such as protective liability coverage, independent engineer services, value engineering services, small business mentoring, scope development and NYC traffic enforcement agent support.

# MTA BRIDGES AND TUNNELS STRUCTURAL PAINTING CATEGORY D-607

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*Projects in this area provide for costs associated with removal of lead paint and repainting of the bridge structures with new high performance coating. The overall strategy is to minimize coating deterioration and provide corrosion protection to maintain the structural integrity of all facilities.*

## **The 2010-2014 Capital Program - \$173 million**

Work in this category comprises \$173 million or seven percent of the total program. The major projects are:

### **Throgs Neck Bridge Painting: Bronx and Queens Approach Spans - \$63 million**

This project will clean and paint the steel members of the approach spans.

### **Verrazano-Narrows Bridge Painting: Towers - \$30 million**

This project will clean, paint and make necessary repairs to interior and exterior portions of the tower below the roadway level as well as the traveler rail and struts.

### **Robert F. Kennedy Bridge Painting: Bronx Plaza and Approaches - \$19 million**

This project will clean and paint the structural steel associated with the Bronx toll plaza reconstruction and design the structural steel painting associated with the Manhattan toll plaza reconstruction.

# PROGRAM PROJECT LISTINGS

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# New York City Transit

# SUBWAY CARS

T- 601

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	Commitments (\$ in millions)					Total All Years
		2010	2011	2012	2013	2014	
<b>01 SUBWAY CARS</b>							
01 Purchase 123 "A" Division Railcars	SI	291.1	.0	.0	.0	.0	291.1
02 Purchase 290 "B" Division Railcars	NR	638.0	.0	.0	.0	.0	638.0
03 Purchase 50 "B" Division Railcars	NR	.0	.0	110.0	.0	.0	110.0
<b>Element Total 01</b>		<b>\$929.1</b>	<b>\$0</b>	<b>\$110.0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$1,039.1</b>
<b>Category Total 601</b>		<b>\$929.1</b>	<b>\$0</b>	<b>\$110.0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$1,039.1</b>

\* Represents values less than \$50,000

Numbers may not add due to rounding

# New York City Transit

# BUSES T- 603

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>02 BUS REPLACEMENT</b>							
01 Purchase 250 Standard Buses	NR	174.0	.0	.0	.0	.0	174.0
02 Purchase 185 Articulated Buses	NR	158.3	.0	.0	.0	.0	158.3
03 Purchase 21 Express Buses	NR	14.3	.0	.0	.0	.0	14.3
04 Purchase 336 Paratransit Vans	NR	25.1	.0	.0	.0	.0	25.1
05 Purchase 295 Standard Buses	NR	.0	214.0	.0	.0	.0	214.0
06 Purchase 233 Articulated Buses	NR	.0	204.1	.0	.0	.0	204.1
07 Purchase 103 Express Buses	NR	.0	73.0	.0	.0	.0	73.0
08 Purchase 52 Paratransit Vans	NR	.0	4.0	.0	.0	.0	4.0
09 Purchase 425 Standard Buses	NR	.0	.0	321.5	.0	.0	321.5
10 Purchase 89 Express Buses	NR	.0	.0	65.8	.0	.0	65.8
12 Purchase 100 Articulated Buses	NR	.0	.0	91.3	.0	.0	91.3
13 Purchase 333 Paratransit Vans	NR	.0	.0	29.7	.0	.0	29.7
14 Purchase 97 Express Buses	NR	.0	.0	.0	74.5	.0	74.5
15 Purchase 156 Articulated Buses	NR	.0	.0	.0	165.8	.0	165.8
16 Purchase 71 Standard Buses	NR	.0	.0	.0	55.9	.0	55.9
17 Purchase 222 Paratransit Vans	NR	.0	.0	.0	20.6	.0	20.6
18 Integrated Farebox Units: Replace Main Components	NR	22.8	.0	.0	.0	.0	22.8
19 Purchase 65 Express Buses	NR	51.4	.0	.0	.0	.0	51.4
<b>Element Total 02</b>		<b>\$445.9</b>	<b>\$495.2</b>	<b>\$508.3</b>	<b>\$316.7</b>	<b>\$0</b>	<b>\$1,766.1</b>
<b>Category Total 603</b>		<b>\$445.9</b>	<b>\$495.2</b>	<b>\$508.3</b>	<b>\$316.7</b>	<b>\$0</b>	<b>\$1,766.1</b>

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# New York City Transit

# PASSENGER STATIONS

T- 604

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>04 FARE COLLECTION</b>							
01 MetroCard-Electronic Components Replacement	NR	30.0	12.7	30.0	.0	.0	72.7
02 Purchase of 41 High Entry/Exit Turnstiles (HEETs)	SI	2.3	.0	.0	.0	.0	2.3
05 Smart Card Implementation	SI	60.0	.0	140.0	.0	.0	200.0
<b>Element Total 04</b>		<b>\$92.3</b>	<b>\$12.7</b>	<b>\$170.0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$275.0</b>
<b>07 STATION ESCALATORS/ELEVATORS</b>							
01 Replace 3 Escalators in South Manhattan	SGR	.0	24.7	.0	.0	.0	24.7
03 Replace 2 Escalators Roosevelt Av Queens Blvd Line	SGR	.0	.0	14.3	.0	.0	14.3
04 Replace 11 Hydraulic Elevators	NR	.0	.0	48.4	.0	.0	48.4
05 Replace 10 Hydraulic Elevators	NR	.0	.0	.0	61.1	.0	61.1
<b>Element Total 07</b>		<b>\$0</b>	<b>\$24.7</b>	<b>\$62.6</b>	<b>\$61.1</b>	<b>\$0</b>	<b>\$148.5</b>
<b>12 STATION WORK</b>							
01 Station Work at 4th Av Station on Culver Line	SGR	13.7	.0	.0	.0	.0	13.7
02 Station Renewal Work: 25 Stations	SGR	.0	75.0	90.0	105.0	105.0	375.0
06 Station Work at Pelham Bay Park on Pelham Line	NR	.0	.0	9.1	.0	.0	9.1
07 Renewal of Buhre Av Station on Pelham Line	SGR	.0	.0	20.6	.0	.0	20.6
08 Renewal of Middletown Rd. Station on Pelham Line	SGR	.0	.0	19.6	.0	.0	19.6
09 Renewal of Zerega Av on Pelham Line	SGR	.0	.0	19.6	.0	.0	19.6
10 Renewal of Castle Hill Av Station on Pelham Line	SGR	.0	.0	20.3	.0	.0	20.3
11 Dyckman St. Station Improvements-Broadway/7th Line	NR	49.8	.0	.0	.0	.0	49.8
12 Rehabilitate Smith-9th Station on Culver Line	SGR	32.5	.0	.0	.0	.0	32.5
13 Rehabilitate 20 Av Station on Sea Beach Line	SGR	.0	.0	35.9	.0	.0	35.9
14 Rehabilitate 8 Av Station on Sea Beach Line	SGR	.0	.0	43.7	.0	.0	43.7
15 Rehabilitate Ft Hamilton Pky Stn on Sea Beach Line	SGR	.0	.0	49.9	.0	.0	49.9
16 Rehabilitate 18 Av Station on Sea Beach Line	SGR	.0	.0	46.1	.0	.0	46.1
17 Rehabilitate Kings Hwy Station on Sea Beach Line	SGR	.0	.0	45.6	.0	.0	45.6
18 Rehabilitate New Utrecht Av Station Sea Beach Line	SGR	.0	.0	48.3	.0	.0	48.3
19 Rehabilitate Bay Parkway Station Sea Beach Line	SGR	.0	.0	52.3	.0	.0	52.3
20 Rehabilitate Av U Station on Sea Beach Line	SGR	.0	.0	48.8	.0	.0	48.8
21 Rehabilitate 86 St Station on Sea Beach Line	SGR	.0	.0	37.3	.0	.0	37.3
22 181 St Broadway-7th Av Ceiling Repair / 168 St	NR	38.0	.0	.0	.0	.0	38.0
23 Station Component Work	SGR	.0	75.0	90.0	90.0	105.0	360.0
24 Station Painting at Component Locations	SGR	.0	10.0	.0	15.0	.0	25.0
<b>Element Total 12</b>		<b>\$134.0</b>	<b>\$160.0</b>	<b>\$677.0</b>	<b>\$210.0</b>	<b>\$210.0</b>	<b>\$1,391.0</b>

\* Represents values less than \$50,000

Numbers may not add due to rounding

# New York City Transit

# PASSENGER STATIONS

T- 604

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>13 DISABLED ACCESSIBILITY</b>							
01 ADA Forest Hills-71 Av Station-Queens Boulevard Ln	SI	.0	33.4	.0	.0	.0	33.4
02 Improve Platform Edges 34 St Station-Broadway Line	SI	6.8	.0	.0	.0	.0	6.8
03 Improve Platform Edges 34 St Station- 6th Av Line	SI	6.6	.0	.0	.0	.0	6.6
04 Imprve Platfrm Horizntl/Vertical Clearance-Var Loc	SI	5.5	.0	5.9	.0	.0	11.4
06 ADA Kingsbridge Rd Station - Concourse Line	SI	.0	28.8	.0	.0	.0	28.8
07 ADA 68 St-Hunter College - Lexington Av Line	SI	.0	.0	67.2	.0	.0	67.2
08 ADA Utica Avenue Station - Fulton Line	SI	.0	20.2	.0	.0	.0	20.2
09 ADA Hunts Point Av Station - Pelham Line	SI	.0	28.2	.0	.0	.0	28.2
10 ADA 23 Station - Lexington Av Line	SI	.0	.0	27.1	.0	.0	27.1
11 ADA Phase 2 at 57 St Station-Broadway Line	SI	.0	.0	37.3	.0	.0	37.3
12 ADA Ozone Pk-Lefferts Blvd Station- Liberty Line	SI	.0	.0	35.8	.0	.0	35.8
<b>Element Total 13</b>		<b>\$19.0</b>	<b>\$110.6</b>	<b>\$173.2</b>	<b>\$0</b>	<b>\$0</b>	<b>\$302.8</b>
<b>14 OTHER STATION IMPROVEMENTS</b>							
01 Station Signage 2011	NR	.0	3.9	.0	.0	.0	3.9
02 Station Railings	SGR	5.0	.0	.0	.0	.0	5.0
03 Water Condition Remedy	SGR	.0	7.2	.0	.0	.0	7.2
04 Scrubber Room Drainage 4 Locations	SGR	.0	.0	4.0	.0	.0	4.0
05 Grand Central - Access Improvement	SI	.0	.0	20.4	.0	.0	20.4
06 Times Square: North End Stairs	SI	.0	.0	23.9	.0	.0	23.9
07 Station Signage 2014	NR	.0	.0	.0	.0	4.8	4.8
08 Station Condition Survey Update	NR	.0	.0	.0	8.2	.0	8.2
09 Church Street Corridor Improvements	NR	.0	.0	.0	70.0	.0	70.0
10 Platform Repl: 45 Rd-Court House Sq Flushing Line	SGR	22.1	.0	.0	.0	.0	22.1
<b>Element Total 14</b>		<b>\$27.1</b>	<b>\$11.2</b>	<b>\$48.4</b>	<b>\$78.2</b>	<b>\$4.8</b>	<b>\$169.6</b>
<b>Category Total 604</b>		<b>\$272.4</b>	<b>\$319.2</b>	<b>\$1,131.2</b>	<b>\$349.4</b>	<b>\$214.8</b>	<b>\$2,286.9</b>

\* Represents values less than \$50,000

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# New York City Transit

# TRACK T- 605

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>02 MAINLINE TRACK REHABILITATION</b>							
01 2010 Mainline Track Replacement	NR	184.7	.0	.0	.0	.0	184.7
02 2010 Track Force Account	NR	35.0	.0	.0	.0	.0	35.0
03 2010 Welded Rail	NR	5.4	.0	.0	.0	.0	5.4
04 2011 Mainline Track Replacement	NR	.0	188.9	.0	.0	.0	188.9
05 2011 Track Force Account	NR	.0	35.0	.0	.0	.0	35.0
06 2011 Welded Rail	NR	.0	5.5	.0	.0	.0	5.5
07 2012 Mainline Track Replacement	NR	.0	.0	190.0	.0	.0	190.0
08 2012 Track Force Account	NR	.0	.0	35.0	.0	.0	35.0
09 2012 Welded Rail	NR	.0	.0	5.7	.0	.0	5.7
10 2013 Mainline Track Replacement	NR	.0	.0	.0	196.1	.0	196.1
11 2013 Track Force Account	NR	.0	.0	.0	35.0	.0	35.0
12 2013 Welded Rail	NR	.0	.0	.0	6.0	.0	6.0
13 2014 Mainline Track Replacement	NR	.0	.0	.0	.0	205.4	205.4
14 2014 Track Force Account	NR	.0	.0	.0	.0	35.0	35.0
15 2015 Mainline Track Replacement Design only	NR	.0	.0	.0	.0	2.0	2.0
16 2014 Welded Rail	NR	.0	.0	.0	.0	1.9	1.9
<b>Element Total 02</b>		<b>\$225.1</b>	<b>\$229.4</b>	<b>\$230.7</b>	<b>\$237.1</b>	<b>\$244.3</b>	<b>\$1,166.6</b>
<b>03 SWITCH REPLACEMENT</b>							
01 2010 Mainline Switch Replacement	NR	42.9	.0	.0	.0	.0	42.9
02 2011 Mainline Switch Replacement	NR	.0	44.9	.0	.0	.0	44.9
03 2012 Mainline Switch Replacement	NR	.0	.0	46.7	.0	.0	46.7
04 2013 Mainline Switch Replacement	NR	.0	.0	.0	48.9	.0	48.9
05 2014 Mainline Switch Replacement	NR	.0	.0	.0	.0	51.2	51.2
06 2015 Mainline Switch Replacement - Design only	NR	.0	.0	.0	.0	2.9	2.9
<b>Element Total 03</b>		<b>\$42.9</b>	<b>\$44.9</b>	<b>\$46.7</b>	<b>\$48.9</b>	<b>\$54.1</b>	<b>\$237.5</b>
<b>Category Total 605</b>		<b>\$268.0</b>	<b>\$274.4</b>	<b>\$277.4</b>	<b>\$286.0</b>	<b>\$298.4</b>	<b>\$1,404.1</b>

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# New York City Transit

# LINE EQUIPMENT

T- 606

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>02 TUNNEL LIGHTING</b>							
01 Tunnel Lighting:11 St Portal-Queens Plaza Line	SGR	11.0	.0	.0	.0	.0	11.0
02 Tunnel Lighting:4 Av-Church Av Culver Line	SGR	36.6	.0	.0	.0	.0	36.6
03 Tunnel Lighting:Roosevelt Av-36 St Queens Blv Line	SGR	.0	.0	62.1	.0	.0	62.1
<b>Element Total 02</b>		<b>\$47.6</b>	<b>\$0</b>	<b>\$62.1</b>	<b>\$0</b>	<b>\$0</b>	<b>\$109.7</b>
<b>03 VENTILATION FACILITIES</b>							
02 New Vent Plant Study:S.of G.Central-Lexington Line	SGR	.0	.0	2.1	.0	.0	2.1
03 New Vent Plant: Mulry Square 8th Avenue Line	SGR	.0	.0	108.5	.0	.0	108.5
04 New Vent Plant: 46 St Queens Boulevard Line	SGR	.0	.0	90.4	.0	.0	90.4
05 Replace Ventilation Controls at 26 Locations	SGR	.0	.0	.0	15.8	.0	15.8
<b>Element Total 03</b>		<b>\$0</b>	<b>\$0</b>	<b>\$201.0</b>	<b>\$15.8</b>	<b>\$0</b>	<b>\$216.8</b>
<b>04 PUMPING FACILITIES</b>							
01 Deep Wells Rehabilitation-Nostrand Av Line	SGR	.0	.0	14.6	.0	.0	14.6
02 Deep Wells Rehabilitation - Crosstown Line	SGR	13.7	.0	.0	.0	.0	13.7
03 Pumps at 4 Locations Pelham, Jerome, Lenox Lines	SGR	.0	.0	39.4	.0	.0	39.4
04 Pumps at 2 Locations - Manhattan Midtown	SGR	.0	.0	21.0	.0	.0	21.0
<b>Element Total 04</b>		<b>\$13.7</b>	<b>\$0</b>	<b>\$75.0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$88.7</b>
<b>Category Total 606</b>		<b>\$61.2</b>	<b>\$0</b>	<b>\$338.2</b>	<b>\$15.8</b>	<b>\$0</b>	<b>\$415.2</b>

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# New York City Transit

# LINE STRUCTURES

T- 607

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	Commitments (\$ in millions)					Total All Years
		2010	2011	2012	2013	2014	
<b>03 LINE STRUCTURE REHABILITATION</b>							
01 Structural Rehab / Flood Wall: 148 St Yard	NR	.0	34.3	.0	.0	.0	34.3
02 Rehabilitate Emergency Exits at 125 Locations	NR	11.3	.0	18.0	.0	.0	29.3
03 Culver Viaduct Rehabilitation Ph 3: Underside	SGR	19.5	.0	.0	.0	.0	19.5
04 Viaduct Repair: Far Rockaway/Rockaway Park Line	NR	46.6	.0	.0	.0	.0	46.6
05 Struct.Repair: Cypress Hills-130 St Jamaica Line	NR	30.6	.0	.0	.0	.0	30.6
06 Demolish Abandoned Structures	SGR	.0	.0	15.2	.0	.0	15.2
07 Overcoat Steel Bridges-Rockaway Line	SGR	6.1	.0	.0	.0	.0	6.1
08 Overcoat 15 Bridges-Brighton Line	SGR	9.3	.0	.0	.0	.0	9.3
09 Overcoat Portal-E180 St-White Plain Road Line	SGR	.0	.0	36.0	.0	.0	36.0
11 Flood Mitigation at 6 Locations in Manhattan	SI	.0	.0	45.1	.0	.0	45.1
12 Sea Beach Line Retaining Wall Rehabilitation	NR	.0	.0	42.1	.0	.0	42.1
13 Structure Repairs-Dyre Avenue Line	SGR	.0	.0	10.0	.0	.0	10.0
14 Overcoat Broadway Junction Cypress Hills-Jamaica Ln	SGR	.0	.0	28.1	.0	.0	28.1
15 Overcoat Dyckman St - 215 St Broadway-7th Av Line	SGR	.0	.0	18.8	.0	.0	18.8
16 Structure Repair: Pacific to 59 St-4th Av Line	SGR	.0	.0	.0	30.0	.0	30.0
17 Overcoat: Church Av Portal-W 8 - Culver Line	SGR	.0	.0	.0	51.4	.0	51.4
18 Overcoat: Cypress Hills-130 St on Jamaica Line	SGR	31.2	.0	.0	.0	.0	31.2
19 Overcoat:Broadway Junction-New Lots Av Canarsie Ln	SGR	.0	.0	.0	.0	25.7	25.7
20 Trackway Stabilization Franklin Avenue Shuttle	SGR	26.7	.0	.0	.0	.0	26.7
<b>Element Total 03</b>		<b>\$181.3</b>	<b>\$34.3</b>	<b>\$213.2</b>	<b>\$81.4</b>	<b>\$25.7</b>	<b>\$536.0</b>
<b>Category Total 607</b>		<b>\$181.3</b>	<b>\$34.3</b>	<b>\$213.2</b>	<b>\$81.4</b>	<b>\$25.7</b>	<b>\$536.0</b>

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# New York City Transit

# SIGNALS & COMMUNICATIONS

T- 608

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>03 SIGNAL MODERNIZATION</b>							
01 Signal Control Line Modifications Phase 4	NR	.0	25.8	.0	.0	.0	25.8
02 Messenger Brackets Brighton Line	NR	.0	.0	.0	1.4	.0	1.4
03 Interlocking Church Av Rehab/Replace.- Culver Line	SGR	246.1	.0	.0	.0	.0	246.1
04 Solid State Signal Equipment 13 Locations	NR	6.4	.0	28.5	.0	.0	34.9
05 Comm Based Train Control Flushing R142 Conversions	SGR	202.3	.0	.0	.0	.0	202.3
06 Comm Based Train Control Flushing Support/Removals	SGR	68.2	.0	96.6	.0	.0	164.8
07 Station Time Signal Enhancmts-Lexington Ln Phase 2	SI	.0	28.9	.0	21.8	.0	50.7
08 Stop Cable Replacement, Phase 4	NR	.0	22.8	.0	.0	.0	22.8
10 2 Interlockings:71 Av, Union Tpk- Queens Blvd Line	SGR	.0	.0	362.8	.0	.0	362.8
11 CBTC Signals Test Track- Culver Line Phase 2	SI	.0	84.6	.0	.0	.0	84.6
12 Signal Control Line Modifications Phase 5	NR	.0	.0	10.0	.0	.0	10.0
13 Signal Modernization 2 Interlockings-Dyre Ave Line	SGR	.0	.0	265.0	.0	.0	265.0
14 Interlocking Modern. Roosevelt Av-Queens Blvd Ln	SGR	.0	.0	115.5	.0	.0	115.5
15 Interlocking Modernization: 34 St - 6th Av Line	SGR	.0	.0	230.6	.0	.0	230.6
16 Interlocking Modernization:W. 4 St - 6th Ave Line	SGR	.0	.0	239.7	.0	.0	239.7
18 Signal Key-By Circuit Modification Phase 3	NR	.0	.0	.0	15.0	.0	15.0
19 Comm Based Train Control Queens Blvd Ln West Ph 1	SGR	.0	.0	.0	125.0	.0	125.0
21 Interlocking Jay St- 6th Avenue Line	SGR	.0	.0	.0	.0	199.6	199.6
<b>Element Total 03</b>		<b>\$523.0</b>	<b>\$162.1</b>	<b>\$1,348.7</b>	<b>\$163.2</b>	<b>\$199.6</b>	<b>\$2,396.5</b>
<b>06 COMMUNICATIONS SYSTEMS</b>							
01 Fiber Optic Cable Replacement Phase 1	SGR	.0	.0	15.0	.0	.0	15.0
02 Application Cutover to SONET Phase 1	NR	.0	.0	10.0	15.0	.0	25.0
03 Police Radio Time Domain Interference/Enhancement	SGR	10.2	.0	17.9	.0	.0	28.0
04 Public Address/Customer Info Screen at 43 Stations	SGR	65.6	10.4	.0	.0	.0	76.0
05 Communication Room Upgrade/Expansion Phase 1	SI	.0	.0	20.0	.0	.0	20.0
06 Portable Radio Unit Replacement	NR	12.1	.0	.0	.0	.0	12.1
07 Copper Cable Upgrade/Replacement Phase 2	SGR	.0	10.0	.0	.0	.0	10.0
08 VHF Radio System Upgrade/Replacement	SGR	295.5	.0	.0	.0	.0	295.5
09 Communication Room HVAC Upgrade Phase 2	SGR	20.0	.0	.0	.0	.0	20.0
10 PBX Upgrade	NR	.0	.0	14.2	.0	.0	14.2
13 Antenna Cable Upgrade/Replacement Phase 1	SGR	.0	.0	.0	16.4	.0	16.4
15 Copper Cable Upgrade/Replacement Phase 3	SGR	.0	.0	.0	10.0	.0	10.0
16 Communication Room HVAC Upgrade Phase 3	SGR	.0	.0	.0	27.6	.0	27.6
17 "B" Division Real Time Information	SI	80.0	.0	120.0	.0	.0	200.0
18 Copper Cable Replacement	SGR	9.5	.0	.0	.0	.0	9.5
19 Communications Rooms Waterproofing	SGR	16.0	.0	.0	.0	.0	16.0
<b>Element Total 06</b>		<b>\$508.9</b>	<b>\$20.4</b>	<b>\$197.1</b>	<b>\$69.0</b>	<b>\$0</b>	<b>\$795.4</b>
<b>Category Total 608</b>		<b>\$1,031.9</b>	<b>\$182.5</b>	<b>\$1,545.7</b>	<b>\$232.2</b>	<b>\$199.6</b>	<b>\$3,191.9</b>

\* Represents values less than \$50,000

Numbers may not add due to rounding



# New York City Transit

# TRACTION POWER

T- 609

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	Commitments (\$ in millions)					Total All Years
		2010	2011	2012	2013	2014	
<b>02 SUBSTATIONS</b>							
01 Rehabilitate 5 Substation Enclosures	SGR	18.3	.0	.0	.0	.0	18.3
02 Modernize 10 St Substation - Culver Line	SGR	23.2	.0	.0	.0	.0	23.2
03 Underground Substation Hatchways Ph 2	SGR	.0	15.7	.0	.0	.0	15.7
04 Cabling Central Substation - 6th Avenue Line	SGR	.0	.0	30.4	.0	.0	30.4
05 Rehabilitate 5 IRT Substation Roofs/Enclosures	SGR	.0	.0	.0	17.9	.0	17.9
06 Underground Substation Hatchways Repair/Replc Ph 3	SGR	.0	.0	.0	17.0	.0	17.0
<b>Element Total 02</b>		<b>\$41.5</b>	<b>\$15.7</b>	<b>\$30.4</b>	<b>\$34.9</b>	<b>\$0</b>	<b>\$122.5</b>
<b>04 POWER DISTRIBUTION</b>							
01 Duct Bank 141 St-148 St - Lenox Avenue Line	NR	30.5	.0	.0	.0	.0	30.5
02 Rehab Circuit Breaker House 292/293 Nostrand Av Ln	SGR	7.0	.0	.0	.0	.0	7.0
03 Replace Emergency Telephones - Pilot	NR	.0	.0	5.7	.0	.0	5.7
04 Rehab Circuit Breaker House #74/74A Jamaica Line	SGR	.0	.0	24.1	.0	.0	24.1
05 Rehab Circuit Breaker House #403 Flushing Line	SGR	.0	.0	14.0	.0	.0	14.0
06 Rehab Circuit Breaker House #146 Brighton Line	NR	.0	.0	7.1	.0	.0	7.1
07 Replace Emergency Alarms Phase 1	NR	.0	.0	.0	21.1	.0	21.1
08 Replace Negative Cables 59 St-Pacific-4th Av Line	NR	.0	.0	.0	30.6	.0	30.6
09 Rehab Circuit Breaker House #275 Clark St.Line	SGR	.0	.0	.0	.0	8.1	8.1
10 Power Cable Duct Rebuild Reserve	SGR	25.0	.0	10.0	.0	.0	35.0
<b>Element Total 04</b>		<b>\$62.5</b>	<b>\$0</b>	<b>\$60.9</b>	<b>\$51.6</b>	<b>\$8.1</b>	<b>\$183.1</b>
<b>Category Total 609</b>		<b>\$104.0</b>	<b>\$15.7</b>	<b>\$91.3</b>	<b>\$86.5</b>	<b>\$8.1</b>	<b>\$305.6</b>

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# New York City Transit

# SHOPS AND YARDS

T- 610

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>04 SHOPS AND YARDS</b>							
01 207 St Overhaul Shop Air-Conditioning Shop	SGR	.0	.0	157.8	.0	.0	157.8
02 207 St Overhaul Shop Electrical System	SGR	33.1	.0	.0	.0	.0	33.1
03 207 St Overhaul Shop Heating Plant	SGR	21.0	.0	.0	.0	.0	21.0
04 207 St Maintenance Shop DC Power Upgrade	SGR	.0	.0	19.7	.0	.0	19.7
05 East New York Maintenance Shop Ventilation	SGR	.0	8.5	.0	.0	.0	8.5
06 Rehabilitate Coney Island Power Centers #2 #3	NR	.0	14.4	.0	.0	.0	14.4
07 Car Equipment Shops - Priority Repairs	SGR	.0	8.0	45.1	.0	.0	53.1
08 Replace Heavy Shop Equipment	NR	.0	.0	12.9	.0	.0	12.9
09 Yard Lighting Jerome Pelham	SGR	.0	.0	15.0	.0	.0	15.0
10 Yard Closed-Circuit Television Phase 2	SI	.0	.0	18.0	.0	.0	18.0
11 2010 Yard Track Replacement	SGR	3.0	.0	.0	.0	.0	3.0
12 2011 Yard Track Replacement	SGR	.0	3.0	.0	.0	.0	3.0
13 2012 Yard Track Replacement	SGR	.0	.0	3.1	.0	.0	3.1
14 2013 Yard Track Replacement	SGR	.0	.0	.0	3.3	.0	3.3
15 2014 Yard Track Replacement	SGR	.0	.0	.0	.0	3.4	3.4
16 2015 Yard Track Replacement Design only	SGR	.0	.0	.0	.0	.1	.1
17 2010 Yard Switch Replacement	SGR	4.7	.0	.0	.0	.0	4.7
18 2011 Yard Switch Replacement	SGR	.0	4.8	.0	.0	.0	4.8
19 2012 Yard Switch Replacement	SGR	.0	.0	5.0	.0	.0	5.0
20 2013 Yard Switch Replacement	SGR	.0	.0	.0	5.2	.0	5.2
21 2014 Yard Switch Replacement	SGR	.0	.0	.0	.0	5.5	5.5
22 2015 Yard Switch Replacement Design only	NR	.0	.0	.0	.0	.7	.7
<b>Element Total 04</b>		<b>\$61.8</b>	<b>\$38.7</b>	<b>\$276.7</b>	<b>\$8.5</b>	<b>\$9.6</b>	<b>\$395.2</b>
<b>Category Total 610</b>		<b>\$61.8</b>	<b>\$38.7</b>	<b>\$276.7</b>	<b>\$8.5</b>	<b>\$9.6</b>	<b>\$395.2</b>

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# New York City Transit

# DEPOTS T- 612

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>03 DEPOT REHAB AND RECONSTRUCTION</b>							
02 In-house Mini-Rehabilitation at 3 Depots	NR	.0	.0	27.8	.0	.0	27.8
03 Jamaica: New Depot Phase 1	SGR	.0	.0	75.0	.0	.0	75.0
04 126 St Depot Demolition Environmental Design work	NR	.0	.0	.0	25.0	.0	25.0
05 Rehabilitation/Conversion of E New York Paint Shop	NR	.0	.0	.0	10.0	.0	10.0
<b>Element Total 03</b>		<b>\$0.0</b>	<b>\$0.0</b>	<b>\$102.8</b>	<b>\$35.0</b>	<b>\$0.0</b>	<b>\$137.8</b>
<b>04 DEPOT IMPROVEMENTS</b>							
01 Paint Booth Air System at 6 Depots	NR	.0	10.0	.0	.0	.0	10.0
02 Bus Rapid Transit - 3 Routes	SI	10.0	.0	15.0	.0	.0	25.0
03 Replace Bus Radio System: Radios/Facilities	NR	.0	.0	232.0	.0	.0	232.0
05 Intelligent Vehicle Network: 9 Depots	SI	2.6	.0	.0	.0	.0	2.6
06 10 Washers Kingsbrg, Gun Hill, Manhtvll, C.Stengel	NR	.0	.0	21.6	.0	.0	21.6
07 Property Purchase: Kingsbridge Depot	SI	.0	5.0	.0	.0	.0	5.0
08 Paint Application System: Fresh Pond, Zerega	NR	.0	.0	1.7	.0	.0	1.7
09 Tank Upgrades: Jamaica, Fresh Pond	NR	.0	.0	2.6	.0	.0	2.6
10 Upgrade Heating Ventilation Air Condition 4 Depots	NR	.0	.0	.0	.0	15.3	15.3
11 Depot Equipment Replacement	NR	.0	.0	15.9	.0	.0	15.9
12 Parking Lot Development: Jamaica & Grand Av Depots	NR	.0	.0	5.2	.0	.0	5.2
13 Replace the ADEPT System (Paratransit Scheduling)	NR	.0	.0	7.2	.0	.0	7.2
14 Automated Fuel Management System Upgrade	NR	.0	.0	.0	2.5	.0	2.5
15 Bus Lift Replacement	NR	.0	.0	.0	14.3	.0	14.3
16 8 Bus Washer: E. New York, Flatbush, Ulmer Park, Yukon	NR	.0	.0	.0	19.4	.0	19.4
18 Camera Enforcement System Pilot	SI	2.7	.0	.0	.0	.0	2.7
19 Miscellaneous Property Acquisition	NR	9.3	.0	.0	.0	.0	9.3
20 Jamaica Bus Terminal	SI	3.4	.0	.0	.0	.0	3.4
21 Department of Buses Facility at St George Terminal	SI	4.2	.0	.0	.0	.0	4.2
<b>Element Total 04</b>		<b>\$32.2</b>	<b>\$15.0</b>	<b>\$301.3</b>	<b>\$36.2</b>	<b>\$15.3</b>	<b>\$399.9</b>
<b>Category Total 612</b>		<b>\$32.2</b>	<b>\$15.0</b>	<b>\$404.1</b>	<b>\$71.2</b>	<b>\$15.3</b>	<b>\$537.7</b>

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**New York City Transit**

**SERVICE VEHICLES**

**T- 613**

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	Commitments (\$ in millions)					Total All Years
		2010	2011	2012	2013	2014	
<b>02 SERVICE VEHICLES</b>							
01 Purchase 110 Non Revenue Vehicle	NR	13.2	.0	.0	.0	.0	13.2
02 Purchase 54 Flatcars	NR	.0	.0	.0	35.4	.0	35.4
03 Purchase 8 Auger Snow-throwers	NR	9.5	.0	.0	.0	.0	9.5
04 Purchase 10 Locomotives	NR	.0	.0	40.7	.0	.0	40.7
05 Purchase 118 Non Revenue Vehicle	NR	.0	.0	13.9	.0	.0	13.9
06 Purchase 101 Non Revenue Vehicle	NR	.0	.0	.0	11.5	.0	11.5
<b>Element Total 02</b>		<b>\$22.7</b>	<b>\$0</b>	<b>\$54.6</b>	<b>\$46.9</b>	<b>\$0</b>	<b>\$124.2</b>
<b>Category Total 613</b>		<b>\$22.7</b>	<b>\$0</b>	<b>\$54.6</b>	<b>\$46.9</b>	<b>\$0</b>	<b>\$124.2</b>

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# New York City Transit

# MISC./EMERGENCY

T- 616

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>02 MISCELLANEOUS</b>							
01 Capital Revolving Fund - 2010		5.0	.0	.0	.0	.0	5.0
02 Capital Revolving Fund - 2011		.0	5.0	.0	.0	.0	5.0
03 Capital Revolving Fund - 2012		.0	.0	5.0	.0	.0	5.0
04 Capital Revolving Fund - 2013		.0	.0	.0	5.0	.0	5.0
05 Capital Revolving Fund - 2014		.0	.0	.0	.0	5.0	5.0
06 Insurance Deductible		5.0	.0	5.0	.0	5.0	15.0
07 All Agency Protective Liability Insurance Premiums		1.4	1.4	1.4	1.4	1.4	7.1
<b>Element Total 02</b>		<b>\$11.4</b>	<b>\$6.4</b>	<b>\$11.4</b>	<b>\$6.4</b>	<b>\$11.4</b>	<b>\$47.1</b>
<b>04 MANAGEMENT INFORMATION SYSTEMS</b>							
01 Cap Proj Info Central System Technology Conversion	NR	.0	.0	2.5	.0	.0	2.5
02 NYCT-Wide Storage Area Network/Disaster Recovery	SI	.0	.0	18.1	.0	.0	18.1
03 Enterprise Security Network Infrastructure	SI	10.4	.0	.0	.0	.0	10.4
04 WAN/LAN Equipment Replacement Phase 1	NR	.0	.0	9.6	.0	.0	9.6
<b>Element Total 04</b>		<b>\$10.4</b>	<b>\$0</b>	<b>\$30.2</b>	<b>\$0</b>	<b>\$0</b>	<b>\$40.6</b>
<b>05 ENGINEERING SERVICES</b>							
01 Boring Services Brooklyn, Queens, Staten Island	NR	2.3	.0	.0	.0	.0	2.3
02 Boring Services Manhattan, Bronx	NR	1.9	.0	.0	.0	.0	1.9
03 Test Pits Contract	NR	4.9	.0	.0	.0	.0	4.9
04 MTA Independent Engineering Consultant	NR	3.9	3.9	3.9	3.9	3.9	19.5
05 General Order Support Traffic Checkers	NR	12.0	.0	18.0	.0	.0	30.0
06 2010 Value Engineering Services	NR	2.0	.0	.0	.0	.0	2.0
07 Engineering Services	NR	3.6	3.6	3.6	3.6	3.6	18.0
08 Construction Support Services Reserve		2.3	.0	2.5	.0	.0	4.8
09 Scope Development		8.0	8.0	10.0	12.0	12.0	50.0
10 Design Reserve		.0	40.8	80.5	.0	.0	121.2
11 Concrete Batch Plant 2012	NR	.0	.0	1.3	.0	.0	1.3
12 Concrete Cylinder Testing 2012	NR	.0	.0	.8	.0	.0	.8
13 Boring Services: Manhattan, Bronx	NR	.0	.0	.0	2.0	.0	2.0
14 Boring Services: Brooklyn, Queens, Staten Island	NR	.0	.0	.0	1.7	.0	1.7
15 Test Pits Contract	NR	.0	.0	.0	.0	5.6	5.6
16 Mentoring Program Administration		.0	1.6	1.6	1.6	1.7	6.5
<b>Element Total 05</b>		<b>\$41.0</b>	<b>\$57.9</b>	<b>\$122.1</b>	<b>\$24.8</b>	<b>\$26.8</b>	<b>\$272.5</b>

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# New York City Transit

# MISC./EMERGENCY

T- 616

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>06 ENVIRONMENTAL AND SAFETY</b>							
01 Asbestos Abatement: Priority 7	NR	.0	5.0	.0	.0	.0	5.0
02 Asbestos Removal	NR	8.3	.0	.0	.0	.0	8.3
03 Asbestos / Lead Air Monitoring	NR	7.2	.0	.0	.0	.0	7.2
04 Asbestos Disposal	NR	.0	2.5	.0	.0	.0	2.5
05 Sprinkler Alarm Systems at 12 Employee Facilities	NR	.0	20.0	.0	10.0	.0	30.0
06 Fire Alarm 207 St Overhaul Shop	NR	.0	.0	11.0	.0	.0	11.0
07 Groundwater, Soil Remediation	NR	.0	6.5	.0	.0	.0	6.5
08 Consult Svcs Underground Storage Tank Remediation	NR	.0	6.0	.0	.0	.0	6.0
09 Asbestos Removal	NR	.0	.0	.0	9.7	.0	9.7
10 Asbestos / Lead Air Monitoring	NR	.0	.0	.0	9.1	.0	9.1
11 Replace Fire Alarm Systems at 16 Locations	NR	.0	.0	.0	.0	40.8	40.8
12 Consult Svcs Underground Storage Tank Remediation	NR	.0	.0	.0	.0	6.5	6.5
<b>Element Total 06</b>		<b>\$15.5</b>	<b>\$40.0</b>	<b>\$11.0</b>	<b>\$28.8</b>	<b>\$47.3</b>	<b>\$142.6</b>
<b>07 EMPLOYEE FACILITIES</b>							
02 Disposition of Jay Street Systems Ph 1	NR	.0	.0	10.0	.0	.0	10.0
03 RTO Facilities Hardening Ph 1	NR	4.6	.0	.0	.0	.0	4.6
04 Employee Facility Rehab - Jay Street Fulton Line	SGR	.0	.0	.0	12.3	.0	12.3
05 Employee Facility Rehab:RTO Chambers St Nassau Ln	SGR	.0	.0	7.1	.0	.0	7.1
06 Maspeth Warehouse Repairs	NR	.0	.0	10.0	.0	.0	10.0
07 Perimeter Hardening Rail Contrl Ctr/130 Livingston	NR	12.0	.0	.0	.0	.0	12.0
08 Livingston Plaza Emergency Generator Upgrade	SGR	.0	.0	.0	10.4	.0	10.4
09 Facility Roof Repair/Replacement Ph 3	SGR	.0	.0	13.7	.0	.0	13.7
10 Employee Facility Rehab W.4th St 8 Ave Line	SGR	.0	.0	4.1	.0	.0	4.1
11 Automated Fare Control Facility 8 Av Sea Beach Ln	SGR	.0	.0	2.0	.0	.0	2.0
12 Upgrade Power: Rail and Power Control Center	NR	.0	.0	23.1	.0	.0	23.1
13 In-house:Employee Facility Rehab:207 St- 8th Av Ln	SGR	6.7	.0	.0	.0	.0	6.7
15 Employee Facility Rehab 9 Locations-Crosstown Line	SGR	.0	.0	.0	7.5	.0	7.5
16 8 Automated Fare Control Office Upgrade 5 Depots	SGR	.0	.0	3.0	.0	.0	3.0
17 Livingston Plaza Repairs	NR	.0	.0	.0	23.6	.0	23.6
18 Replace Currency Counters	NR	.0	.0	.0	3.5	.0	3.5
19 Facility Roof Repair/Replacement Phase 4	SGR	.0	.0	.0	14.9	.0	14.9
20 RTO Facilities Hardening Ph 2	NR	.0	.0	.0	.0	10.0	10.0
<b>Element Total 07</b>		<b>\$23.3</b>	<b>\$0</b>	<b>\$73.0</b>	<b>\$72.2</b>	<b>\$10.0</b>	<b>\$178.4</b>
<b>Category Total 616</b>		<b>\$101.5</b>	<b>\$104.3</b>	<b>\$247.7</b>	<b>\$132.2</b>	<b>\$95.5</b>	<b>\$681.2</b>
<b>TOTAL PROGRAM</b>		<b>\$3,511.9</b>	<b>\$1,479.2</b>	<b>\$5,198.3</b>	<b>\$1,626.9</b>	<b>\$867.1</b>	<b>\$12,683.3</b>

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# Staten Island Railway

# STATEN ISLAND RAILWAY

S- 607

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 SIR: MISCELLANEOUS</b>							
01 Staten Island Railway: Station Structural Repairs	NR	13.5	.0	.0	.0	.0	13.5
02 Staten Island Railway: Rehab. 8 Bridges,1 Culvert	NR	.0	28.4	.0	.0	.0	28.4
03 St George Track and Signal Replacement Phase I	SGR	.0	.0	15.0	.0	.0	15.0
04 Car Investments/Retrofits	NR	.0	.0	20.0	.0	.0	20.0
05 New Substation: Huguenot	SI	.0	.0	31.5	.0	.0	31.5
06 Rehabilitation of Circuit Breaker Houses	NR	.0	.0	.0	11.8	.0	11.8
07 Composite Contact Rail	NR	.0	.0	.0	14.2	.0	14.2
08 Staten Island Railway: New Station-Arthur Kill	SI	.0	.0	23.3	.0	.0	23.3
<b>Element Total 01</b>		<b>\$13.5</b>	<b>\$28.4</b>	<b>\$89.8</b>	<b>\$26.0</b>	<b>\$0</b>	<b>\$157.7</b>
<b>Category Total 607</b>		<b>\$13.5</b>	<b>\$28.4</b>	<b>\$89.8</b>	<b>\$26.0</b>	<b>\$0</b>	<b>\$157.7</b>
<b>TOTAL PROGRAM</b>		<b>\$13.5</b>	<b>\$28.4</b>	<b>\$89.8</b>	<b>\$26.0</b>	<b>\$0</b>	<b>\$157.7</b>

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# NYCT AGENCY SUMMARY

Commitments  
(\$ in millions)

AGENCY	2010	2011	2012	2013	2014	Total All Years
TOTAL NYCT PROGRAM	\$3,511.9	\$1,479.2	\$5,198.3	\$1,626.9	\$867.1	\$12,683.3
TOTAL SIR PROGRAM	\$13.5	\$28.4	\$89.8	\$26.0	\$0	\$157.7
TOTAL	\$3,525.4	\$1,507.6	\$5,288.1	\$1,652.9	\$867.1	\$12,841.0
TOTAL MTA CAPITAL PROGRAM	\$3,525.4	\$1,507.6	\$5,288.1	\$1,652.9	\$867.1	\$12,841.0

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# Long Island Rail Road

# ROLLING STOCK

L - 601

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 REVENUE EQUIPMENT</b>							
MA M-9 Rolling Stock Procurement - 84 cars	NR	.0	355.9	.0	.0	.0	355.9
MB Spec. Development- Alternative Diesel Equipment	SI	.0	2.8	.0	.0	.0	2.8
MD Alternative Diesel Equipment	SI	.0	.0	.0	78.0	.0	78.0
<b>Element Total 01</b>		<b>\$0</b>	<b>\$358.7</b>	<b>\$0</b>	<b>\$78.0</b>	<b>\$0</b>	<b>\$436.7</b>
<b>Category Total 601</b>		<b>\$0</b>	<b>\$358.7</b>	<b>\$0</b>	<b>\$78.0</b>	<b>\$0</b>	<b>\$436.7</b>

\* Represents values less than \$50,000

Numbers may not add due to rounding

# Long Island Rail Road

# STATIONS L - 602

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>04 STATION AND BUILDINGS</b>							
UB Massapequa Station Platform Replacement	NR	2.0	.0	.0	18.3	.0	20.3
UC Wantagh Station Platform Replacement	NR	2.1	.0	19.1	.0	.0	21.2
UE East Side Access / Grand Central Terminal Support	SI	.0	.0	.0	.0	15.5	15.5
UF Mets / Willets Point Station Renovation	NR	.0	.0	.0	6.2	.0	6.2
UH Elevator Replacement Program	NR	.5	.0	4.5	.0	.0	5.0
UK Smart Card Improvements	SI	.0	2.0	8.0	.0	.0	10.0
<b>Element Total 04</b>		<b>\$4.6</b>	<b>\$2.0</b>	<b>\$31.6</b>	<b>\$24.5</b>	<b>\$15.5</b>	<b>\$78.2</b>
<b>05 PARKING</b>							
U1 Intermodal Facility Development	SI	.0	.0	6.5	43.5	.0	50.0
<b>Element Total 05</b>		<b>\$0</b>	<b>\$0</b>	<b>\$6.5</b>	<b>\$43.5</b>	<b>\$0</b>	<b>\$50.0</b>
<b>06 PENN STATION</b>							
VL Penn Station Heating, Ventilation & Air Conditioning	NR	1.1	.0	.0	9.9	.0	11.0
<b>Element Total 06</b>		<b>\$1.1</b>	<b>\$0</b>	<b>\$0</b>	<b>\$9.9</b>	<b>\$0</b>	<b>\$11.0</b>
<b>Category Total 602</b>		<b>\$5.7</b>	<b>\$2.0</b>	<b>\$38.1</b>	<b>\$77.9</b>	<b>\$15.5</b>	<b>\$139.2</b>

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# Long Island Rail Road

# TRACK L - 603

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 ANNUAL TRACK REHAB PROGRAM</b>							
TA 2010 Annual Track Program	NR	57.8	.0	.0	.0	.0	57.8
TB 2011 Annual Track Program	NR	.0	52.0	.0	.0	.0	52.0
TC 2012 Annual Track Program	NR	.0	.0	59.5	.0	.0	59.5
TD 2013 Annual Track Program	NR	.0	.0	.0	59.5	.0	59.5
TE 2014 Annual Track Program	NR	.0	.0	.0	.0	57.1	57.1
TF Construction Equipment	NR	4.8	.0	1.7	.5	.0	7.0
TG Atlantic Branch Half ties	NR	2.5	.0	37.5	.0	.0	40.0
TH Merrick / Bellmore Direct Fixation	NR	1.0	.0	35.8	.0	.0	36.8
TJ Right of Way - Culverts	NR	.5	.5	.5	.5	.5	2.5
TK Right of Way - Drainage Control	NR	.7	.7	.7	.7	.7	3.5
TL Right of Way - Fencing	SI	1.6	1.6	1.6	1.6	1.6	8.0
TN Right of Way - Track Stability / Retaining Walls	NR	.3	.2	.2	.2	.2	1.1
<b>Element Total 01</b>		<b>\$69.2</b>	<b>\$55.0</b>	<b>\$137.5</b>	<b>\$63.0</b>	<b>\$60.1</b>	<b>\$384.8</b>
<b>04 OTHER TRACK IMPROVEMENTS</b>							
TU Jamaica Capacity Improvements - Phase One	SI	.0	40.0	360.0	.0	.0	400.0
TV Massapequa Pocket Track	SI	2.0	.0	17.6	.0	.0	19.6
TW Extend Great Neck Pocket Track	SI	.0	20.0	6.1	.0	.0	26.1
TX Second Track Farmingdale to Ronkonkoma Design	SI	.0	6.9	.0	23.1	.0	30.0
<b>Element Total 04</b>		<b>\$2.0</b>	<b>\$66.9</b>	<b>\$383.7</b>	<b>\$23.1</b>	<b>\$0.0</b>	<b>\$475.7</b>
<b>Category Total 603</b>		<b>\$71.2</b>	<b>\$121.9</b>	<b>\$521.2</b>	<b>\$86.1</b>	<b>\$60.1</b>	<b>\$860.5</b>

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# Long Island Rail Road

# LINE STRUCTURES

L - 604

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 BRIDGES</b>							
BB Bridge Program	SGR	.0	.0	10.0	8.0	6.6	24.6
BC Colonial Road Highway Bridge Replacement	SGR	.0	10.0	.0	.0	.0	10.0
BD 150th Street - Jamaica & Broadway /Port Washington	SGR	.0	.0	29.7	.0	.0	29.7
BE Construct Three Montauk Branch Bridges	SGR	26.2	.0	.0	.0	.0	26.2
BF Atlantic Avenue Viaduct - Phase lib	SGR	66.7	.0	.0	.0	.0	66.7
BG Bridge Painting Program	SGR	.0	2.0	2.0	1.2	.0	5.2
BH Woodhaven Boulevard Bridge	SGR	10.2	.0	.0	.0	.0	10.2
<b>Element Total 01</b>		<b>\$103.1</b>	<b>\$12.0</b>	<b>\$41.7</b>	<b>\$9.2</b>	<b>\$6.6</b>	<b>\$172.6</b>
<b>02 TUNNELS</b>							
BP East River Tunnel Fire and Life Safety	NR	5.4	.0	.0	11.2	.0	16.6
<b>Element Total 02</b>		<b>\$5.4</b>	<b>\$0</b>	<b>\$0</b>	<b>\$11.2</b>	<b>\$0</b>	<b>\$16.6</b>
<b>Category Total 604</b>		<b>\$108.5</b>	<b>\$12.0</b>	<b>\$41.7</b>	<b>\$20.4</b>	<b>\$6.6</b>	<b>\$189.2</b>

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# Long Island Rail Road

# COMMUNICATIONS AND SIGNALS

L - 605

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 COMMUNICATIONS IMPROVEMENTS</b>							
L1 Fiber Optic Network	NR	.0	.0	10.0	.0	.0	10.0
L2 PrivateBranchExchange-Wayside Phone Rplcmt Phase 1	NR	2.1	2.1	2.1	2.1	2.1	10.5
L3 Communication Pole / Copper Plant Replacement	NR	1.4	1.4	1.4	1.4	1.4	7.0
L4 Radio Coverage Improvements	SI	.5	2.0	2.0	2.9	2.9	10.3
L6 PennStation Radio Retrofit/EastRiverTunnel Antenna	NR	1.3	5.2	.0	.0	.0	6.5
L7 Atlantic Avenue Tunnel Cable Replacement	NR	.0	1.7	1.7	1.7	.0	5.1
<b>Element Total 01</b>		<b>\$5.3</b>	<b>\$12.4</b>	<b>\$17.2</b>	<b>\$8.1</b>	<b>\$6.4</b>	<b>\$49.4</b>
<b>02 SIGNAL IMPROVEMENTS</b>							
LA Positive Train Control (PTC)	SI	9.3	22.3	155.7	77.2	.0	264.5
LB Signal Normal Replacement Program	NR	5.0	2.5	2.5	2.5	2.5	15.0
LC Speonk to Montauk Signalization	SI	20.0	29.9	.0	.0	.0	49.9
LD Babylon Interlocking Renewal	NR	.0	7.7	14.7	54.1	.0	76.5
LE Supervisory Control & Remote Terminal Unit	NR	1.9	1.9	1.9	1.8	1.8	9.3
LF Centralized Train Control	SI	.0	10.0	10.0	10.0	.0	30.0
<b>Element Total 02</b>		<b>\$36.2</b>	<b>\$74.3</b>	<b>\$184.8</b>	<b>\$145.6</b>	<b>\$4.3</b>	<b>\$445.2</b>
<b>Category Total 605</b>		<b>\$41.5</b>	<b>\$86.7</b>	<b>\$202.0</b>	<b>\$153.7</b>	<b>\$10.7</b>	<b>\$494.6</b>

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# Long Island Rail Road

# SHOPS AND YARDS

L - 606

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 SHOPS AND YARDS</b>							
YA Shop Reconfig& Reliability Centered Maint Infrastr	NR	10.4	.0	.0	.0	.0	10.4
YB Hillside Facility Roof Renewal	NR	.0	.0	.0	6.0	.0	6.0
YC Hillside Maintenance Facility	NR	.0	2.5	.0	.0	.0	2.5
YE Diesel Locomotive Facility Investments	NR	.0	.0	5.0	.0	.0	5.0
YK Montauk Yard Improvements	SI	.0	.8	.0	7.6	.0	8.4
YL Port Washington Yard Reconfiguration	SI	1.5	1.5	9.1	.0	.0	12.1
YN New Mid Suffolk Electric Yard	SI	.0	56.2	23.0	.0	.0	79.2
<b>Element Total 01</b>		<b>\$11.9</b>	<b>\$61.0</b>	<b>\$37.1</b>	<b>\$13.6</b>	<b>\$0</b>	<b>\$123.6</b>
<b>04 EMPLOYEE FACILITIES</b>							
YT Employee Facilities Renewal	NR	.0	2.5	2.5	2.5	2.5	10.0
<b>Element Total 04</b>		<b>\$0</b>	<b>\$2.5</b>	<b>\$2.5</b>	<b>\$2.5</b>	<b>\$2.5</b>	<b>\$10.0</b>
<b>Category Total 606</b>		<b>\$11.9</b>	<b>\$63.5</b>	<b>\$39.6</b>	<b>\$16.1</b>	<b>\$2.5</b>	<b>\$133.6</b>

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# Long Island Rail Road

# POWER L - 607

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 POWER</b>							
AA Substation Replacements	NR	10.0	12.5	37.5	.0	.0	60.0
AB Substation Battery Replacement	NR	.8	.0	.0	.0	.0	.8
AC Signal Power Motor Generator Replacement	NR	.2	1.8	.0	.0	.0	2.0
AD Substation Pilot Wire & Relay Replacement	NR	2.0	.0	.0	.0	.0	2.0
AE 3rd Rail - 2000 Million Cubic Meter Cable	NR	2.5	.0	.0	.0	.0	2.5
AF 3rd Rail - Disconnect Switches	NR	1.0	.0	.0	.0	.0	1.0
AG 3rd Rail - Protection Board	NR	3.2	2.0	2.0	2.0	.0	9.2
AH 3rd Rail - Aluminum Rail	NR	5.6	.0	5.3	.0	.0	10.9
AJ Atlantic Avenue Tunnel Lighting	NR	.0	.0	.7	.0	6.3	7.0
AK Signal Power Line Replacement	NR	2.0	1.0	.0	.0	.0	3.0
AL Power Pole Line Replacement	NR	3.0	.0	.0	.0	.0	3.0
AM New Substations	SI	.0	.0	5.0	17.1	.0	22.1
AN 3rd Rail Feeder Cable Upgrade	NR	1.5	1.0	.0	.0	.0	2.5
AP Negative Reactor Upgrade	NR	2.0	2.0	.0	.0	.0	4.0
<b>Element Total 01</b>		<b>\$33.8</b>	<b>\$20.3</b>	<b>\$50.5</b>	<b>\$19.1</b>	<b>\$6.3</b>	<b>\$130.0</b>
<b>Category Total 607</b>		<b>\$33.8</b>	<b>\$20.3</b>	<b>\$50.5</b>	<b>\$19.1</b>	<b>\$6.3</b>	<b>\$130.0</b>

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# Long Island Rail Road

# MISCELLANEOUS

L - 609

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>04 MISCELLANEOUS</b>							
N3 Chlordane Remediation - 20 Substations	NR	.0	.0	.8	7.7	.0	8.5
N4 Yaphank Landfill Remediation	NR	.9	8.2	.0	.0	.0	9.1
N6 Smithtown Viaduct Remediation	NR	.0	.0	.3	2.9	.0	3.2
NA Program Administration		25.0	26.1	26.9	28.0	28.0	134.0
NB Program Development		.0	.0	5.5	1.4	1.4	8.3
NC Insurance		.2	.2	.2	.2	.2	1.0
ND Independent Engineer		.9	.9	.9	.8	.8	4.3
NE Mentoring Program Administration		.6	.3	.3	.3	.3	1.8
<b>Element Total 04</b>		<b>\$27.6</b>	<b>\$35.7</b>	<b>\$34.9</b>	<b>\$41.3</b>	<b>\$30.7</b>	<b>\$170.2</b>
<b>Category Total 609</b>		<b>\$27.6</b>	<b>\$35.7</b>	<b>\$34.9</b>	<b>\$41.3</b>	<b>\$30.7</b>	<b>\$170.2</b>
<b>TOTAL PROGRAM</b>		<b>\$300.2</b>	<b>\$700.8</b>	<b>\$928.0</b>	<b>\$492.6</b>	<b>\$132.4</b>	<b>\$2,554.0</b>

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# Metro-North Railroad

# ROLLING STOCK

M- 601

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 REVENUE EQUIPMENT</b>							
01 EMU Replacement / Repair	NR	25.0	.0	.0	.0	.0	25.0
02 M-8 New Haven Line Purchase	NR	220.5	.0	.0	.0	.0	220.5
03 Shuttle / Switcher Locomotives	NR	.0	.0	13.1	.0	.0	13.1
<b>Element Total 01</b>		<b>\$245.5</b>	<b>\$0</b>	<b>\$13.1</b>	<b>\$0</b>	<b>\$0</b>	<b>\$258.6</b>
<b>Category Total 601</b>		<b>\$245.5</b>	<b>\$0</b>	<b>\$13.1</b>	<b>\$0</b>	<b>\$0</b>	<b>\$258.6</b>

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# Metro-North Railroad

# STATIONS

M- 602

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 GRAND CENTRAL TERMINAL</b>							
01 GCT Trainshed / Park Avenue Tunnel Structure	NR	7.7	.8	16.2	4.2	1.1	30.0
02 Park Avenue Tunnel Renewal	NR	.0	7.5	.0	.0	.0	7.5
04 GCT Trainshed Track Structure	NR	.0	.0	3.0	.0	.0	3.0
05 GCT Leaks Remediation	SGR	.0	.0	13.0	.0	.0	13.0
06 GCT Elevator Renewal - Phase 4	NR	.0	.0	1.5	6.0	.0	7.5
07 GCT Platform Improvements	NR	.0	.0	3.1	.0	.0	3.1
08 GCT Utilities	NR	.0	.0	2.0	25.4	.0	27.4
09 Customer Communications - GCT	NR	.0	.0	2.0	.0	.0	2.0
10 GCT Recycling Facility	SI	.0	.0	.0	.0	7.5	7.5
<b>Element Total 01</b>		<b>\$7.7</b>	<b>\$8.3</b>	<b>\$40.9</b>	<b>\$35.6</b>	<b>\$8.6</b>	<b>\$101.1</b>
<b>02 OUTLYING STATIONS</b>							
01 Poughkeepsie Station Building	NR	.0	.0	1.0	5.0	.0	6.0
02 Fordham Station Improvements	NR	.0	13.0	.0	.0	.0	13.0
03 Harlem Line Station Renewal	NR	.0	.0	2.7	24.0	.0	26.8
04 Station Building Renewal / Net Lease	NR	.0	.0	1.0	3.9	.0	4.9
06 New Haven Line Stations - Phase II	NR	.0	34.9	.0	.0	.0	34.9
07 Smart Card Improvements	SI	4.4	.0	4.7	.0	.0	9.1
08 Customer Communication / Connectivity Improvements	NR	5.4	.0	55.1	.0	.0	60.5
<b>Element Total 02</b>		<b>\$9.8</b>	<b>\$47.9</b>	<b>\$64.6</b>	<b>\$33.0</b>	<b>\$0.0</b>	<b>\$155.2</b>
<b>03 PARKING</b>							
01 Parking Renewal	SGR	.0	.0	2.5	.0	.0	2.5
02 Strategic Facilities	SI	.4	2.3	11.1	27.6	4.1	45.5
<b>Element Total 03</b>		<b>\$0.4</b>	<b>\$2.3</b>	<b>\$13.6</b>	<b>\$27.6</b>	<b>\$4.1</b>	<b>\$48.0</b>
<b>Category Total 602</b>		<b>\$17.9</b>	<b>\$58.5</b>	<b>\$119.1</b>	<b>\$96.2</b>	<b>\$12.7</b>	<b>\$304.2</b>

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# Metro-North Railroad

# TRACK AND STRUCTURES

M- 603

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 TRACK</b>							
01 Cyclical Track Program	NR	13.0	13.0	13.0	13.6	14.3	66.9
02 Turnouts: Mainline / High Speed	NR	11.6	14.6	20.1	16.0	7.6	69.8
03 GCT Turnout / Switch Renewal	NR	2.8	1.2	4.0	2.8	2.9	13.6
04 Turnouts: Yards / Sidings	NR	1.4	.8	.6	.8	.8	4.4
05 Maintenance of Way Equipment / Rolling Stock	NR	2.0	2.0	2.0	2.0	2.0	10.0
06 Cyclical Replacement of Insulated Joints	NR	.5	.5	.5	.5	.5	2.5
07 Rock Slope Remediation	SGR	2.0	.0	5.0	.0	.0	7.0
08 Drainage and Undercutting	NR	.0	.0	10.0	.0	.0	10.0
09 Rebuild Retaining Walls	NR	1.5	3.5	.0	.0	.0	5.0
<b>Element Total 01</b>		<b>\$34.8</b>	<b>\$35.6</b>	<b>\$55.1</b>	<b>\$35.6</b>	<b>\$28.1</b>	<b>\$189.2</b>
<b>02 STRUCTURES</b>							
01 Replace Timbers Undergrade Bridges	NR	.9	.5	1.0	.7	.7	3.7
02 Renew / Replace Railtop Culverts	NR	1.2	.6	.6	.6	.6	3.6
03 Right-of-Way Fencing	NR	.2	.2	.2	.2	.2	.8
04 DC Substation / Signal House	NR	.4	.4	.4	.4	.4	1.8
05 Bridge Walkways Installation	NR	.1	.4	.4	.5	.5	1.9
06 Remove Obsolete Facilities	NR	.5	.5	.6	.7	.7	3.0
07 Specialized Structures Equipment	NR	.9	.0	.0	.0	.0	.9
09 Employee Welfare and Storage Facilities	NR	1.0	2.0	2.5	2.5	2.0	10.0
10 Replace / Repair Undergrade Bridges	SGR	1.7	5.8	11.2	15.5	2.3	36.5
11 Harlem River Lift Bridge Cable	NR	.7	9.4	.0	.2	.2	10.5
12 Overhead Bridge Program - East of Hudson	SGR	.9	2.0	4.5	2.7	7.0	17.1
13 Catenary Painting/Rehabilitate Catenary Structures	NR	.5	.0	3.5	.0	.0	4.0
14 Park Avenue Viaduct Direct Fixation	NR	.0	1.8	.0	.0	.0	1.8
<b>Element Total 02</b>		<b>\$8.9</b>	<b>\$23.5</b>	<b>\$24.8</b>	<b>\$23.8</b>	<b>\$14.5</b>	<b>\$95.5</b>
<b>03 WEST OF HUDSON INFRASTRUCTURE</b>							
01 West of Hudson Track Program	NR	4.2	4.2	4.3	4.0	4.5	21.2
02 West of Hudson Improvements	NR	.8	.8	.8	.8	.8	3.8
03 Moodna / Woodbury Viaducts	SGR	6.5	.0	3.5	.0	.0	10.0
04 Otisville Tunnel Renewal	SGR	.0	.0	3.0	.0	.0	3.0
05 West of Hudson Replace / Renew Undergrade Bridges	SGR	1.4	1.0	2.0	5.2	2.4	11.9
<b>Element Total 03</b>		<b>\$12.8</b>	<b>\$6.0</b>	<b>\$13.6</b>	<b>\$9.9</b>	<b>\$7.7</b>	<b>\$49.9</b>
<b>Category Total 603</b>		<b>\$56.4</b>	<b>\$65.1</b>	<b>\$93.5</b>	<b>\$69.3</b>	<b>\$50.3</b>	<b>\$334.6</b>

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# Metro-North Railroad

# COMMUNICATIONS AND SIGNALS

M- 604

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 COMMUNICATIONS AND SIGNALS</b>							
01 Positive Train Control	SI	9.9	17.8	89.6	8.9	60.9	187.1
02 West of Hudson Signal Improvements	SI	.0	67.6	.0	.0	.0	67.6
03 Replace Fiber / Communication & Signals Cables	NR	1.0	.0	3.9	3.9	.0	8.8
04 Replace Field Code System - Mott Haven	NR	.4	.5	.5	.4	.0	1.8
05 Crossing Upgrades - Phase 2	NR	.5	.5	.0	.0	.0	1.0
06 Centralized Train Control /SCADA Intrusion Testing	NR	.4	.0	.4	.0	.0	.7
07 Refurbish / Replace Electrical Switch Machine	NR	.1	.1	.1	.1	.1	.5
08 Design / Replace Harlem and Hudson Track Relays	NR	.4	.2	.2	.2	.2	1.2
09 Replace High Cycle Relays	NR	.1	.1	.1	.1	.1	.6
10 Communication & Signals Maintenance Mgmt System	NR	.4	.5	.0	.0	.0	.9
11 PBX Equipment Upgrade	NR	.4	1.1	1.5	.0	.0	2.9
12 Mobile / Portable Radios	NR	.0	.0	.1	.1	.0	.2
13 Rolling Stock Radios and PA Equipment	NR	.0	.1	.1	.1	.0	.3
14 Radio Base Station Replacement	NR	.3	.5	.0	.0	.0	.8
16 Radio Frequency Rebanding	NR	.5	1.6	1.6	.0	.0	3.7
<b>Element Total 01</b>		<b>\$14.3</b>	<b>\$90.5</b>	<b>\$98.1</b>	<b>\$13.7</b>	<b>\$61.3</b>	<b>\$278.0</b>
<b>Category Total 604</b>		<b>\$14.3</b>	<b>\$90.5</b>	<b>\$98.1</b>	<b>\$13.7</b>	<b>\$61.3</b>	<b>\$278.0</b>

\* Represents values less than \$50,000

Numbers may not add due to rounding

# Metro-North Railroad

# POWER M- 605

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 POWER</b>							
01 Substation Bridge 23 - Construction	NR	.0	28.0	.0	.0	.0	28.0
02 Renewal Harlem & Hudson Substations - Construction	NR	8.0	.0	.0	.0	.0	8.0
03 Harlem & Hudson Lines Power Improvements	SGR	.0	.0	33.7	2.0	.0	35.7
04 Replace Motor Alternators	NR	.0	.0	1.0	7.0	.0	8.0
05 Replace Substation Batteries	NR	.2	.2	.2	.2	.2	1.0
06 Park Avenue Tunnel and Viaduct Alarm	NR	.0	.0	1.0	.0	.0	1.0
07 Harlem River Lift Bridge Breaker Houses / Controls	NR	.0	13.6	.0	.0	.0	13.6
08 Replace 3rd Rail Sectionalizing Switches	NR	1.0	.3	.0	.0	.0	1.3
09 Replace 3rd Rail Brackets - Park Avenue Tunnel	NR	5.1	.9	.0	.0	.0	6.0
<b>Element Total 01</b>		<b>\$14.3</b>	<b>\$43.0</b>	<b>\$35.9</b>	<b>\$9.2</b>	<b>\$2</b>	<b>\$102.6</b>
<b>Category Total 605</b>		<b>\$14.3</b>	<b>\$43.0</b>	<b>\$35.9</b>	<b>\$9.2</b>	<b>\$2</b>	<b>\$102.6</b>

\* Represents values less than \$50,000

Numbers may not add due to rounding

# Metro-North Railroad

# SHOPS AND YARDS

M- 606

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 SHOPS AND YARDS</b>							
01 Harmon Shop Improvements	SGR	25.5	.0	264.8	.0	.0	290.3
02 Wassaic Yard Expansion - D/C	SI	.0	.0	3.0	.0	.0	3.0
03 Other Shops / Yards Renewal	NR	5.0	4.3	10.9	3.9	.0	24.1
04 Port Jervis Yard Expansion	SI	.0	.0	7.3	.0	.0	7.3
<b>Element Total 01</b>		<b>\$30.5</b>	<b>\$4.3</b>	<b>\$286.0</b>	<b>\$3.9</b>	<b>\$0</b>	<b>\$324.7</b>
<b>Category Total 606</b>		<b>\$30.5</b>	<b>\$4.3</b>	<b>\$286.0</b>	<b>\$3.9</b>	<b>\$0</b>	<b>\$324.7</b>

\* Represents values less than \$50,000

Numbers may not add due to rounding

# Metro-North Railroad

# MISCELLANEOUS

M- 608

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 MISCELLANEOUS</b>							
01 Systemwide Lead / Asbestos Abatement	SGR	1.0	.0	2.0	1.0	1.0	5.0
02 Environmental Remediation	SGR	.4	.0	.8	.4	.4	2.0
03 Railroad Protective Liability		.8	.8	.8	.8	.9	4.2
04 Independent Engineer		1.5	1.3	1.3	1.3	1.4	6.7
05 Mentoring Program Administration		.0	.3	.3	.3	.3	1.0
06 Program Administration		8.0	8.5	9.0	9.5	10.0	45.0
07 Program Scope Development		2.3	2.3	2.3	2.3	2.3	11.6
08 OCIP - Insurance		.0	.0	19.9	.0	.0	19.9
09 Systemwide Security Initiatives	SI	.0	.0	5.0	.0	.0	5.0
<b>Element Total 01</b>		<b>\$14.1</b>	<b>\$13.2</b>	<b>\$41.4</b>	<b>\$15.6</b>	<b>\$16.2</b>	<b>\$100.3</b>
<b>Category Total 608</b>		<b>\$14.1</b>	<b>\$13.2</b>	<b>\$41.4</b>	<b>\$15.6</b>	<b>\$16.2</b>	<b>\$100.3</b>
<b>TOTAL PROGRAM</b>		<b>\$392.9</b>	<b>\$274.5</b>	<b>\$687.1</b>	<b>\$207.9</b>	<b>\$140.7</b>	<b>\$1,703.0</b>

\* Represents values less than \$50,000

Numbers may not add due to rounding

# CRR AGENCY SUMMARY

Commitments  
(\$ in millions)

AGENCY	2010	2011	2012	2013	2014	Total All Years
TOTAL LIRR PROGRAM	\$300.2	\$700.8	\$928.0	\$492.6	\$132.4	\$2,554.0
TOTAL MNR PROGRAM	\$392.9	\$274.5	\$687.1	\$207.9	\$140.7	\$1,703.0
TOTAL	\$693.1	\$975.3	\$1,615.1	\$700.5	\$273.1	\$4,257.0
TOTAL MTA CAPITAL PROGRAM	\$693.1	\$975.3	\$1,615.1	\$700.5	\$273.1	\$4,257.0

\* Represents values less than \$50,000

Numbers may not add due to rounding



# MTA Bus Company

# BUS COMPANY PROJECTS

U- 603

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>02 BUS COMPANY PROJECTS</b>							
01 Project Administration & Engineering Support Svcs.		.0	4.1	4.3	4.4	4.6	17.4
04 Security Improvements	SI	.0	6.1	.0	6.1	.0	12.2
05 Depot Equipment	SGR	.0	3.3	5.0	3.3	3.4	15.0
06 Purchase Service Vehicles	SGR	.0	.0	.0	4.6	.0	4.6
07 New Elevator at College Point Depot	SGR	.0	.0	.0	2.2	.0	2.2
08 New Apron at JFK Depot	SGR	.0	6.5	.0	.0	.0	6.5
09 Renewable Energy-Green Roof Far Rockaway Depot	SI	.0	.0	.0	2.4	.0	2.4
10 5 New Bus Washers Spring Creek, College Point	SGR	.0	.0	.0	.0	6.5	6.5
11 New HVAC Spring Creek, College Point	SGR	.0	.0	.0	.0	6.5	6.5
12 CNG Upgrade/Conversion Spring Creek, College Point	SGR	.0	.0	.0	5.0	.0	5.0
13 Depot Modifc.for Articulated Buses:Baisley Pk, JFK	SGR	.0	.0	6.1	.0	.0	6.1
14 Storeroom Expansion: Various Locations	SGR	.0	.0	.0	3.0	.0	3.0
15 Purchase 83 Standard Buses	NR	50.9	.0	.0	.0	.0	50.9
16 Purchase 64 Standard Buses	NR	.0	46.3	.0	.0	.0	46.3
17 Purchase 34 Standard Buses	NR	.0	.0	25.9	.0	.0	25.9
18 Purchase 32 Express Buses	NR	.0	.0	23.6	.0	.0	23.6
19 Purchase 72 Articulated Buses	NR	.0	.0	65.5	.0	.0	65.5
20 Real Time Customer Information	SI	.0	8.0	.0	.0	.0	8.0
21 Design Management Services		.0	2.1	2.1	2.2	2.3	8.7
22 Construction Management Services		.0	2.1	2.1	2.2	2.3	8.7
<b>Element Total 02</b>		<b>\$50.9</b>	<b>\$78.4</b>	<b>\$134.6</b>	<b>\$35.5</b>	<b>\$25.6</b>	<b>\$325.0</b>
<b>Category Total 603</b>		<b>\$50.9</b>	<b>\$78.4</b>	<b>\$134.6</b>	<b>\$35.5</b>	<b>\$25.6</b>	<b>\$325.0</b>
<b>TOTAL PROGRAM</b>		<b>\$50.9</b>	<b>\$78.4</b>	<b>\$134.6</b>	<b>\$35.5</b>	<b>\$25.6</b>	<b>\$325.0</b>

\* Represents values less than \$50,000

Numbers may not add due to rounding

# Security

# MTA-WIDE SECURITY

E- 601

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	Commitments (\$ in millions)					Total All Years
		2010	2011	2012	2013	2014	
<b>01 MTA-WIDE SECURITY</b>							
01 Capital Security Reserve	SI	50.0	50.0	50.0	50.0	50.0	250.0
<b>Element Total 01</b>		<b>\$50.0</b>	<b>\$50.0</b>	<b>\$50.0</b>	<b>\$50.0</b>	<b>\$50.0</b>	<b>\$250.0</b>
<b>Category Total 601</b>		<b>\$50.0</b>	<b>\$50.0</b>	<b>\$50.0</b>	<b>\$50.0</b>	<b>\$50.0</b>	<b>\$250.0</b>

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# Security

# MTA POLICE DEPARTMENT

E- 610

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 MTA PD PROJECTS</b>							
02 Staten Island District Office	NR	.0	.0	12.0	.0	.0	12.0
03 Nassau County District Office	NR	.0	.0	13.0	.0	.0	13.0
04 Public Safety Radio - Phase 2	SI	.0	.0	60.0	.0	.0	60.0
<b>Element Total 01</b>		<b>\$0.0</b>	<b>\$0.0</b>	<b>\$85.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$85.0</b>
<b>Category Total 610</b>		<b>\$0.0</b>	<b>\$0.0</b>	<b>\$85.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$85.0</b>
<b>TOTAL PROGRAM</b>		<b>\$50.0</b>	<b>\$50.0</b>	<b>\$135.0</b>	<b>\$50.0</b>	<b>\$50.0</b>	<b>\$335.0</b>

\* Represents values less than \$50,000

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**MTA Interagency**

**MTA BSC / FACILITIES REHAB**

**N- 611**

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	Commitments (\$ in millions)					Total All Years
		2010	2011	2012	2013	2014	
<b>01 MTA BSC / FACILITIES REHAB</b>							
01 MTA Business Service Center	SI	29.8	.0	45.2	.0	.0	75.0
02 Jay Street Building Rehabilitation	NR	184.0	.0	.0	.0	.0	184.0
<b>Element Total 01</b>		<b>\$213.8</b>	<b>\$0</b>	<b>\$45.2</b>	<b>\$0</b>	<b>\$0</b>	<b>\$259.0</b>
<b>Category Total 611</b>		<b>\$213.8</b>	<b>\$0</b>	<b>\$45.2</b>	<b>\$0</b>	<b>\$0</b>	<b>\$259.0</b>

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# MTA Interagency

# MTA PLANNING

N- 612

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 MTA PLANNING INITIATIVES</b>							
01 Core Planning Support	SI	2.6	2.6	2.6	2.6	2.6	13.0
02 Corridor Planning Support	SI	2.6	2.6	2.6	2.6	2.6	13.0
03 Tappan Zee Bridge Rail Study	SI	3.0	3.0	8.0	8.0	8.0	30.0
<b>Element Total 01</b>		<b>\$8.2</b>	<b>\$8.2</b>	<b>\$13.2</b>	<b>\$13.2</b>	<b>\$13.2</b>	<b>\$56.0</b>
<b>Category Total 612</b>		<b>\$8.2</b>	<b>\$8.2</b>	<b>\$13.2</b>	<b>\$13.2</b>	<b>\$13.2</b>	<b>\$56.0</b>
<b>TOTAL PROGRAM</b>		<b>\$222.0</b>	<b>\$8.2</b>	<b>\$58.4</b>	<b>\$13.2</b>	<b>\$13.2</b>	<b>\$315.0</b>

\* Represents values less than \$50,000

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# CORE AGENCY SUMMARY

			Commitments (\$ in millions)					
AGENCY			2010	2011	2012	2013	2014	Total All Years
TOTAL	NYCT	PROGRAM	\$3,511.9	\$1,479.2	\$5,198.3	\$1,626.9	\$867.1	\$12,683.3
TOTAL	SIR	PROGRAM	\$13.5	\$28.4	\$89.8	\$26.0	\$0	\$157.7
<b>TOTAL</b>			<b>\$3,525.4</b>	<b>\$1,507.6</b>	<b>\$5,288.1</b>	<b>\$1,652.9</b>	<b>\$867.1</b>	<b>\$12,841.0</b>
TOTAL	LIRR	PROGRAM	\$300.2	\$700.8	\$928.0	\$492.6	\$132.4	\$2,554.0
TOTAL	MNR	PROGRAM	\$392.9	\$274.5	\$687.1	\$207.9	\$140.7	\$1,703.0
<b>TOTAL</b>			<b>\$693.1</b>	<b>\$975.3</b>	<b>\$1,615.1</b>	<b>\$700.5</b>	<b>\$273.1</b>	<b>\$4,257.0</b>
TOTAL	BUS	PROGRAM	\$50.9	\$78.4	\$134.6	\$35.5	\$25.6	\$325.0
<b>TOTAL</b>			<b>\$50.9</b>	<b>\$78.4</b>	<b>\$134.6</b>	<b>\$35.5</b>	<b>\$25.6</b>	<b>\$325.0</b>
TOTAL	SECURITY	PROGRAM	\$50.0	\$50.0	\$135.0	\$50.0	\$50.0	\$335.0
TOTAL	INTERAGENCY	PROGRAM	\$222.0	\$8.2	\$58.4	\$13.2	\$13.2	\$315.0
<b>TOTAL</b>			<b>\$272.0</b>	<b>\$58.2</b>	<b>\$193.4</b>	<b>\$63.2</b>	<b>\$63.2</b>	<b>\$650.0</b>
<b>TOTAL MTA CORE CAPITAL PROGRAM</b>			<b>\$4,541.4</b>	<b>\$2,619.5</b>	<b>\$7,231.2</b>	<b>\$2,452.0</b>	<b>\$1,228.9</b>	<b>\$18,073.0</b>

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# Capital Construction Company

# EAST SIDE ACCESS

G- 609

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	Commitments (\$ in millions)					Total All Years
		2010	2011	2012	2013	2014	
<b>01 EAST SIDE ACCESS</b>							
01 Program Management	NE	.0	13.8	.0	7.5	9.9	31.2
02 Engineering	NE	.0	28.1	8.6	.0	.0	36.7
03 MTA Management	NE	.0	14.4	.0	8.7	24.0	47.0
04 Force Account Support	NE	.0	3.4	.0	.0	.0	3.4
05 Manh Structures 1-MNR ForcAcct	NE	.0	16.6	.0	.0	.0	16.6
06 Track & 3rd Rail	NE	.0	32.2	81.7	.0	15.0	128.9
07 Communication & Controls	NE	.0	50.0	93.3	.0	.0	143.3
08 Tunnel Vent & Facility Power	NE	.0	50.0	162.4	.0	.0	212.4
09 Traction Power	NE	.0	8.2	51.4	.0	.0	59.6
10 Signals	NE	.0	.0	114.9	.0	.0	114.9
11 OCIP	NE	.0	57.2	8.0	12.7	.0	77.9
12 55th St. Ventilation Facility	NE	.0	73.4	.0	.0	.0	73.4
13 Construction Management	NE	.0	62.5	.0	30.5	60.8	153.8
14 GCT Concrse&Facilities	NE	.0	236.5	.0	.0	.0	236.5
15 Vertical Circulation Elements	NE	.0	57.9	.0	.0	.0	57.9
16 General Conditions	NE	.0	6.5	1.4	.0	.0	8.0
17 Manh Structures 2	NE	.0	80.8	315.5	.0	.0	396.4
18 Harold Interlocking ForceAcct	NE	.0	73.9	19.7	17.6	41.3	152.6
19 Harold Misroute (TCA)	NE	.0	.0	13.2	.0	.0	13.2
20 Plaza Substation & Structures	NE	.0	30.0	214.9	.0	.0	244.9
21 Mid-Day Storage Yard Facility	NE	.0	.0	182.0	.0	.0	182.0
23 Harold Structures - Part 3A	NE	.0	65.4	.0	.0	.0	65.4
24 Harold Structures - Part 3B	NE	.0	.0	14.8	.0	.0	14.8
25 Amtrak Access & Protection	NE	.0	6.4	.5	.5	4.3	11.7
26 LIRR Access & Protection	NE	.0	8.1	.9	.6	13.6	23.3
27 System Testing & Commissioning	NE	.0	5.0	40.0	.0	.0	45.0
28 Rolling Stock Procurement	NE	.0	.0	202.0	.0	.0	202.0
29 Real Estate	NE	.0	20.2	.0	.0	.0	20.2
30 GCT Concourse Civil&Structural	NE	.0	181.0	.0	.0	.0	181.0
<b>Element Total 01</b>		<b>\$0</b>	<b>\$1,181.6</b>	<b>\$1,525.5</b>	<b>\$78.2</b>	<b>\$168.8</b>	<b>\$2,954.0</b>
<b>Category Total 609</b>		<b>\$0</b>	<b>\$1,181.6</b>	<b>\$1,525.5</b>	<b>\$78.2</b>	<b>\$168.8</b>	<b>\$2,954.0</b>

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**Capital Construction Company**

**FULL LENGTH SECOND AVE SUBWAY**

**G- 610**

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 FULL LENGTH SECOND AVE SUBWAY</b>							
01 2B/C: Shell/Finishes/MEP 96 St	NE	.0	256.2	198.7	.0	.0	454.9
02 4C: Station Finishes/MEP 72 St	NE	.0	.0	289.8	.0	.0	289.8
03 5B: Mining/Lining 86 St	NE	.0	270.1	.0	.0	.0	270.1
04 5C: Station Finishes/MEP 86 St	NE	.0	.0	.0	290.0	.0	290.0
05 6: Power Signal MEP Comm Track	NE	.0	.0	104.0	.0	.0	104.0
97 OCIP	NE	.0	.0	5.0	5.0	8.0	18.0
98 Real Estate	NE	.0	6.0	5.8	.0	.0	11.8
99 Reserve	NE	.0	13.0	35.5	.0	.0	48.5
<b>Element Total 01</b>		<b>\$0</b>	<b>\$545.3</b>	<b>\$638.8</b>	<b>\$295.0</b>	<b>\$8.0</b>	<b>\$1,487.1</b>
<b>Category Total 610</b>		<b>\$0</b>	<b>\$545.3</b>	<b>\$638.8</b>	<b>\$295.0</b>	<b>\$8.0</b>	<b>\$1,487.1</b>

\* Represents values less than \$50,000

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# Capital Construction Company

# REGIONAL INVESTMENTS

G- 614

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 REGIONAL INVESTMENTS</b>							
01 WBBP & EBRR F/A Connections	NE	.0	.0	18.1	15.1	14.1	47.2
02 Sunnyside Station	NE	.0	.0	2.0	.7	1.3	4.0
03 W. Bnd By-Pass/E. Bnd Re-Rte	NE	.0	110.6	142.6	1.4	1.9	256.5
04 Loop Interlocking	NE	.0	.0	33.6	.0	.0	33.6
05 Amtrak Buildings	NE	.0	.0	9.6	.1	.0	9.7
06 Rolling Stock Procurement	NE	.0	.0	50.0	.0	.0	50.0
<b>Element Total 01</b>		<b>\$0</b>	<b>\$110.6</b>	<b>\$255.8</b>	<b>\$17.3</b>	<b>\$17.3</b>	<b>\$401.0</b>
<b>Category Total 614</b>		<b>\$0</b>	<b>\$110.6</b>	<b>\$255.8</b>	<b>\$17.3</b>	<b>\$17.3</b>	<b>\$401.0</b>

\* Represents values less than \$50,000

Numbers may not add due to rounding

**Capital Construction Company**

**ESA RS / LIABILITY RESERVE**

**G- 615**

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>01 ESA RS / LIABILITY RESERVE</b>							
01 Rolling Stock Reserve	NE	.0	.0	463.0	.0	.0	463.0
02 Liability Reserve	NE	32.0	32.0	56.7	56.7	56.6	234.0
<b>Element Total 01</b>		<b>\$32.0</b>	<b>\$32.0</b>	<b>\$519.7</b>	<b>\$56.7</b>	<b>\$56.6</b>	<b>\$697.0</b>
<b>Category Total 615</b>		<b>\$32.0</b>	<b>\$32.0</b>	<b>\$519.7</b>	<b>\$56.7</b>	<b>\$56.6</b>	<b>\$697.0</b>

\* Represents values less than \$50,000

Numbers may not add due to rounding

# Capital Construction Company

# MISCELLANEOUS

G- 616

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	Commitments (\$ in millions)					Total All Years
		2010	2011	2012	2013	2014	
<b>01 MISCELLANEOUS</b>							
01 Misc Engineering/Prog Support	NE	40.0	40.0	40.0	40.0	40.0	200.0
<b>Element Total 01</b>		<b>\$40.0</b>	<b>\$40.0</b>	<b>\$40.0</b>	<b>\$40.0</b>	<b>\$40.0</b>	<b>\$200.0</b>
<b>Category Total 616</b>		<b>\$40.0</b>	<b>\$40.0</b>	<b>\$40.0</b>	<b>\$40.0</b>	<b>\$40.0</b>	<b>\$200.0</b>
<b>TOTAL PROGRAM</b>		<b>\$72.0</b>	<b>\$1,909.6</b>	<b>\$2,979.7</b>	<b>\$487.2</b>	<b>\$290.7</b>	<b>\$5,739.2</b>

\* Represents values less than \$50,000

Numbers may not add due to rounding

# ALL AGENCY SUMMARY

		Commitments (\$ in millions)					
AGENCY		2010	2011	2012	2013	2014	Total All Years
Total	New York City Transit	\$3,525.4	\$1,507.6	\$5,288.1	\$1,652.9	\$867.1	\$12,841.0
Total	Long Island Rail Road	\$300.2	\$700.8	\$928.0	\$492.6	\$132.4	\$2,554.0
Total	Metro-North Railroad	\$392.9	\$274.5	\$687.1	\$207.9	\$140.7	\$1,703.0
Total	MTA Bus Company	\$50.9	\$78.4	\$134.6	\$35.5	\$25.6	\$325.0
Total	Security	\$50.0	\$50.0	\$135.0	\$50.0	\$50.0	\$335.0
Total	MTA Interagency	\$222.0	\$8.2	\$58.4	\$13.2	\$13.2	\$315.0
<b>Core Subtotal</b>		<b>\$4,541.4</b>	<b>\$2,619.5</b>	<b>\$7,231.2</b>	<b>\$2,452.0</b>	<b>\$1,228.9</b>	<b>\$18,073.0</b>
Total	Capital Construction Company	\$72.0	\$1,909.6	\$2,979.7	\$487.2	\$290.7	\$5,739.2
<b>Total 2010-2014 CPRB Program</b>		<b>\$4,613.4</b>	<b>\$4,529.1</b>	<b>\$10,211.0</b>	<b>\$2,939.2</b>	<b>\$1,519.6</b>	<b>\$23,812.2</b>

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# Bridges and Tunnels

# Structures D- 601

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>AW Agency-wide</b>							
98 Feasibility Study:BBT/QMT Improve/Modernize	NR	3.4	.0	.0	.0	.0	3.4
<b>Element Total AW</b>		<b>\$3.4</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$3.4</b>
<b>BB Brooklyn-Battery Tunnel</b>							
28 Rehab. Walls, Roadway, Firelines, Ceiling Repair	NR	.0	.7	3.8	2.0	72.0	78.6
<b>Element Total BB</b>		<b>\$0</b>	<b>\$0.7</b>	<b>\$3.8</b>	<b>\$2.0</b>	<b>\$72.0</b>	<b>\$78.6</b>
<b>BW Bronx-Whitestone Bridge</b>							
07 Tower and Pier Fender Protection	NR	.0	.0	3.1	.0	.0	3.1
14 Miscellaneous Structural Rehabilitation	NR	.0	.7	1.8	11.0	.0	13.5
84 Cable Investigation / Monitoring	NR	.0	.0	1.0	2.3	5.9	9.2
97 Concrete Anchorage Repairs	NR	.0	.0	10.7	.0	.0	10.7
<b>Element Total BW</b>		<b>\$0</b>	<b>\$0.7</b>	<b>\$16.7</b>	<b>\$13.3</b>	<b>\$5.9</b>	<b>\$36.6</b>
<b>CB Cross Bay Bridge</b>							
09 Substructure & Underwater Work	NR	30.1	.0	.0	.0	.0	30.1
<b>Element Total CB</b>		<b>\$30.1</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$30.1</b>
<b>HH Henry Hudson Bridge</b>							
07 Structural Rehabilitation - Phase I	NR	.0	.4	6.8	.0	.0	7.3
81 Replace Lower Level South Approach	NR	.0	.0	8.7	.0	.0	8.7
<b>Element Total HH</b>		<b>\$0</b>	<b>\$0.4</b>	<b>\$15.5</b>	<b>\$0</b>	<b>\$0</b>	<b>\$16.0</b>
<b>MP Marine Parkway Bridge</b>							
06 Substructure & Underwater Scour Protection	NR	3.2	.0	13.9	.0	.0	17.1
16 Miscellaneous Steel Repairs	NR	.0	.0	2.5	.0	.0	2.5
<b>Element Total MP</b>		<b>\$3.2</b>	<b>\$0</b>	<b>\$16.4</b>	<b>\$0</b>	<b>\$0</b>	<b>\$19.6</b>
<b>QM Queens Midtown Tunnel</b>							
18 Entrance and Exit Plazas Structural Rehabilitation	NR	.0	3.3	.0	17.3	.0	20.6
40 Tunnel Wall and Ceiling Repairs and Leak Control	NR	.0	.0	5.7	.0	17.3	23.0
<b>Element Total QM</b>		<b>\$0</b>	<b>\$3.3</b>	<b>\$5.7</b>	<b>\$17.3</b>	<b>\$17.3</b>	<b>\$43.6</b>
<b>RK Robert F. Kennedy Bridge</b>							
23 Miscellaneous Rehab - Manhattan Approach Ramps	NR	.0	.0	5.1	70.1	.0	75.2
<b>Element Total RK</b>		<b>\$0</b>	<b>\$0</b>	<b>\$5.1</b>	<b>\$70.1</b>	<b>\$0</b>	<b>\$75.2</b>
<b>TN Throgs Neck Bridge</b>							
52 Miscellaneous Structural Rehabilitation	NR	5.2	.0	21.6	.0	.0	26.8
60 Anchorage Dehumidification	NR	.0	.7	2.6	.0	.0	3.3
<b>Element Total TN</b>		<b>\$5.2</b>	<b>\$0.7</b>	<b>\$24.2</b>	<b>\$0</b>	<b>\$0</b>	<b>\$30.1</b>

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# Bridges and Tunnels

# Structures D- 601

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	Commitments (\$ in millions)					Total All Years
		2010	2011	2012	2013	2014	
<b>VN Verrazano-Narrows Bridge</b>							
34 Verrazano-Narrows Bridge Main Cable Testing	NR	.0	.0	.0	.0	5.4	5.4
35 Steel Repair & Concrete Rehab. & Drainage Systems	NR	.0	.7	2.3	16.1	.0	19.1
<b>Element Total VN</b>		<b>\$0</b>	<b>\$0.7</b>	<b>\$2.3</b>	<b>\$16.1</b>	<b>\$5.4</b>	<b>\$24.4</b>
<b>Category Total 601</b>		<b>\$41.8</b>	<b>\$6.5</b>	<b>\$89.8</b>	<b>\$118.8</b>	<b>\$100.6</b>	<b>\$357.6</b>

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## Bridges and Tunnels

## Roadways and Deck D- 602

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>BB Brooklyn-Battery Tunnel</b>							
54 Replacement Brooklyn Plaza Structural Slab	NR	.0	.0	2.8	19.6	.0	22.3
<b>Element Total BB</b>		<b>\$0</b>	<b>\$0</b>	<b>\$2.8</b>	<b>\$19.6</b>	<b>\$0</b>	<b>\$22.3</b>
<b>BW Bronx-Whitestone Bridge</b>							
89 Deck Replacement - Elevated and On Grade Approach	NR	25.3	266.6	.0	.0	.0	291.8
<b>Element Total BW</b>		<b>\$25.3</b>	<b>\$266.6</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$291.8</b>
<b>HH Henry Hudson Bridge</b>							
10 Upper Level Sidewalk / Curb Stringers	NR	39.2	.0	.0	.0	.0	39.2
<b>Element Total HH</b>		<b>\$39.2</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$39.2</b>
<b>MP Marine Parkway Bridge</b>							
21 Rehabilitate Rockaway Point Blvd Overpass	NR	.0	.4	1.0	6.2	.0	7.6
<b>Element Total MP</b>		<b>\$0</b>	<b>\$0.4</b>	<b>\$1.0</b>	<b>\$6.2</b>	<b>\$0</b>	<b>\$7.6</b>
<b>RK Robert F. Kennedy Bridge</b>							
65 Deck Replacement - Bronx/Manhattan Ramps/Toll Plaza	NR	97.1	18.8	.0	319.9	.0	435.8
74 Replace T-48 Wearing Surface	NR	30.9	.0	.0	.0	.0	30.9
75 Interim Repairs - Toll Plaza Deck	NR	5.7	.0	.0	40.7	.0	46.4
<b>Element Total RK</b>		<b>\$133.6</b>	<b>\$18.8</b>	<b>\$0</b>	<b>\$360.6</b>	<b>\$0</b>	<b>\$513.1</b>
<b>TN Throgs Neck Bridge</b>							
49 Suspended Span Replacement - Phase A	NR	1.8	10.1	1.5	83.5	.0	96.8
82 Rehabilitate Orthotropic Deck - Phase B	NR	.8	51.1	.0	.0	.0	52.0
<b>Element Total TN</b>		<b>\$2.6</b>	<b>\$61.2</b>	<b>\$1.5</b>	<b>\$83.5</b>	<b>\$0</b>	<b>\$148.8</b>
<b>VN Verrazano-Narrows Bridge</b>							
03 Toll Plaza - East & West Bound Ramps Improvements	NR	1.6	104.2	.0	.0	.0	105.8
80 Replace Upper Level Suspended Span	NR	.0	25.2	336.8	5.1	46.8	414.0
84 Widening of Belt Parkway Ramps	NR	.0	.0	6.2	.0	.0	6.2
<b>Element Total VN</b>		<b>\$1.6</b>	<b>\$129.4</b>	<b>\$343.1</b>	<b>\$5.1</b>	<b>\$46.8</b>	<b>\$526.0</b>
<b>Category Total 602</b>		<b>\$202.3</b>	<b>\$476.3</b>	<b>\$348.4</b>	<b>\$475.0</b>	<b>\$46.8</b>	<b>\$1,548.8</b>

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## Bridges and Tunnels

## Toll Plazas & Traffic Mgmt D- 603

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>AW Agency-wide</b>							
35 Weather Information Systems	SI	.0	.3	.9	.0	.0	1.2
36 Installation of CCTV / Fiber Optic Cable	NR	12.1	.0	.0	.0	.0	12.1
48 2nd Generation E-Zpass In-Lane	SI	10.0	3.4	11.9	9.7	.0	35.0
50 Wireless Communications	SI	.0	.5	.0	1.9	.0	2.4
52 Advanced Traffic Detection / Management System	SI	.0	1.0	3.6	.0	.0	4.6
54 Regional Integration	SI	.0	.4	2.7	.0	.0	3.1
57 Advanced Traffic Management Systems	SI	.0	.8	.0	2.9	.0	3.7
62 Smart Card Development	SI	.0	.0	2.0	.0	.0	2.0
<b>Element Total AW</b>		<b>\$22.1</b>	<b>\$6.3</b>	<b>\$21.1</b>	<b>\$14.6</b>	<b>\$0</b>	<b>\$64.1</b>
<b>HH Henry Hudson Bridge</b>							
85 Replace Upper Level Toll Plaza Deck	NR	.0	.0	1.5	50.6	.0	52.1
<b>Element Total HH</b>		<b>\$0</b>	<b>\$0</b>	<b>\$1.5</b>	<b>\$50.6</b>	<b>\$0</b>	<b>\$52.1</b>
<b>Category Total 603</b>		<b>\$22.1</b>	<b>\$6.3</b>	<b>\$22.6</b>	<b>\$65.2</b>	<b>\$0</b>	<b>\$116.3</b>

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# Bridges and Tunnels

# Utilities D- 604

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>AW Agency-wide</b>							
80 Advanced Traveler Information Systems	SI	.0	1.9	.0	17.5	.0	19.4
<b>Element Total AW</b>		<b>\$0</b>	<b>\$1.9</b>	<b>\$0</b>	<b>\$17.5</b>	<b>\$0</b>	<b>\$19.4</b>
<b>BB Brooklyn-Battery Tunnel</b>							
45 Replace Electrical Switchgear & Equipment	NR	63.5	.0	.0	.0	.0	63.5
<b>Element Total BB</b>		<b>\$63.5</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$63.5</b>
<b>BW Bronx-Whitestone Bridge</b>							
15 Necklace Lighting	NR	.4	1.0	9.3	.0	.0	10.7
<b>Element Total BW</b>		<b>\$4</b>	<b>\$1.0</b>	<b>\$9.3</b>	<b>\$0</b>	<b>\$0</b>	<b>\$10.7</b>
<b>MP Marine Parkway Bridge</b>							
03 Programmable Logic Controller & Mechanical Rehab.	NR	.0	3.8	.0	16.5	.0	20.2
<b>Element Total MP</b>		<b>\$0</b>	<b>\$3.8</b>	<b>\$0</b>	<b>\$16.5</b>	<b>\$0</b>	<b>\$20.2</b>
<b>QM Queens Midtown Tunnel</b>							
30 Tunnel Ventilation Building Electrical Upgrade	NR	.0	2.7	67.8	.0	.0	70.4
81 Controls / Communication System	NR	.0	.0	4.3	.0	.0	4.3
<b>Element Total QM</b>		<b>\$0</b>	<b>\$2.7</b>	<b>\$72.1</b>	<b>\$0</b>	<b>\$0</b>	<b>\$74.7</b>
<b>VN Verrazano-Narrows Bridge</b>							
87 Substation #1 Rehabilitation	NR	.0	.0	.0	16.6	.0	16.6
<b>Element Total VN</b>		<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$16.6</b>	<b>\$0</b>	<b>\$16.6</b>
<b>Category Total 604</b>		<b>\$63.9</b>	<b>\$9.3</b>	<b>\$81.4</b>	<b>\$50.6</b>	<b>\$0</b>	<b>\$205.1</b>

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## Bridges and Tunnels

## Buildings and Sites

D- 605

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>AW Agency-wide</b>							
12 Hazardous Materials Abatement	NR	1.0	1.9	1.9	1.9	1.9	8.7
<b>Element Total AW</b>		<b>\$1.0</b>	<b>\$1.9</b>	<b>\$1.9</b>	<b>\$1.9</b>	<b>\$1.9</b>	<b>\$8.7</b>
<b>BB Brooklyn-Battery Tunnel</b>							
21 Service Building Rehabilitation	NR	.0	1.0	.0	3.1	.0	4.2
<b>Element Total BB</b>		<b>\$0.0</b>	<b>\$1.0</b>	<b>\$0.0</b>	<b>\$3.1</b>	<b>\$0.0</b>	<b>\$4.2</b>
<b>Category Total 605</b>		<b>\$1.0</b>	<b>\$2.9</b>	<b>\$1.9</b>	<b>\$5.0</b>	<b>\$1.9</b>	<b>\$12.8</b>

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# Bridges and Tunnels

# Miscellaneous

D- 606

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>AW Agency-wide</b>							
15 MTA Independent Engineer	-	.6	.6	.6	.6	1.4	3.9
18 Protective Liability Insurance	-	.8	.8	.8	.8	.8	3.9
21 Program Administration	-	2.9	2.9	2.9	2.9	2.9	14.5
22 Miscellaneous	-	.4	.1	.9	.9	.8	3.1
28 Scope Development	-	2.3	.7	.7	1.1	1.1	5.9
85 Traffic Enforcement Support	-	.4	1.7	1.7	1.7	1.7	7.3
94 Small Business Mentoring Program	-	.0	.2	.2	.2	.2	.9
<b>Element Total AW</b>		<b>\$7.4</b>	<b>\$7.0</b>	<b>\$7.9</b>	<b>\$8.2</b>	<b>\$8.9</b>	<b>\$39.4</b>
<b>Category Total 606</b>		<b>\$7.4</b>	<b>\$7.0</b>	<b>\$7.9</b>	<b>\$8.2</b>	<b>\$8.9</b>	<b>\$39.4</b>

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# Bridges and Tunnels

# Structural Painting D- 607

Commitments  
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2010	2011	2012	2013	2014	Total All Years
<b>AW Agency-wide</b>							
95 Miscellaneous Agency Wide Painting	NR	.0	.0	.0	.0	22.2	22.2
<b>Element Total AW</b>		<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$22.2</b>	<b>\$22.2</b>
<b>HH Henry Hudson Bridge</b>							
10 Paint - Curb Stringers	NR	.8	.0	.0	.0	.0	.8
85 Paint - Upper Level Plaza Deck	NR	.0	.0	.2	.6	.0	.8
<b>Element Total HH</b>		<b>\$0.8</b>	<b>\$0</b>	<b>\$0.2</b>	<b>\$0.6</b>	<b>\$0</b>	<b>\$1.6</b>
<b>MP Marine Parkway Bridge</b>							
21 Paint - Rockaway Point Overpass	NR	.0	.0	.0	1.1	.0	1.1
<b>Element Total MP</b>		<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$1.1</b>	<b>\$0</b>	<b>\$1.1</b>
<b>RK Robert F. Kennedy Bridge</b>							
65 Paint - Plaza and Approach Ramps	NR	.0	.0	.0	18.8	.0	18.8
<b>Element Total RK</b>		<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$18.8</b>	<b>\$0</b>	<b>\$18.8</b>
<b>TN Throgs Neck Bridge</b>							
82 Paint - Bronx and Queens Approach Spans	NR	2.3	61.0	.0	.0	.0	63.4
85 Steel Repairs - Suspended Span	NR	4.1	.0	.0	.0	.0	4.1
87 Paint - Bronx and Queens Tower Fender Systems	NR	8.3	.0	.0	.0	.0	8.3
<b>Element Total TN</b>		<b>\$14.8</b>	<b>\$61.0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$75.8</b>
<b>VN Verrazano-Narrows Bridge</b>							
35 Paint - Brooklyn&Staten Island Lower Level Ramps	NR	.0	.0	.0	17.4	.0	17.4
80 Paint - Upper Level Superstructure	NR	.0	.6	4.8	.0	.0	5.3
84 Paint - Belt Parkway Ramps	NR	.0	.0	.3	.0	.0	.3
88 Tower Painting - Below Roadway Level	NR	30.4	.0	.0	.0	.0	30.4
<b>Element Total VN</b>		<b>\$30.4</b>	<b>\$0.6</b>	<b>\$5.0</b>	<b>\$17.4</b>	<b>\$0</b>	<b>\$53.3</b>
<b>Category Total 607</b>		<b>\$45.9</b>	<b>\$61.6</b>	<b>\$5.2</b>	<b>\$37.9</b>	<b>\$22.2</b>	<b>\$172.9</b>
<b>TOTAL PROGRAM</b>		<b>\$384.4</b>	<b>\$570.0</b>	<b>\$557.3</b>	<b>\$760.8</b>	<b>\$180.4</b>	<b>\$2,452.9</b>

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# ALL AGENCY SUMMARY

AGENCY		Commitments (\$ in millions)					Total All Years
		2010	2011	2012	2013	2014	
Total	New York City Transit	\$3,525.4	\$1,507.6	\$5,288.1	\$1,652.9	\$867.1	\$12,841.0
Total	Long Island Rail Road	\$300.2	\$700.8	\$928.0	\$492.6	\$132.4	\$2,554.0
Total	Metro-North Railroad	\$392.9	\$274.5	\$687.1	\$207.9	\$140.7	\$1,703.0
Total	MTA Bus Company	\$50.9	\$78.4	\$134.6	\$35.5	\$25.6	\$325.0
Total	Security	\$50.0	\$50.0	\$135.0	\$50.0	\$50.0	\$335.0
Total	MTA Interagency	\$222.0	\$8.2	\$58.4	\$13.2	\$13.2	\$315.0
<b>Core Subtotal</b>		<b>\$4,541.4</b>	<b>\$2,619.5</b>	<b>\$7,231.2</b>	<b>\$2,452.0</b>	<b>\$1,228.9</b>	<b>\$18,073.0</b>
Total	Capital Construction Company	\$72.0	\$1,909.6	\$2,979.7	\$487.2	\$290.7	\$5,739.2
<b>Total 2010-2014 CPRB Program</b>		<b>\$4,613.4</b>	<b>\$4,529.1</b>	<b>\$10,211.0</b>	<b>\$2,939.2</b>	<b>\$1,519.6</b>	<b>\$23,812.2</b>
Total	Bridges and Tunnels	\$384.4	\$570.0	\$557.3	\$760.8	\$180.4	\$2,452.9
<b>Total 2010-2014 CAPITAL PROGRAM</b>		<b>\$4,997.7</b>	<b>\$5,099.1</b>	<b>\$10,768.2</b>	<b>\$3,700.0</b>	<b>\$1,700.0</b>	<b>\$26,265.0</b>

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