

MTA Capital Program

2008–2013



February 2008



Metropolitan Transportation Authority

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THE 2008-2013 CAPITAL PROGRAM: Building for the Future on a Firm Foundation

In the early 1960's, the New York Metropolitan Region's mass transportation network faced financial collapse and a crisis of capacity. The MTA was created 40 years ago to bring the region's disparate transportation entities under one management umbrella, optimizing coordination and providing a central focus for policy and long-term planning. Also that year, a *Program for Action* was initiated, which promised for the first time a "systems" approach to transit operations and development. But difficult economic times across the region interrupted those plans, and poor financial practices resulted in deferred maintenance and insufficient investment. The system deteriorated and many much-needed expansion projects were trimmed or abandoned. Without a viable funding stream, the MTA lost its ability to keep up with the needs of the system and its vision for improved service.

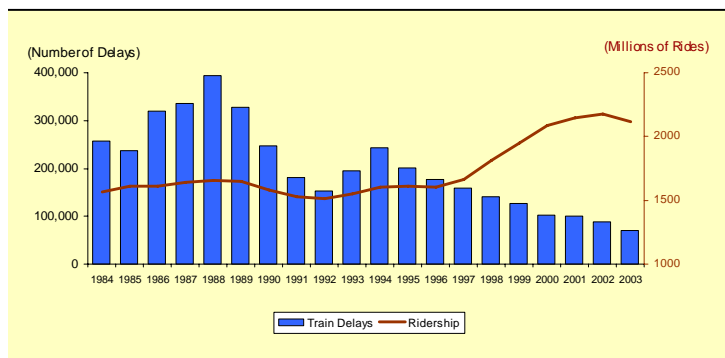


The first five-year MTA capital plan, approved and financed in 1982, began the rescue of a system on the verge of ruin. Over the last two and a half decades, six successive capital plans have invested over \$76 billion to transform the system. Improving the infrastructure and ensuring its ongoing maintenance has been the success story of the MTA. Reliability, as measured by mean distance between failure, has soared--increasing by 343% on LIRR, 119% on NYC Transit and 176% on MNR since 1996. Greater reliability has propelled ridership, resulting in over 850 million more trips in 2007 than in 1996. The system is safer, with customer injuries reduced by a third and employee injuries



reduced 60% in the same time period. Security has also been enhanced with the completion of critical hardening projects and the implementation of other security initiatives. The investments in improving core infrastructure and its ongoing maintenance underlie this success and form the foundation for every Capital Program, including this one. And with the initiation of the first expansion of the region's transit and rail network in decades, MTA has added further to this success.

History has shown that good stewardship of the system means not only addressing today's problems and challenges, but laying the groundwork for the promise of tomorrow. New York is a world class city that is in competition with European and Asian cities for much-needed jobs and investment. London, Shanghai and others are making huge investments in their transportation infrastructure in anticipation of growth. New York must keep pace.



A reliable and robust transit system — supported by an appropriately-sized capital program — contributes to the State's economic vitality, and the quality of life in the region. Transit improves mobility, reduces traffic congestion and pollution, increases access to affordable housing, provides incentive for development, and spurs employment. Analyses conducted by the MTA and the Port Authority have forecasted that every \$1 billion in MTA capital spending generates an estimated 8,500 total jobs, \$440 million in total wages and \$1.5 billion in total sales or economic activity in New York and the New York region.

Delivering reliable service depends on continuous investment in both the visible and invisible infrastructure to ensure that every component continues to function and serve the needs of our customers.

Last year, the MTA's annual ridership reached levels not seen since the 1950s. This milestone demonstrates the progress made in the MTA's rebuilding effort, but the need for renewal continues. Some components of the system still require upgrade and, once upgraded, all require regular replacement to prevent slipping back to failure. When the program was initiated in 1982, it was widely recognized that maintaining the condition of the asset base would require billions of dollars in annual investment — not just once, but *in perpetuity*. Adding to that, with the rising cost of construction and historic growth in ridership, even the current pace of capital investment leaves

us falling behind. Therefore, a significant component of this program continues to invest in the core components of the system.

While this core program ensures the increasing reliability of the current service network, that network is at the same time reaching the limits of its capacity. In the coming years, the demands on the system will only intensify as the region's population is expected to grow to unprecedented levels. If unaddressed, transportation may be the single biggest barrier to the region achieving its full growth potential.

The 2008-2013 Capital Program addresses these growth needs in the capacity expansion section of the program. It proposes funding to award the remaining contracts necessary to complete two projects designed to expand capacity — East Side Access and the first phase of the Second Avenue Subway — but these projects alone will not respond to the robust needs of an economically strong, competitive, and growing region. Therefore, this program defines the new capacity improvement projects that are required over the next five years as a down payment on the region's future.

Investing in the Core System Infrastructure

As the largest regional transit provider in the Western Hemisphere, the MTA's network of commuter railroads, subways and buses handles 8 million trips each weekday, while our 7 bridges and two tunnels serve approximately 900,000 vehicles each day. Twenty-four hours a day, seven days a week, over 5,800 buses navigate the city streets and our 8,500 rail cars travel over 2,000 miles of track and service over 700 stations. Delivering reliable service depends on constant investment in the core system to ensure that every component of that system works. These visible components of service are supported behind the scenes and beneath the streets by the tens of thousands of components that make up the "invisible" infrastructure. This infrastructure, both visible and invisible, must work well in order for customers to experience good service. A failure in any one of these tens of thousands of assets can mean delays for hundreds of thousands of customers.

The 2008-2013 Capital Program provides a range of investments to address all components of the basic, core infrastructure. Investments of \$7.7 billion in the visible infrastructure include \$3.2 billion in station rehabilitations and component replacement to improve the customer environment, and \$4.5 billion for ongoing fleet replacement and expansion, which will continue to provide transit and railroad customers with both enhanced comfort and a ride that is less prone to breakdown.

Invisible Infrastructure is Critical to the MTA Network	
<i>Track Length:</i>	<i>1,960 miles—enough to reach from New York to Santa Fe, NM</i>
<i>Mainline Switches:</i>	<i>3,259—supporting the complex network of rail service branches and express and local transit service</i>
<i>Signal Blocks:</i>	<i>14,850—controlling over 9,000 trains a day with nearly 5 million passengers</i>
<i>Fiber Optic Cable:</i>	<i>Over 975 miles—enough to reach from New York to St. Louis, MO</i>
<i>Power Substations:</i>	<i>524—using more than enough power annually to light the city of Buffalo for a year</i>
<i>Third Rail:</i>	<i>1,271 miles—enough to reach from New York to Lincoln, NE</i>
<i>Pump Rooms:</i>	<i>301—pumping 17 million gallons of water each day</i>
<i>Ventilation (Fan) Plants:</i>	<i>197—clearing air in tunnels during emergencies</i>
<i>B&T Structures:</i>	<i>368,940 tons of steel and 3.9 million cubic yards of concrete</i>
<i>B&T Bridge Cables:</i>	<i>49,368 feet. containina</i>

The MTA's continuing capital investments of \$11.5 billion in the invisible infrastructure will ensure even further improvements in reliability. The program invests in: replacing track to allow the trains to operate smoothly and at maximum speeds; rehabilitating pump rooms to remove water from the system and new investments to prevent the type of flooding that crippled the system last year; replacing fan plants to maximize response to smoke conditions; modernizing signals; and overhauling the extensive power system to ensure uninterrupted electricity to move trains and operate these support systems. Investments to expand or reconfigure maintenance shops, rail yards and bus depots accommodate the growing, more diverse fleets.

Investments proposed for this 2008-2013 core program are designed to follow two structural guideposts. First, continue the rehabilitation and normal replacement of the system's core assets at a pace consistent with the rebuilding

program commenced in 1982. Second, plan capital investments to be of similar quality as the existing system. In that regard, the recommended Plan is sized to allow for paced continuation of core asset rehabilitation and normal replacement and completion of the expansions of the existing system. However, even with these guiding principles, the value of this core program of work has been increased to take into account the rising cost of construction and project uncertainties. Today, cost escalation affects many elements of MTA's capital program, driven in part by material and labor cost increases, the complexity of the work, and the high volume of work supported by a limited pool of contractors. Since the full impacts of this construction market are not fully known and many of the project estimates in this accelerated program are not refined, the program includes a fund for market and project uncertainty. It also includes a project review process that will govern the use of this fund and provide other programmatic controls to validate costs in this uncertain market.

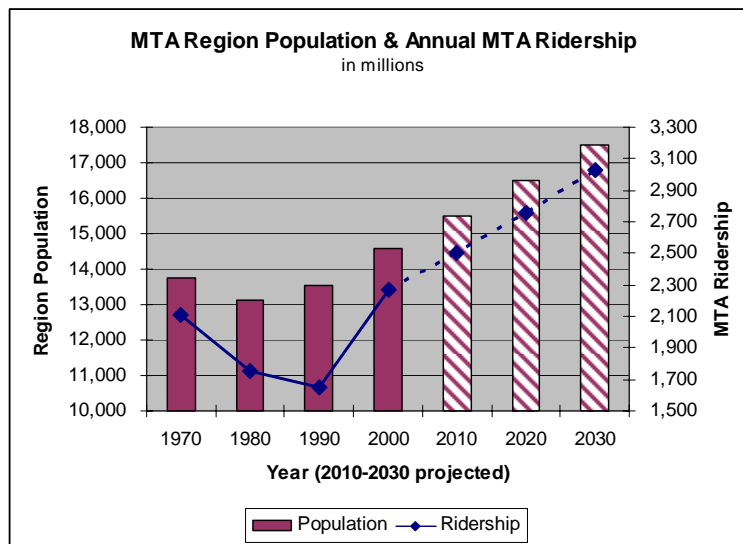
Investing in Capacity Improvements

The 2008-2013 Capital Program proposes to allocate all remaining funds needed to complete the LIRR East Side Access project, and the first phase of the Second Avenue Subway. These projects represent the first major system expansion since the 1940s. East Side Access will bring LIRR trains into Grand Central Terminal, saving as much as 40 minutes a day on the round-trip commute of more than 76,000 daily customers. It will also ease congestion at Penn Station, paving the way for Metro-North service to Penn Station in future years. The first segment of the Second Avenue Subway will provide service from 96th St. to 63rd St., where it will connect with the Broadway (N/R/Q/W) line.

This project will provide new service to Manhattan's East Side and reduce overcrowding on the already overburdened Lexington Avenue (4/5/6) line, significantly improving travel time and conditions for hundreds of thousands of New Yorkers each day. It also completes a new subway terminal at South Ferry and completes the Fulton Street Transit Center, which support the ongoing redevelopment of Lower Manhattan.

(Funding for the extension of the #7 subway line to support development of Manhattan's Far West Side, a project funded by New York City, is included in the previous 2005-2009 program; during this program period all contracts needed to complete the extension of the #7 subway line to 11th Avenue and 34th Street will be awarded.)

These investments, as significant as they are, will not allow the region to deliver on the promise of its future. The New York City population, currently estimated at 8.2 million, which in itself represents historic growth since the 1980s, is expected to continue on this trajectory, growing by another 1 million people over the next 20 years. And transit investments, widely recognized as fundamental to economic prosperity, must keep pace.



All portions of the region are expected to experience robust growth that will require the complementary implementation of new transit services. The future anticipates the

redevelopment of areas of the City that have lagged in growth since the 1970s. This future must be supported by continuing investments in the Second Avenue Subway to serve Harlem and Lower Manhattan, in capacity enhancement projects, such as communications based train control, particularly on the Queens Boulevard Line and the Flushing Line to provide more service to Queens and on the Westside of Manhattan. It must be creative in its implementation of Bus Rapid Transit, providing faster and more competitive service to areas of the City not easily accessed by the subway.

While investment in the existing system maximizes reliability and operational capacity, some parts of the network are at maximum capacity, and some travel patterns are inefficiently met.

The growth anticipated in Long Island requires a rail system that can both bring more workers into jobs in the City and also one that can bring more workers to jobs on Long Island. This requires investments to increase capacity in Jamaica, a third track to allow the railroad to provide more reliable service to Manhattan, double tracking between Farmingdale and Ronkonkoma to improve throughput and ancillary investments in yards and rolling stock.

Growth anticipated to the north requires Penn Station Access, which will provide easier access for Westchester workers to the Westside of Manhattan as well as new stations in the City, such as at Co-op City, for greater access by City residents. It also requires investments to allow West of Hudson customers to connect to New Jersey Transit's Access to the Region's Core. And regional investments in transit access to Stewart Airport and over the Tappan Zee Bridge will facilitate anticipated growth into and out of the northern suburbs.

Investments such as these will span many capital programs but must begin now if the region is to reach its potential. Recognition of the need for this kind of bold investment underlies the regional congestion pricing discussion and the requirement for this accelerated capital program. A pricing program to address congestion promotes and expands the use of mass transit in the region while also promising to provide significant additional resources to help support the kinds of long-term investment in transit infrastructure described above. The investments needed to complete the capacity expansions currently underway, to implement new and enhanced services aimed at accommodating expected auto diversions which result from congestion pricing, and to begin new capacity expansion projects to support the growth in the region are fully discussed in the capacity expansion section of the 2008-2013 Program.

Looking ahead, we must maintain our momentum while building for the region's future

The 2008-2013 Capital Program presents, by any reckoning, the most ambitious program of investment ever proposed by the MTA. But it is the path to the continued and growing economic vitality of the region. It addresses the investments needed to protect the core infrastructure — the maintenance, repair and upgrade essential to the reliability of the network, and to enhance customer satisfaction with our service. And, building on this foundation, it defines the additional investments needed to address today's capacity constraints as well as the emerging needs of tomorrow. This is not an either-or choice; both categories of investment must be made if we are to achieve the broader promise of the future.

Unfailing, long-term support is critical to fulfill the promise of an attractive, sustainable and prosperous New York metropolitan area.

Along with this ambitious program comes the enormous challenge of a renewed financial commitment to the MTA's Capital Program. This will be especially difficult as the State and the region face economic and fiscal constraints. The vast improvements in quality and reliability brought about by successive capital programs also leave us vulnerable to complacency. However, failure to invest in the future of the MTA would ignore the lessons of the past and the demands of the future. New revenue streams, like the proposed congestion mitigation fee, are critical to this plan but will not alone be sufficient to support fully the region's future needs. A comprehensive financing plan will be needed.



THE MTA 2008-2013 CAPITAL PROGRAM

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THE MTA 2008-2013 CAPITAL PROGRAM

INVESTMENT SUMMARY

The proposed MTA 2008-2013 Capital Program to sustain the existing core network, enhance security and build new rail lines is presented in three tiers: Tier 1, the core program, totals \$20,038; Tier 2, which adds the completion of the current capacity expansion projects to the core program, totals \$26,304; and Tier 3, which adds new expansion investments, totals \$29,554 billion (Table 1).

Table 1
MTA 2008-2013 CPRB Capital Program All Agency Summary (\$ in millions)

Program Elements	Proposed 2008-2013
Core Capital Program:	
New York City Transit	\$14,265
Long Island Rail Road	2,630
Metro-North Railroad	1,770
MTA Bus	363
Security Program	590
Interagency	421
Total Tier 1 Program	\$20,038
Core Program (Tier 1)*	\$20,785*
Completion of Existing Expansion Projects	5,519
Total Tier 2 Program	\$26,304
Core Program and Completion of Existing Expansion Projects (Tier 2)	\$26,304
<i>New Capacity Expansion Program:</i>	
CBTC Flushing and Queens Blvd. lines**	\$1,425
Second Avenue Subway Next Phase**	1,000
Penn Access**	400
Jamaica Capacity Improvement	150
#7 Fleet Expansion	175
Capacity Planning Studies	50
Sustainability Investments	50
Investments to Implement Congestion Mitigation Service (\$767 million)	***
Total Tier 3 Program	\$29,554

*Core program in Tier 2 incorporates into the interagency section additional allocation to the Market Uncertainty Fund associated with the expansion projects

**To be completed in two programs

***To be funded from Congestion Pricing Revenues

Numbers may not total due to rounding

PROGRAM FUNDING

The funding sources for the proposed 2008-2013 Capital Program are summarized in Table 2.

Table 2
MTA 2008-2013 (CPRB) Capital Program
Funding Sources
(\$ in millions)

Funding Source	Proposed 2008-2013
Federal Formula and Flexible	\$8,100
Federal Security	590
City Funding (including MTA Bus)	527
Asset Sales	500
LaGuardia Reprogramming	160
Carryover Funds from 05-09	1,868
New Bonds (Assumed in the MTA's financial plan to be supported by new state funding and local match)	4,000
Bonds based on Congestion Pricing	4,500
Total 2008-2013 Fund Sources	\$20,245

These sources include \$8.1 billion of federal funds to support the overall program. This reflects the expectation that the upcoming reauthorization of federal transit and highway programs will provide a proportional amount of support for the Program consistent with the federal share provided in prior MTA five-year plans. There is a growing national effort to enhance the revenues in the highway trust fund that will lead to increased spending for infrastructure, and in particular improve the transit funding picture. Included in the federal assumption is the remaining Federal New Start funding dedicated to the East Side Access project. The MTA's security initiatives also assume federal support for these critical investments totaling \$590 million.

Capital contributions from the City of New York are assumed at the rate provided in recent five year plans and includes continuing support for MTA bus funding at current levels. Also included is a proposal for the MTA to secure up to \$500 million from asset sales or other non-bond sources. The funding plan will reprogram \$160 million remaining from the discontinued LaGuardia Airport Access project carried in the 2000-2004 capital plan.

Given the overlap of the 2005-2009 approved program and the 2008-2009 proposed program, approximately \$1.9 billion of 2008 and 2009 approved program funds will be allocated to the

2008-2013 program which will, in part, fund projects carried over from the prior plan to the proposed plan.

The Capital Program assumes approximately \$4.0 billion of bonds will be supported by a new state and local contribution beginning in 2010. This assumption is consistent with the MTA's current financial plan. In addition, net revenues from congestion pricing, after funding operating and capital costs related to expanding service to support the congestion pricing program, are expected to yield approximately \$4.5 billion of bonds for the MTA's capital program, assuming congestion pricing proceeds can be fully securitized.

The MTA was requested by the Governor, the Mayor and the leadership of the State Legislature to accelerate the submission of the 2008-2013 Capital Program to the Capital Program Review Board by a month as compared to the statutory deadline. Consistent with programs submitted previously, a significant gap remains after application of the funding described above. However, as a result of accelerating the plan, there is additional work necessary to establish the timing of when gaps in the program will need to be filled.

Fully funding the Program as presented will require negotiation with our funding partners and could include, as has been the tradition with past capital programs, new state dedicated revenues, MTA debt supported by fares and tolls, contributions made by other governmental entities or reductions in the plan.

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THE MTA 2008-2013 CORE CAPITAL PROGRAM

The proposed MTA 2008-2013 Capital Program to sustain and enhance the existing core network totals \$19,027 billion (Table 3). A great deal has been accomplished since 1982 to restore the MTA network to a state of good repair. While there remain some assets in need of modernization, ongoing normal replacement is the focus of the core program. The need to maintain assets previously restored for a system this vast is substantial and continues forever. Highlights for each of the agency programs are noted below.

**Table 3
MTA 2008-2013 Capital Program
All Agency Summary
(\$ in millions)**

Program Elements	Proposed 2008-2013
Core Capital Programs	
New York City Transit	\$14,265
Long Island Rail Road	2,630
Metro-North Railroad	1,770
MTA Bus	363
CPRB Core Total	\$19,027

Numbers may not total due to rounding

HIGHLIGHTS

New York City Transit (NYCT) - \$14.265 billion

The largest investment areas for New York City Transit continue to be rolling stock, stations, track, and signals. NYCT will purchase 590 new subway cars - all for the B division - and nearly 2,500 new buses will be purchased to meet replacement cycle needs and expand the fleet. Track and switch investments will continue the timely replacement of this safety-critical system. The program budgets 44 station rehabilitations; most will be done on at outdoor stations in Brooklyn and Queens. Signals on the Dyre line and at six interlockings will be modernized. The bus locator system will be expanded to the entire fleet in 2008-2013. Significant investments are slated for fan plants enhancing the safety of the system, for radio systems to improve communications, and for measures to control flooding.

Long Island Rail Road (LIRR) - \$2.630 billion

A significant portion of Long Island Rail Roads program for 2008-2013 is a set of investments to expand the capacity of its whole rail system to accommodate its growing fleet and to prepare for the start-up of a new service to Grand Central Terminal in 2015. The core investments in this package include expanding track capacity on the Main Line between Floral Park and Hicksville and between Central Islip and Ronkonkoma. Train storage capacity investments include constructing/extending pocket tracks to provide for mid-branch train storage at Massapequa and

Great Neck, reconfiguring the yard at Port Washington and constructing new yards on the Main Line and Port Jefferson Branches. In addition to these capacity investments, at least 25 bridges will undergo rehabilitation or replacement throughout the system.

Metro-North Railroad (MNR) - \$1.770 billion

Metro-North focuses the largest share of its program on rolling stock, stations, track, and shops. Metro-North's M-8 purchases supporting the New Haven line will be completed in the proposed program and the last of the 35-year old M-1 units supporting the Hudson and Harlem lines will be replaced. At least 20 stations will receive rehabilitation work or communications improvements on the Hudson, Harlem, and New Haven Lines in the next program, completing the rehabilitation of all lower Harlem Line stations up to Tuckahoe. The Strategic Intermodal Facilities program also continues, with MNR partnering with the local community for parking expansion and land development. And, phase four of the Croton-Harmon Shop and Yard replacement will be progressed, significantly advancing the multi-program replacement of MNR's 100-year-old main diesel and electric shop.

MTA Bus - \$0.363 billion

Building on the significant purchases made in the 2000-2004 Capital Program to restore the fleet, the Bus Company will order a total of 484 new buses, including: 296 for local service, and 189 for express service. The new buses are primarily for normal replacement, but will also expand the fleet to meet ridership demands. Facility investments include: the building of a new maintenance annex at the College Point Depot, fueling system improvements and bus washers at various locations, a new roof and ventilation system at the JFK Depot, and fire protection systems at four depots. Also, a system-wide engineering assessment of fleet and facilities will be conducted to guide the Bus Company's future strategic capital investments.

Bridges and Tunnels (B&T) - \$2.508 billion

The seven toll bridges and two tunnels originally built by the Triborough Bridge and Tunnel Authority between 45 and 75 years ago spanning New York City's waterways are now in the peak of their replacement cycle. The proposed program continues the heavy deck, structural and cable rehabilitation work begun in the last capital program with particular emphasis on rehabilitation of the Bronx-Whitestone, Throgs Neck, Triborough, and Verrazano-Narrows Bridges. Ninety percent of the agency's program is dedicated to cyclical normal replacement of its assets. B&T's capital program, which is not subject to Capital Program Review Board (CPRB) review and approval, is not included in the CPRB Program submission.

INVESTMENT EMPHASIS 2008-2013

The focus of capital investments included in the proposed MTA 2008-2013 Capital Program shows the progress that has been made over the last 25 years. Table 4 shows that overall, 54 percent of the proposed core program is dedicated to the ongoing cyclical replacement of restored assets. During the 1980s, the normal replacement component of the plan stood at five percent. The next decade saw the normal replacement investment rate climb up to 41 percent. With the completion of investments included in the currently approved 2005-2009 Capital Program, 44% of the MTA's investment focus will be cyclical replacement. All the agencies are on a normal replacement basis for the key operating components of the system, such as rail cars, buses and track. The level of reliable service the MTA system delivers to its customers each day is testimony to this accomplishment.

As Table 4 indicates, investments are still being made to fully modernize some assets - mostly

for New York City Transit in the areas of line equipment, stations, and signals.

The assets of the two commuter rail agencies are largely on normal replacement cycles.

Table 4
MTA 2008-2013 Core Capital Program
Investments by Needs Classification
(\$ in millions)

Agency	State of Good Repair (SGR)	Normal Replacement (NR)	System Improvement (SI)	Other	Total
NYCT	\$3,977	\$7,703	\$2,353	\$231	\$14,265
LIRR	307	1,316	877	130	2,630
MNR	602	985	105	78	1,770
MTA Bus	58	253	50	3	363
CPRB Core Total	\$4,944	\$10,257	\$3,385	\$442	\$19,027
Percent of Total	26%	54%	18%	2%	100%

Numbers may not total due to rounding

At nearly \$2.0 billion per year, at a minimum, the level of normal replacement investment proposed in this plan will need to be made in perpetuity to ensure the reliability and quality of service that have been achieved. A study presented in 1980 with the first MTA five year plan predicted that an outgoing commitment of between \$2.5 billion and \$3 billion per year (in today's dollars) would be needed once the entire rail passenger system reaches a state of good repair.

While 80 percent of the proposed program is focused on basic restoration and replacement of existing assets, funds are included for system improvements as well. These investments – 18 percent of the plan – are targeted to improving the capacity and quality of service for our customers. Investments in fleet growth, additional track capacity, accessibility, and new ventilation improve the MTA's ability to meet the needs of its customers.

2008-2013 ACCELERATED CAPITAL PROGRAM PLANNING AND PROGRAM CONTROLS

The primary planning vehicle for MTA capital programs is a Twenty Year Needs Assessment that establishes the long-term context for selecting the projects included in each five-year program. Usually a two-year process, the Twenty Year Needs involves updating asset inventories/condition ratings to determine replacement cycles for all of the system's assets, and developing detailed, multi-year investment strategies and project scopes to set program area objectives and project configurations through the years. This planning process had been underway with the objective of informing the next program (2010-2014).

The accelerated timeframe of the 2008-2013 program resulted in a suspension of this long-term

planning activity well before its completion. However, phase one was accelerated to preliminarily identify the condition of agency assets proposed for capital investments. This information helped inform the investment decisions included in the proposed capital plan. The remaining Twenty Year Needs activities will be completed in 2009.

The proposed capital program presents two unique challenges to the MTA: 1. the accelerated timeframe for the submission of the program noted above, and 2. the overheated construction market in which these projects will be bid. Each of these impacts warrants that the MTA identify controls that will govern the implementation of projects included in this accelerated program.

The submission of this Capital Program at the end of March, subsequently accelerated to the end of February, was mandated as part of the NYC Traffic Congestion Mitigation Commission legislation in order to provide the transportation context for considering congestion mitigation options. This requirement accelerated the submission of a new program by more than a year and a half, since the current program does not expire until the end of 2009. This significantly curtailed the process that had begun to develop fully documented project scopes for the new program. As a result, the budgets for many of the projects in the program are based on similar work currently underway or recently completed, as opposed to the specifics of the proposed project.

This project budget uncertainty is further complicated by the economics of the current and projected construction market in this region: there is a lot of work, a short supply of subcontractors and a limited pool of contractors for large scale projects. MTA has experienced the impacts of these market conditions over the past few months with single bids received on several projects and/or bids significantly over engineer estimates. This issue is not unique to the New York region; its national impacts were recently the subject of a lead article in the New York Times.

While the program applied construction-based inflation rates to projects, individual projects may experience additional impacts as a result of current market conditions. With the unprecedented demand for construction work, not expected to peak until 2011, contractors can pick and choose between jobs. Premiums can be placed on large or unique jobs where fewer contractors can do the work. If the recent unprecedented volatility in various commodities continues (the price of steel increased 91% since 2003; cement is up 25% and asphalt has grown by 85%), projects that utilize these commodities face additional costs.

Both the accelerated timeframe for specifying projects and these market uncertainties warrant that specific controls be established to confirm project budgets. These controls are informed by the effort of the Blue Ribbon Panel for Construction Excellence, established by the MTA in early 2007, to recommend ways to ensure that large projects stay on time and within budget.

Controls to be applied to projects in the 2008-2013 Program include:

- **Risk Review Process:** Proposed projects with high budgets or schedule/scope risks will be identified for a more rigorous post-plan submission scope and risk review process. These projects may include new technology projects, large projects and those with complex phasing plans or significant customer impacts. In conducting these risk assessments, the 90% probability level will be accepted as the high range estimate for establishing project budgets and schedules. A report to the Board will be made as to the budget and schedule range identified through the risk process. These assessments will include all stakeholders within the process and be performed early in the project design

(preferably at the conclusion of preliminary engineering) and repeated as part of a risk management process to help control project cost and schedule.

- **Project and Market Uncertainty Fund:** In consideration of the overheated construction environment and the accelerated timeframe for developing project scopes, the MTA will establish a program-wide fund in order to insure that the projects that have been promised can be built. Release of funding will be dependent on a review by the Independent Engineer and the MTA's Office of Construction Oversight.

The procedures governing the implementation of these controls will be further defined as the 2008-2013 Capital Program moves through its approval process. Through the application of these controls, MTA will be better positioned to deliver the projects promised in this Plan.

PLAN ORGANIZATION

Following this introduction are detailed discussions of the agencies' proposed core 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



MTA NEW YORK CITY TRANSIT 2008-2013 CAPITAL PROGRAM OVERVIEW

New York City is a place unlike any other in the U.S., where a majority of workers commute from home to work via public transportation, and a majority of households do not own a car. New York City Transit is the core of the MTA's regional network and is the overwhelming source of transit mobility within the city. Carrying 2.3 billion riders annually, NYCT is the largest public transportation system in the United States. Indeed, NYCT subways carry nearly two-thirds of all heavy rail transit riders in the U.S. NYCT buses carry twice as many daily riders as the bus system of Los Angeles, which is the second largest bus fleet in the U.S. NYCT operates about 6,500 subway passenger rail cars, about 4,500 buses, 660 miles of mainline track, and 468 passenger stations. The NYCT 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 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 NYCT system was reeling from years of deferred maintenance and severe underinvestment. Service was hampered by derailments, bus and subway car mechanical failures, crime, and deteriorated stations. Today, after more than 25 years of capital investment, a large portion of NYCT assets have been restored to a state of good repair. While substantial investment is still required for the rehabilitation of core assets, it has also been possible in recent capital programs for NYCT to make investments that enhance the system and improve customer service. Overall, improvements in service reliability and the customer environment have been dramatic, and have attracted new customers to the transit system. NYCT ridership has increased steadily over the past decade – by 6.1 percent in the last five years alone – and has reached near-record levels. Annual NYCT system ridership in 2007 was the highest since 1969. Subway ridership was the highest since 1951. Booming transit ridership is beneficial to the region – helping to reduce automobile traffic and air pollution – but it also necessitates a robust transit infrastructure, capable of handling increased demand.

To sustain and build upon the achievements of prior capital programs and to avoid a repeat of the disinvestment and resulting crises of the past, the proposed 2008-2013 Capital Program funds the investments necessary to restore and replenish the system's capital stock. In this program, NYCT continues progress toward achieving system-wide state of good repair and bringing more assets into the cycle of normal replacement. Select system improvements are also introduced to enhance operational capabilities and/or improve customer service.

The following factors shaped the development of the proposed 2008-2013 Capital Program:

- Investments in Primary Operating Assets (Fleets and Track)
- Investments in Signals, Ventilation, and Other Core Infrastructure
- System Improvement Investments
- New Investment Strategies

Investments in Primary Operating Assets (Fleets and Track)

Investments in NYCT's primary service delivery assets – trains and the tracks they run on, as well as buses – are the core of the proposed 2008-2013 Capital Program. Prior capital programs have brought all NYCT subway cars, buses, and track to a state of good repair – and the resultant improvements in service reliability are one of the great success stories of the

capital program. Capital investments in cars, in concert with the Scheduled Maintenance System (SMS), have increased reliability from approximately 7,000 miles between breakdowns in 1982 to more than 150,000 miles today. Likewise, bus fleet reliability has improved from below 1,000 miles between breakdowns to 4,100 miles today. Derailments, which were once common, now occur only rarely.

To maintain these gains in reliability, continued and sustained investment is required. The proposed 2008-2013 Capital Program includes nearly \$5 billion to purchase railcars, purchase buses, and replace track. This represents nearly 35 percent of the overall capital program, comparable to levels in past programs. Most of this funding is for the normal replacement of assets at the end of their useful lives. The subway cars to be replaced are 40 years old and reached a state of good repair not through replacement with new cars but with comprehensive overhauls. The plan also provides for a modest increase in the size of the bus fleet to allow for increased service. (Subway fleet growth is a component of the CBTC investments included in MTA's Capacity Expansion Initiatives.)

Investments in Signals, Ventilation, and Other Core Infrastructure

Besides railcars and track, a vast array of infrastructure along the right-of-way is required to make the subway system work. This includes line structures, pumps, ventilation plants, tunnel lighting, the signal system, the communication system, and the traction power system. Most of these components are hidden from public view and rarely considered by customers, but this infrastructure ensures safe and reliable operations, and failures can lead to service disruptions.

Investment in this infrastructure has been a key component of prior programs, but work is far from complete. Several assets, such as pumps and the power system, have nearly achieved a state of good repair, and in these areas there is a growing need for normal replacement investment. Other assets, notably the signal system and vent plants, have not yet received the full investment needed to reach today's service standards.

About 30 percent of the signal system dates back to the original construction of the subway and has never been rehabilitated. Much of the balance of the system was rehabilitated several decades ago and is due for normal replacement. As a result, signal failures are a leading cause of subway service delays. In response to these conditions across the signal system, NYCT drafted a 15-year plan to bring all mainline signal assets to a state of good repair and to initiate needed normal replacement work. This plan will cost more than \$15 billion. The proposed 2008-2013 Capital Program is a significant first step in the implementation of this plan. The program includes \$1.6 billion for mainline signal system rehabilitation. The CBTC projects included in the Capacity Expansion Initiatives section of the 2008-2013 Program provides an additional \$1.5 billion for signal work. This total of more than \$3 billion represents a major funding increase compared to previous capital programs.

Ventilation plants are another area of emphasis in the proposed 2008-2013 Capital Program. The NYCT vent plant system dates back to when the subway was built, and does not meet contemporary standards. To minimize fire safety risks, especially in a post-9/11 environment, NYCT proposes to construct four vent plants at priority locations within the subway system. In the long term, NYCT has proposed to embark on a 20 year program to accelerate improvements at approximately 50 of the highest-priority tunnel segments.

System Improvement Investments

A generation ago, when the transit system was at its nadir, the best that New Yorkers could hope for were reliable service and a clean, safe customer environment. Today, those basic needs have been achieved, and the horrid conditions of 25 years ago are largely a memory. As a result, customers today have greater expectations of their transit system – expectations that the system should be able to keep pace with ridership growth, incorporate modern technology, and provide accessibility to all riders. To meet these expectations, the proposed 2008-2013 Capital Program includes a host of “system improvement” projects which will enhance service capacity and create new system capabilities to increase customer satisfaction. More than 15 percent of the proposed 2008-2013 Capital Program is devoted to system improvement investments, a significant increase from prior capital programs. Projects include:

- **Capacity enhancements** – The capital program will reconfigure signals on the Lexington Avenue line to increase train throughput, and will begin preparatory work toward eliminating a major subway service bottleneck in Brooklyn. To alleviate crowding, the program includes a project to add stairs and improve access at the Grand Central subway station. The program also includes the purchase of new buses, and associated facility improvements, to support expanded service.
- **Customer communications enhancements** – The capital program will install public address systems and customer information screens (PA/CIS) at 87 stations that lack these capabilities. The program also continues progress on Automatic Train Supervision (ATS) and Automatic Vehicle Location (AVL) technologies, which ultimately will be used to provide real-time travel information to subway and bus customers.
- **Accessibility enhancements** – The capital program continues progress toward compliance with the Americans with Disabilities Act by making more stations accessible. In addition, the program will include the deployment of new technologies to improve communications with customers who have visual or hearing impairments.

Note that some of these projects are long-term initiatives and will be completed over the course of successive capital programs.

New Investment Strategies

In recent years, the capital program has experienced significant cost inflation. The cost of many types of capital projects have increased sharply, due to a booming construction market in the New York region, increased worldwide prices for steel, concrete, and other raw materials, and the declining value of the dollar against other major currencies. In light of increased costs, NYCT is looking to accomplish more with less. It is embracing a strategy of smaller-scale, component-based investments as an alternative to comprehensive rehabilitation of assets.

This strategy is most apparent in the proposed 2008-2013 program for passenger stations. The program includes the rehabilitation of 44 stations, an average of eight rehabilitations per year. This is a reduced pace of investment compared to prior capital programs, and many stations will not achieve state of good repair for some time. To augment the full station rehabilitations, the proposed 2008-2013 plan also includes the initiation of a station component program which will address specific station deficiencies on a more frequent cycle. Components to be addressed include platform edges, stairs, walls, and canopies.

To a lesser extent, similar component-based investment strategies are being used to address other infrastructure, particularly substations, ventilation plants, and railcar maintenance facilities.

For these asset categories, smaller-scale investments in deficient components help to make up for the slower pace of comprehensive modernization projects.

THE PROPOSED 2008-2013 CAPITAL PROGRAM

The proposed 2008-2013 Core Capital Program totaling \$14.265 billion provides the resources needed to restore, replace, rebuild, and modernize significant portions of NYC Transit's infrastructure. Other planned system improvements will enhance access to the system and strengthen NYCT's abilities to provide and maintain service. Table 5 identifies these investments by asset category.

Table 5
MTA New York City Transit
2008-2013 Capital Program by Investment Category
(\$ in millions)

Category	Proposed 2008-2013	Percent
Subway Cars	\$1,467	10%
Buses	1,952	14%
Passenger Stations	2,751	19%
Track	1,389	10%
Line Equipment	785	6%
Line Structures	809	6%
Signals and Communications	2,187	15%
Power	361	3%
Shops	193	1%
Yards	406	3%
Depots	925	6%
Service Vehicles	120	1%
Miscellaneous	644	5%
Staten Island Railway	276	2%
Total	\$14,265	100%

Numbers may not total due to rounding

* Totals do not include projects included in the Capacity Expansion Investments section of the proposed capital program

The NYCT network includes many distinct yet interrelated assets. Many factors such as useful life, condition, frequency of use, functional obsolescence, environmental/safety requirements,

and new service opportunities for customers play a role in prioritizing investments in this diverse asset base. Investment priorities are discussed below in four groups: right-of-way (ROW) infrastructure, fleets and support facilities, stations and in-station assets, and miscellaneous.

Right-of-Way Infrastructure

Infrastructure along the right-of-way is essential for enabling safe, fast, and reliable transit service. These assets include track and line structures, as well as “hidden” infrastructure, such as line equipment (tunnel lighting, pumps, and fan plants), the signal system, and the traction power system. Investments in right-of-way infrastructure account for 39 percent of the proposed 2008-2013 Capital Program.

- ***Track*** – The plan continues the normal replacement of mainline switches and track based on the annual pace determined by the quadrennial condition surveys. Planned for 2009-2011 is the replacement of bolted rail with continuous-welded rail (CWR) to reduce the occurrence of broken rails; 2011 marks the final year of the capially-funded CWR initiative. Track force account work, which includes replacing container plate assemblies, is funded for all five full years in the program. A total of \$1.389 billion is budgeted for this investment category.
- ***Tunnel lighting*** – The plan includes \$85 million to install new compact fluorescent lighting along the Queens Boulevard line, replacing original incandescent equipment that was installed when the tunnels were first built. This work reflects SGR priorities, and is being coordinated with other projects along the right-of-way (specifically, fan plant projects) to reduce track access costs and disruptions to customers. After 2013, approximately 130 of the 431 track miles of tunnel lighting will still need to be brought to a state of good repair.
- ***Pumps*** – The plan includes \$61 million to rehabilitate six pump rooms at various locations. With this investment, all 230 pump rooms on the subway mainline will have achieved a state of good repair. The plan also includes \$30 million for deep well normal replacement work on the Crosstown and Nostrand lines.
- ***Fan plants*** – The plan invests heavily in fan plants because these assets are critical for enhancing passenger safety in the event of smoke or fire, and most of the NYCT system fan plants were built prior to today’s contemporary subway design standards. To minimize fire safety risks, new or expanded fan plants are constructed at the highest priority locations within the subway system (based on ridership and tunnel characteristics). The plan includes \$561 million to construct four fan plants on the 6th Ave and 8th Ave lines. The plan also includes \$46 million for repairs and modifications to ensure the continued operability of existing fan plants. There are currently 194 fan plants in the NYCT system; 63 percent are in a state of good repair.
- ***Line structures*** – The plan invests \$809 million in line structures. Major work focuses on rehabilitation of subway, elevated, viaduct, and at-grade structures along seven lines, as well as the painting of steel elevated structures along eight lines. Included within the line structures program is a \$183 million project to alleviate flooding at various locations. This is a new initiative to prevent storm water intrusion, in response to the severe flooding and train service disruptions that occurred on August 8, 2007.
- ***Signals*** – The main objectives of the NYCT signals proposal are to address aging signal equipment and prepare interlockings for the overlay of CBTC. The core signal program

includes the modernization of six interlockings on three lines of the B division, the modernization of signals on the Dyre Avenue line (including two interlockings), station time signal enhancements on the Lexington line, and the continuation of high-priority system-wide signal improvements such as stop cable replacement, signal control line modifications, and key-by circuit enhancements. In addition, a new initiative has begun to replace aging solid state signal equipment in the relay rooms. This program also contains a project to utilize a segment of the Culver line for the development and testing of CBTC equipment to be installed on the Queens Blvd. line and future CBTC lines. The total estimate for the proposed projects is \$1.607 billion.

- **Communications** – A variety of investments are included in the proposed program to support the needs of the communication systems that supports the daily operation of a system with 6,500 rail cars, 4,500 buses, and seven million daily passengers. Investments are planned to replace the aging copper and fiber optic cable that supports the data network and enhance the security and conditions in the communication rooms which house critical data network equipment. Investments planned for the wireless communication system include the replacement of the subway VHF radio system, the purchase of new radio units, and the replacement of the antenna cable in the underground tunnels. Investments planned to enhance passenger communications include the development of PAs with connections to the RCC and customer information screens at 87 stations. A total of \$580 million is proposed for communications work.
- **Traction power** – NYCT's traction power system is vast, including 216 substations, 299 circuit breaker houses (CBHs), hundreds of miles of traction power cables, and an extensive monitoring and control system. Although most of the power system has achieved a state of good repair, certain components require normal replacement. With an allocation of \$361 million, the plan will modernize one substation, address deficient substation components at various locations, rehabilitate six CBHs, and replace power cables, ducts, and emergency alarms.

Fleets and Support Facilities

Subway cars and bus fleets are the core of NYCT's service. Less visible to riders but essential for reliable service is the complex network of supporting facilities, including rail car overhaul/maintenance shops, rail yards, and bus depots. Proposed investments in these assets account for 36 percent of the proposed plan.

- **Subway cars** – Since the subway fleet was restored to good repair in the 1982-1991 Capital Program, NYCT has consistently replaced cars as they reach the end of their service lives and has strategically expanded the fleet to support new services such as the 63rd St. Connector and to meet ridership growth. In 2008, NYCT operates a fleet of approximately 6,500 rail cars. The proposed 2008-2013 Core Capital Program allocates \$1.659 billion for the purchase of 654 new rail cars: \$1.467 billion for New York City Transit and \$192 million for Staten Island Railway. These purchases allow for the scheduled normal replacement of 564 railcars and the addition of 90 more growth cars needed to accommodate population and service growth.
- **Bus fleet** – The bus fleet reached a state of good repair in 1985. Its size and composition have changed significantly since then as NYCT has expanded the fleet to meet ridership demands, introduced new clean fuel technologies to reduce emissions, and diversified the fleet with new types of buses to better meet different types of services. The proposed plan continues this strategy and includes the purchase of 1,544

standard buses, 469 articulated buses, and 479 high-capacity express buses. The bus fleet will undergo significant growth during this time period. The fleet size of 4,547 buses at the end of 2007 will grow to 5,099 by the end of 2014. The proposed program includes \$1.95 billion for this entire investment category, of which \$1.85 billion is for bus purchases and \$99 million is for the paratransit fleet.

- **Rail car shops and yards** – Overhaul and maintenance shops need significant renewal investments, not only to improve facility conditions, but also to adapt them to the needs of a high technology fleet. One of the most important proposed shop projects (\$49 million) is the completion of the first phase of investment at the 207 St Overhaul Shop, which was initiated in the 2005-2009 plan. Additionally, the 85-year old Livonia Railcar Shop will receive priority rehabilitation work to address several immediate needs. Proposed yard investments will address security needs, track and switch replacement, modernization of the Jamaica Yard interlocking, and the expansion of the Jamaica Yard. A total of \$599 million is allocated for shop and yard work.
- **Depots** – The proposed 2008-2013 Capital Program includes \$925 million for depot investments. Major projects include partial funding of a new depot to replace the existing Jamaica Depot and support expanded depot facilities related to congestion mitigation, funding to explore and conceptually design potential locations for a new Lower Manhattan Depot, and the reconstruction of the Clara Hale Depot. Initial funding for the design and demolition of the 126 St Depot is also included. In addition to depot rehabilitation and reconstruction projects, funding will also be allocated to other depot investments including replacing bus lifts, washers, and heavy depot equipment, and upgrading HVAC systems, storage tanks and paint booths. A major project to replace the bus radio system is also included in the proposal.

Passenger Stations

Investment in passenger stations is 19 percent (\$2.751 billion) of the proposed 2008-2013 Capital Program. These investments are predominantly station rehabilitations, but they also address accessibility, fare collection, escalators, elevators, signage, and station component work. With work committed through 2008, 52 percent of the 468 stations will have received major renewal investments since the inception of the capital program process. In the proposed plan 44 additional stations are programmed for rehabilitation, increasing the reach of the capital process to 62 percent of the stations. At this pace, attainment of a state of good repair exceeds the originally projected 2019 goal. Moreover, stations rehabilitated in the 1980s and early 1990s will require further investment. NYCT recognizes that there is a tremendous need for ongoing capital investment in passenger stations to address critical components on a more frequent cycle. To meet this goal, the plan includes the initiation of a station component program that will augment the pace of investment in station rehabilitations and address structurally deficient station components, including platform edges, walls, canopies, stairs, and vent bays.

Miscellaneous

The proposed plan provides resources for service fleet replacement, program support, employee facilities, and Staten Island Railway (SIR) needs. These areas account for \$1.04 billion (seven percent) of the proposed 2008-2013 Capital Program.

- **Service fleet** – The support fleet includes rubber-tire vehicles and work trains. Rubber-tire vehicles have useful lives of approximately 10 years, so a significant portion of the fleet needs to be replaced every capital program. As for work trains, the purchase of 10

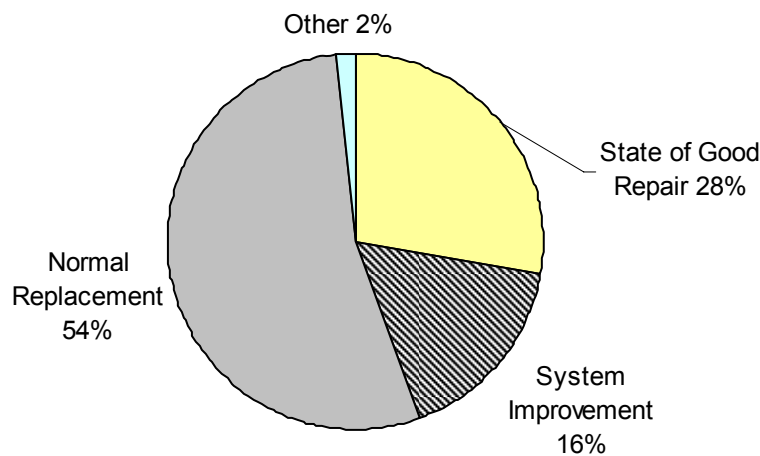
diesel-electric locomotives, 54 flatcars, and eight snow-throwers are proposed for the 2008-2013 Capital Program.

- **Employee facilities** – Employee facility room rehabilitations at 12 locations are proposed for the 2008-2013 Capital Program. Other highlighted employee facility projects include security hardening of control towers and roof replacements at various locations.
- **Staten Island Railway** – The self-contained SIR is largely in a state of good repair, but still requires key investments. A new fleet of 64 rail cars will replace the aging fleet that services this line. The replacement of the Atlantic and Nassau stations with a new, fully ADA-accessible station, called Arthur Kill, will bring all SIR stations to a state of good repair. Other investments include modernization of track and switches at St. George Terminal and the repair of eight bridges and one culvert.
- **Other** – Other miscellaneous capital program costs include insurance, engineering services to support technical work that needs to be done before the award of projects, and environmental and safety needs such as asbestos removal.

SYSTEM CONDITION AND ACCOMPLISHMENTS

Figure 1 illustrates the mix of investments by needs category in the proposed 2008-2013 Capital Program. The program continues NYCT's emphasis on achieving and maintaining a state of good repair by devoting 82 percent of the Core Program funding to restoring and replacing assets. More than 50 percent of the proposed 2008-2013 Capital Program is dedicated to the ongoing replacement of assets previously restored. The CBTC projects in the Capacity Expansion Investment section represent additional system improvement and expansion progress, reducing the share of such projects in the core program.

Figure 1
NYC Transit 2008-2013 Capital Program
Investments by Needs Category

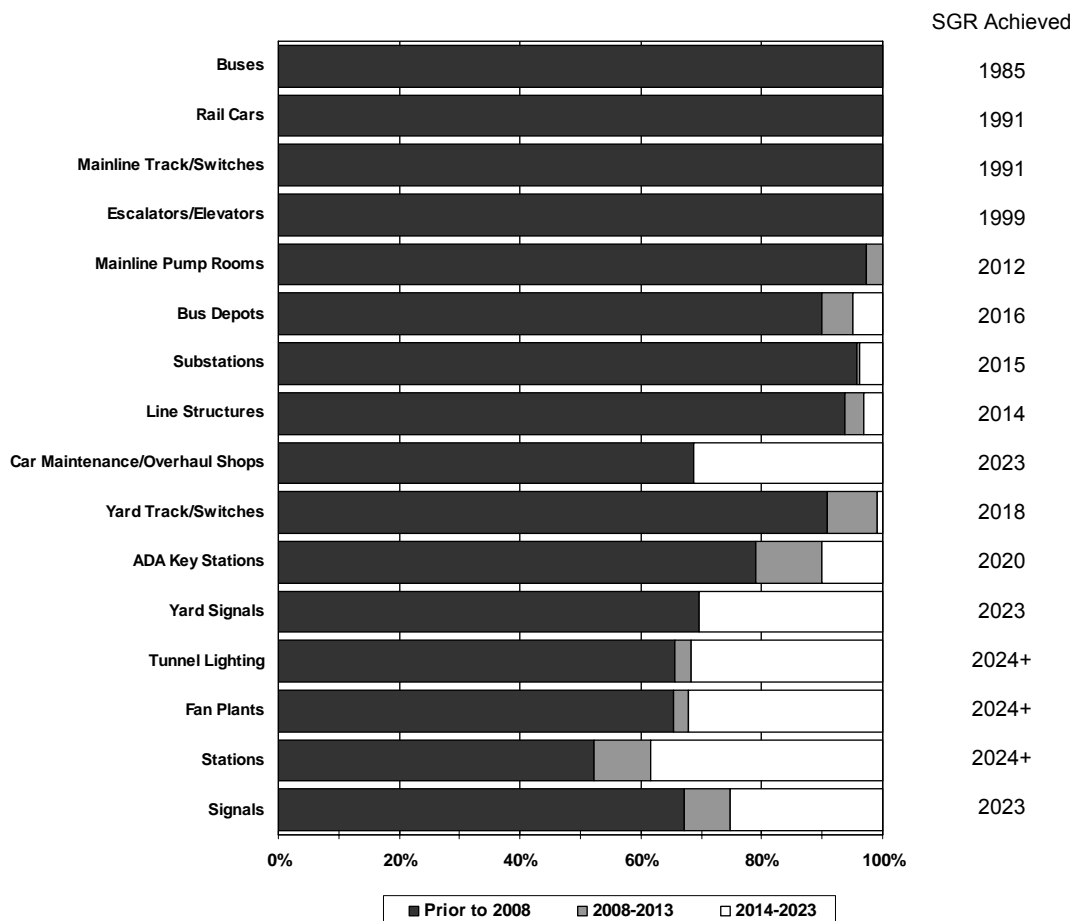


NYCT is making select strategic investments to keep pace with technology, to meet the rapidly changing demands of customers, and to improve service operations and flexibility. Notable proposed system improvement projects in the core program include: full accessibility improvements in stations, installation of public address systems at the 87 remaining stations in the system without them, additional ventilation facilities to achieve modern safety standards, and minor signaling enhancements on the Lexington line.

Since 1982, NYCT has made great progress toward bringing asset groups to a state of good repair. Investments to date have prioritized core service delivery assets and facilities while also improving the passenger environment for as many riders as possible. As Chart 1 shows, all buses, rail cars, mainline track and switches, and station escalators/elevators have reached a state of good repair. This program will bring mainline pump rooms to a state of good repair. Additionally, well over 80 percent of bus depots, power substations, and line structures are in a state of good repair as of the end of 2008.

The progress to state of good repair presented in Chart 1 assumes a pace of investment based on NYC Transit's unconstrained long-term needs assessment. The pace of investment reflects a variety of factors, including agency priorities, condition of assets, impact on service, cost of work, and available resources. Given the relation of these factors to this plan, however, the pace to achieve SGR and the target dates shown for some categories, such as stations, shops, ventilation facilities, and tunnel lighting, will require revision to a longer timeframe. For investment categories for which the pace has slowed, NYCT is exploring ways to recover the pace through lower cost projects, component replacement projects, and alternative construction approaches that would shorten project duration.

**Chart 1
Progress to State of Good Repair
NYCT Investment Categories**



A number of asset categories will have a considerable amount of work even after the 2008-2013 Capital Program to achieve a state of good repair, including stations, ventilation facilities, tunnel lighting, and signals. The pace of many of these categories depends on competing demands for track access and funding.

In order to maintain the integrity of assets brought to a state of good repair, normal replacement needs have and will continue to increase. As this occurs, it will be more challenging to achieve a state of good repair for all asset categories while simultaneously maintaining the appropriate pace of normal replacement investments.

Major Accomplishments of the 2005-2009 Capital Program

Over the last three and a half years, NYCT and its customers have seen some very positive impacts of past capital investments, many the result of the investments highlighted below. Some of these investments already have been completed and others, which started in the last years of the 2005-2009 Capital Program, will be completed after 2008.

- NYC Transit purchased 620 new subway cars at a cost of \$1.25 billion. This purchase was of R160 cars to replace aging B division cars.

- NYCT continued with its commitment to having the cleanest large bus fleet in the nation. A total of 1,207 new buses will be purchased in the 2005-2009 Capital Program. In order to further reduce emissions, all of the 861 new standard buses will be hybrids. NYCT will also be purchasing its first ever articulated hybrid buses in 2008.
- NYC Transit purchased 731 minibuses for the agency's paratransit (Access-A-Ride) service to meet growing obligations under ADA.
- NYCT is to award rehabilitation projects for 22 stations, normal replacement work at four previously rehabilitated stations, and full accessibility improvements at 16 stations. Major station projects include the Jay St. station in downtown Brooklyn and Bleecker St. station in Manhattan, both of which will be rehabilitated in conjunction with construction of new passenger transfer links and full accessibility. Other notable stations and complexes addressed include: the 59th St.-Columbus Circle complex, 96th St. on the Broadway-7th Ave. line in Manhattan, Smith-9th St and 86th St/4th Ave. in Brooklyn, and East 180th St. on the White Plains Road line in the Bronx. Additionally, rehabilitation work addressed stations along the Brighton line in Brooklyn and the Pelham line in the Bronx.
- NYC Transit replaced key safety-related equipment along the right-of-way, including 52 track miles of tunnel lighting on seven lines and eight fan plants.
- Several structures were repaired and/or painted. The major project in this category is the repair of the Culver viaduct structure in Brooklyn, to be done as part of a group of projects that also modernize an interlocking, rehabilitate the Smith/9th Streets Station, and rehabilitate an employee facility.
- NYC Transit continued to integrate communications-based signal technology into its signal modernization program by designing the CBTC installation on the Flushing line and designing the CBTC Test Track and Integration Program. To further reliable operations, interlockings will be modernized at seven locations. The middle track of the Jerome line was signalized to allow for greater operational flexibility.
- NYC Transit awarded the final contract to complete its systemwide SONET/ATM data and communications network. Work was also awarded at 121 locations to prepare for the cutover of communication lines to the new fiber-optic network.
- NYC Transit's fleet maintenance abilities have been significantly improved with the completion of the projects to replace Corona Maintenance shop and the new Grand Avenue Depot/Central Maintenance Facility. Funded in the 2000-2004 Capital Program, construction of a new Charleston Depot Annex on Staten Island was also awarded in this period. These facilities enable NYCT to better maintain the new technology rail cars and the diversified and growing bus fleet.

PLANNING THE CAPITAL PROGRAM

The proposed 2008-2013 Capital Program is based on a state of the system assessment that sets the long-term context for selecting projects. For this proposed program, the typical needs assessment and program development cycle has been compressed as a result of the legislative requirement. However, significant efforts were made toward obtaining detailed asset

inventories and asset condition assessments. These helped the agency to determine investment priorities and develop investment strategies. Thumbnail descriptions of the asset information and strategies are presented in the category sections that follow the Overview. Forecasted needs are evaluated and analyzed, especially if they propose to introduce system improvements. From this process, specific project proposals are developed and then referred to the project master planning process to develop detailed scopes. Once there is concurrence on the scope, a project is eligible for inclusion in the capital program and design can begin. In many cases, design has already commenced as part of the 2005-2009 Capital Program to ensure a project's readiness for award in the early part of the 2008-2013 period.

The 2008-2013 period is very important for NYC Transit, particularly as new technologies enter the operational phase and are rolled out systemwide. Advanced technology has entered virtually every NYCT asset category. New rail cars and buses feature new operating, diagnostics, and maintenance systems that are all increasingly reliant on digital technologies, and as older vehicles are replaced, these technologies become more widespread in the fleets. Similarly, previously awarded new train signal and control systems are progressing into daily operational use and follow-on projects are slated to progress to a wider share of the system. In addition, passengers will benefit as new communications systems are installed that provide real-time information and new fare collection media are deployed. All these initiatives are the results of prior needs assessment processes.

An important factor in the selection, design, and contract packaging process is the impact of construction on system operation. In a system that operates around the clock, maintaining service during construction can be complicated and expensive, both in terms of contract cost and agency support costs. NYCT has developed a detailed, iterative process to evaluate the impacts and opportunities for efficiencies both within and among projects. This interactive process sharpens the project selection process by bringing specific concerns into focus, such as impacts on customers, operational and management concerns, and physical condition information. The result is work packaged to reduce customer and operational impacts.

MTA NEW YORK CITY TRANSIT PROGRAM PLAN

NEW YORK CITY TRANSIT

NEW CARS

CATEGORY T-601

As the largest subway and rail network in the country NYCT currently operates a fleet of over 6,200 rail cars serving 468 stations and approximately five million customers daily. Due to differences in tunnel geometry, NYCT maintains two internal subway divisions: A and B, respectively corresponding to the numbered and lettered lines. There are approximately 2,800 A division cars and 3,400 division B cars.

The rail car fleet reached a state of good repair as of the 1991 award through a combination of new car purchases and comprehensive overhauls. Since that time, a program has been in place to replace cars as they reach the end of their useful life (typically 40 years). This normal replacement program also has introduced advanced technologies and improved customer accessibility features, automated public address systems and signage, improved lighting, emergency customer intercoms, and electronic route maps.

The 2008-2013 Capital Program

New York City Transit proposes to invest \$1.467 billion in new rail cars in the proposed 2008-2013 Capital Program. This allows for the replacement of 500 railcars and the addition of 90 cars needed to accommodate population and service growth. This results in a total of 590 railcars to be purchased. All purchases will be of B division cars. An additional 64 division B cars will be purchased under Staten Island Railway.

The purchase of 590 railcars described above will be executed under two separate contracts. 382 railcars will be bought under an option of the existing R160 contract, bringing the total number of R160 cars in the fleet to 1,662. The remaining 208 cars will be the first of the R179 series. These longer (75- foot) cars will replace the R44 fleet, which was purchased in the early 1970s.

Note:

New York City Transit proposes funding to support the purchase of fleet growth railcars as part of the Congestion Pricing Funded Capacity Expansion program separate from but associated with the core 2008-2013 Capital Program. All of these are for fleet expansion and service improvements. The 284 new railcars include 186 A division cars (\$589 million) and 98 B division cars (\$326 million).

NEW YORK CITY TRANSIT BUSES CATEGORY T-603

NYCT's bus fleet - the largest in the country - has been in a state of good repair since 1985. Furthermore, NYCT has emerged as a national leader in deployment of a low emissions technology in their bus fleet. Since 1996, NYCT has diversified its fleet with special purpose and high capacity buses to more effectively meet its dynamic service requirements. At year end 2007, the fleet contained 4,547 buses comprised of 3,317 (73 percent) standard 40 foot buses, 629 (14 percent) 60 foot articulated buses, and 601 (13 percent) 45 foot express coaches.

NYCT's long term fleet strategy will continue normal replacement based on a 12-year useful life for buses and a 7-year useful life paratransit vehicles. NYCT will continue to invest in new buses and clean fuel technologies to reduce emissions.

The average age of the current bus fleet is approximately 8.5 years. That figure would drop to approximately 5.5 years by 2014 under the proposed purchase scenario. The average bus age is slightly older than the exact midpoint of six years because of a high volume of bus purchases in the late 1990s due to increased ridership after MetroCard implementation. Maintaining a normal cycle of bus replacement is critical for service reliability and the ongoing infusion of new technologies and improved environmental standards.

Through preceding capital programs, NYC Transit has worked to make its bus fleet the cleanest major fleet in the world and has introduced many emissions-reducing technologies. Through 2007 NYCT placed in service more than 1,000 compressed natural gas (CNG) and hybrid electric buses. In the future, every standard bus purchased will use clean-fuel technology.

In addition to its bus fleet, NYCT has 1,533 active paratransit vans. These are minibuses used in MTA's Access-a-Ride program to meet obligations under the Americans with Disabilities Act (ADA). All buses and paratransit vehicles are air-conditioned and fully ADA compliant. Due to recent purchases intended to increase the fleet to meet growing demand for lift-equipped vehicles, the average age of the fleet is 2.8 years.

The 2008-2013 Capital Program

The proposed 2008-2013 Capital Program includes \$1.952 billion in this category. A total of 2,492 new buses will be ordered, which includes 1,544 standard buses (\$1.044 billion), 469 articulated buses (\$457 million), and 479 express buses (\$352 million). Also included in the category total is the purchase of 1,016 new paratransit vans (\$83 million). \$16 million has been allocated for paratransit particulate filters to reduce emissions.

All buses will use clean fuel technology. Since the late 1990s all NYCT standard bus purchases have been of hybrid electric buses. NYCT is in the process of purchasing its first hybrid articulated buses. Additional upgrades in the bus fleet will include many more low-floor buses, which appeal to the customer as easier to board and alight. At the end of the 2008-2013 Capital Program NYCT will have approximately 5,100 buses and 2,150 paratransit vans.

NEW YORK CITY TRANSIT

PASSENGER STATIONS

CATEGORY T-604

NYCT's 468 passenger stations are used by millions of customers each day at each end of every trip and for transfers. At 16 million square feet, the total floor space contained in NYCT's stations is greater than the commercial office space in many U.S. cities. The system has 277 underground stations, 142 on elevated structures, and 49 on viaduct, embankment, or open-cut structures. Almost all the stations reached their current configuration before 1940.

Stations have a targeted reinvestment cycle of 35 years; however, many station components actually deteriorate at a much faster rate, and ideally would receive reinvestment every 15-20 years. The actual rate of deterioration varies by station due to factors such as passenger usage, performance of construction material, water infiltration, and other environmental conditions. Moreover, some stations rehabilitated in earlier capital programs do not meet current standards and may have significant unaddressed defects that will require further investment. Consequently, NYCT has initiated normal replacement and station component work in conjunction with full state-of-good-repair station rehabilitations.

A Station Condition Survey project was begun in mid-2007 to perform comprehensive visual inspections at 359 stations system-wide and to rate various station components and subcomponents according to the observable level of deterioration. The results of this survey will provide a baseline of existing conditions at individual stations system-wide. The survey data, currently being reviewed and analyzed, will inform a condition-based investment program with the goal of eliminating the most deficient station conditions and reinvesting in critical station components on a more frequent cycle.

As part of a long-range strategy to provide full accessibility under ADA in the system, NYCT is on schedule to complete all 100 of the "Key Stations" by 2020. Additionally, short of full accessibility, all rehabilitated stations receive accessibility enhancements such as compliant platform edge warning strips and Braille signage.

Over the next 20 years, the NYCT stations program also will continue the normal replacement and strategic growth in the use of fare equipment, passenger elevators and escalators. NYCT also plans to reduce the reliance on gap fillers.

The 2008-2013 Capital Program

NYCT proposes \$2.751 billion for station rehabilitation, ADA improvements, fare collection, station escalators/elevators, and other station investments.

Station Rehabilitation

The proposed 2008-2013 Capital Program includes \$1,336 billion to rehabilitate 44 stations. The majority (41 stations) of proposed rehabilitation work will be implemented on a line basis at outdoor stations in Brooklyn and Queens. Station rehabilitation work is proposed on the following lines: Sea Beach (9 stations), West End (10 stations), Far Rockaway (6 stations), Rockaway (3 stations), Myrtle (6 stations), and New Lots (7 stations). Other stations proposed for rehabilitation include 205th St. and 182-183rd Sts. on the Concourse line in the Bronx and 14th St. on the Broadway-7th Ave. line in Manhattan. As a result of being programmed late in the prior 2005-2009 Capital

Program, a significant number of these locations represent a transfer of scope from the 2005-2009 program to the proposed 2008-2013 program.

The line approach addresses repairs on adjacent stations along the same line, often simultaneously with right-of-way work, such as signal improvements or structural repairs. This minimizes passenger disruption and improves contracting and management efficiencies. While the plan reflects a reduced pace for stations, NYCT is reviewing the stations program to identify ways to increase the rate of station improvements/rehabilitations

In addition, major platform reconstruction work is planned at Dyckman St. on the Broadway-7th Ave. line in Manhattan. Minor station component work is planned at 50th St. and 55th St. stations on the West End line in Brooklyn as part of the line project.

Accessibility for the Disabled

NYCT is on pace to make 100 stations fully accessible in accordance with ADA standards by 2020. With investments made through 2008, full ADA accessibility at 79 Key Stations will be complete or in progress. In the proposed 2008-2013 Capital Program, NYCT includes \$608 million in ADA investments at 10 additional Key Stations. The remaining 11 locations will be proposed in the period beyond 2013 but in time to allow for construction and completion before 2020. As an enhancement to full accessibility, NYCT will investigate opportunities to include redundant elevator installations to further improve the reliability and availability of elevators.

Two locations will be addressed in conjunction with full station rehabilitations: Mott Ave. on the Rockaway line and Bay Parkway on the West End line. The remaining 10 locations will be addressed as stand alone projects. These are: 68th St.-Hunter College, 23rd St./Lexington, and 57th St./Broadway in Manhattan; Kingsbridge Road/Concourse and Hunts Point in the Bronx; Forest Hills-71st Ave. and Ozone Park-Lefferts Blvd in Queens; and Utica Ave./Fulton in Brooklyn.

The proposed 2008-2013 Capital Program includes a new accessibility enhancement. In a \$66 million project, NYCT will provide inductive loop, or "telecoil," technology at subway stations and on buses to facilitate communication with individuals using hearing aid devices.

Fare Collection

The proposed program includes \$58 million for fare collection systems and equipment. While the current MetroCard system is still performing well, the time has come for the normal replacement of the electronic components in the HEETs (High Entry/Exit Turnstiles) and MVMs (MetroCard Vending Machines). The useful life of the electronic components is significantly shorter (7-10 years) than the metal turnstiles themselves. In addition, 83 new HEETs will be purchased and installed.

Escalators and Elevators

The proposed program includes \$41 million to replace escalators. A total of five escalators will be replaced at four stations: Roosevelt Ave. (Queens Blvd. line), Whitehall (Broadway line), East Broadway (6th Ave. line), and Bowery (Nassau line).

The proposed program also includes \$94 million for the initiation of normal replacement investment for hydraulic elevators initially installed for the purpose of wheelchair access.

A total of 21 elevators will be replaced at 10 stations: Pelham Bay Park/Pelham line; Simpson St./White Plains Rd. line; 34th St./6th Ave. line; Lexington Ave. and 21st St /63rd St. line, Jamaica-Van Wyck/Archer Ave. line; 125th St., 51st St., and Grand Central Station and Brooklyn Bridge/Lexington line.

Other Station Improvements

NYCT recognizes the tremendous need for capital investment in passenger stations. Nearly half of the stations have received no capital investment and are awaiting rehabilitation. Unfortunately, long investment cycles coupled with shorter useful lives of some station components, can lead to poor conditions in some stations.

To address this issue, NYCT proposes \$359 million for station component replacement projects informed by updated condition information. Augmenting the pace of investment in stations, these projects will address structurally deficient areas of stations, such as platform edges, walls, canopies, stairs, and vent bays at stations throughout the system. Specific locations are still being evaluated for inclusion in these projects.

\$86 million is proposed for projects to replace station signage throughout the system, improve access at the Grand Central Station complex, improve scrubber room drainage at four locations, and to replace gap fillers at 14th St.-Union Square (Lexington line).

NEW YORK CITY TRANSIT TRACK CATEGORY T-605

The NYCT rail network consists of 659 miles of mainline track and 1,559 switches. Mainline track has been in good repair since 1991 and mainline switches since 1997. To maintain that condition, NYCT has a regular program of normal replacement. The useful life of track and switches varies considerably – from 25 to 65 years – depending on traffic, track type and geometry, and exposure to weather. Generally, the useful life of track is significantly lower on grades and/or sharply curved sections of track than it is on tangent track.

The importance of track and switches to safe train operations is difficult to understate. NYCT track is traversed every weekday by hundreds of trains carrying the subway's five million daily passengers. This heavy usage causes daily wear of the track, which is countered by frequent inspection and maintenance. NYCT uses multiple levels of inspection. All mainline tracks are inspected visually by trackwalkers twice weekly. Mainline switches are inspected, tested, and maintained by two-member teams monthly. All aspects of track geometry are measured and recorded four times a year. Rails are scanned for internal defects using a Sperry rail car three times per year. In addition, to support the capital replacement program, all track sections are surveyed every four years by an engineering team that estimates the number of years of useful life remaining for the section.

NYCT's mainline track and switch investment strategy is based on the most recent track and switch condition surveys which call for the replacement of approximately 11.5 miles of track and 30 mainline switches per year.

The 2008-2013 Capital Program

The proposed 2008-2013 Capital Program includes \$1.389 billion for normal replacement of approximately 57 miles of mainline track, 150 mainline switches, and other initiatives detailed below. The largest share of work in terms of track-miles is the replacement of prefabricated panel track on elevated and open-cut/at-grade structures. The remaining track work will be in the subway where a concrete invert is poured with embedded ties. This investment pace will keep NYCT track and switches in good repair.

The programs include installation of 11 track miles of welded rail (\$31 million), which has significantly lowered occurrences of rail breaks and cracks. The 2011 project concludes NYCT's program of capitolly-funded CWR installation.

Track force account is a series of annual projects funded by dedicated New York City funds for enhancement of the track. Totalling \$175 million, this program addresses the obsolete rubber rail seats and container plate assemblies installed in subways between the late 1960s and early 1980s. Other components of the track are also addressed, such as tie blocks, walkways, and jointed rail.

NEW YORK CITY TRANSIT LINE EQUIPMENT CATEGORY T-606

The subway contains a diversity of electrical and mechanical equipment and support infrastructure along the right-of-way, including 431 track miles of tunnel lighting, 194 ventilation (fan) plants, 230 pump rooms, and deep wells at five locations.

Lighting in subway tunnels enhances safety and aids rescue workers in emergency situations. All NYCT subway tunnels have lighting, but many rely on incandescent light systems put in when the tunnels were built. Modern systems feature compact fluorescent lamps on both sides of trackways; redundant power sources assure they will function during emergencies. Also, they provide more ambient light than old systems and are more reliable and energy-efficient.

Fan plants enhance passenger safety, especially in the post-9/11 environment. They are designed to direct heat and fumes away from passengers, providing sufficient ventilation to enable safe evacuations. Though newer subway systems are designed with adequate emergency ventilation systems, much of the NYCT system lacks fan plants that meet contemporary standards. Most of NYCT's existing fans plants are undersized and unable to attain the needed "critical velocity" of air. Also, most tunnel segments were originally built without fan plants.

Currently, 63 percent of fan plants are in a state of good repair. New or expanded fan plants will be built at the highest-risk locations. These projects include building a large enclosure, and installing multi-directional turbine-type fans, mechanical damper systems along the right-of-way, and control systems for remote operation. In addition to these major projects, smaller-scale investments ensure the continued operability of existing fan plants, and include power upgrades, repairs to dampers and air ducts, and replacement of control systems.

Pumps remove water that collects in tunnels from seepage, storm runoff, and water main breaks. Pump rooms serve subway tunnels and under-river tubes; 97 percent of pumps are in a state of good repair. A pump room typically has two small pumps for regular use and one large pump on standby for flooding situations. Pump room projects may include substantial drain and discharge line repair and structural, electrical and control work, as well as replacing the pumps and drives. Besides pumps, NYCT has deep wells in areas with high water tables to divert ground water from the subway structure, reducing infiltration, and protecting the integrity of the structure. Over time, wells become clogged with silt and need normal replacement work.

The 2008-2013 Capital Program

NYCT proposes \$785 million for line equipment investments, including:

- \$85 million for about 12 track miles of tunnel lighting on the Queens Boulevard line.
- \$561 million for four fan plants on the 6th Ave. and 8th Ave. lines. Three will replace existing undersized fan plants, and one will protect a location that now has no plants.
- \$2 million for a feasibility study of a new fan plant on the Lexington Ave. line.
- \$46 million to repair and modify existing fan plants, such as adding new control systems.
- \$61 million for six pump rooms, thus bringing NYCT's pumps to a state of good repair.
- \$30 million for deep well repairs on the Crosstown and Nostrand lines.

NEW YORK CITY TRANSIT

LINE STRUCTURES

CATEGORY T-607

NYCT'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. Approximately 94 percent of the structures are considered to be in good repair as of mid-2008, but all line structures require periodic investment to preserve their integrity against water damage, corrosion, and normal wear-and-tear.

All types of line structures (subway, elevated, viaduct and at-grade alignments) are primarily threatened by water infiltration or damage. In addition, vibration and exposure to salt water (viaduct by the ocean) reduce the useful life of line structures. Rehabilitation of structures generally entails waterproofing, grouting, replacing corroded steel work, replacing spalled concrete, and reconstructing drains. Subway tunnels also feature emergency exits, which require comprehensive rehabilitation (there are 543 emergency exits systemwide).

Structural Painting: *Steel elevated structures also require regular painting, to protect against corrosion, extend the life of the structure, and improve neighborhood aesthetics. Two types of painting projects are included in the capital program: strip-and-repaint and overcoat. Strip-and-repaint projects entail shot-blasting the structure to bare steel before applying paint. Overcoat projects entail scraping loose paint, disposing of any lead contaminants properly, and applying paint on top of the existing paint layers.*

Structural Enhancements: *In response to severe flooding that occurred in August 2007, NYCT is undertaking a new initiative to alleviate flooding, such as raising gratings above street level, permanently closing gratings, and installing devices to block gratings in the event of street flooding. In addition, to alleviate bottlenecks and improve throughput at Nostrand Junction and Flatbush Terminal, NYCT will commence a detailed study of these locations to determine if major structural modifications are required.*

The 2008-2013 Capital Program

NYCT proposes \$809 million for line structure rehabilitation, painting, and enhancements, including:

- \$124 million to address 3.7 route miles of subway structure on the 4th Ave line.
- \$159 million to address 12.0 route miles of elevated structure on the Jamaica and West End lines, the Franklin Avenue Shuttle, and the Far Rockaway and Rockaway Park viaduct.
- \$52 million to repair retaining walls and overpasses along 6.8 miles of the at-grade Dyre Avenue and Sea Beach lines.
- \$243 million for painting projects (\$25 million for strip and repaint work and \$218 million for overcoat work) on the Astoria, Brighton, Broadway-7th Ave., Canarsie, Culver, Jamaica, Rockaway, and White Plains Road lines.
- \$38 million to rehabilitate 100 emergency exits throughout the subway system, and to upgrade emergency exit alarms.
- \$183 million to alleviate flooding at various locations.
- \$10 million for study, design, and preparatory work related to potential Nostrand Junction and Flatbush Terminal capacity enhancements.

NEW YORK CITY TRANSIT SIGNALS AND COMMUNICATIONS CATEGORY T-608

NYCT's signals and communications systems include 728 track miles of mainline signal equipment, an automatic train supervision (ATS) system on the A division, a rail control center (RCC), a carrier-grade communications network, subway and bus radio systems, and in-station communications applications such as the public address/customer information screen (PA/CIS) and closed circuit television (CCTV) systems.

Signals

Signals ensure the safe and efficient movement of trains. There are 241 track miles of signals on the A division and 487 miles on the B division. Approximately 96 percent of A division and 66 percent of B division signals have been modernized. Sections with original 1930s equipment and cabling must be replaced to ensure service reliability.

In addition to signals, the other primary NYCT signal assets include ATS and the RCC. With continued investment, NYCT's signals have become increasingly automated. Train control has moved from local towers to master towers and now to the RCC, a state of the art facility. The ATS overlay technology provides the critical information on train movements to enable centralized control and provides real-time train arrival information to customers.

The proposed 2008-2013 Capital Program will address a large amount of critical signal work. In addition, the continued introduction of new technology signals, such as Communications Based Train Control (CBTC), that provide customer service and operations benefits, is discussed elsewhere in this document. It is expected that the proposed level of work will require increased levels of track access, funding, design support, and broader industry participation compared to past capital programs.

Communications

To meet the communication needs of a transit system of 6,200 rail cars and 4,500 buses serving more than seven million passengers a day, NYCT has an extensive carrier-grade communications network. The network is supported by 472 miles of fiber optic cable, extensive copper telephone cable installations, eight major PBX sites, wireless radio systems for both subways and bus operations, and more than 200 miles of subway antenna cable. Collectively, these assets are critical to providing service, responding to emergencies, enabling state-of-the-art customer communications, as well as administrative operations. These assets are considered to be in good repair but in need of normal replacement investments.

Communication assets also include in-station communications applications such as public address and CCTV systems. With investments through 2008, PAs will be installed in 381 stations. There are currently 139 stations with CCTV cameras at turnstile entry points and a variety of other types of CCTV are distributed throughout the system.

Continued upgrades to the data network infrastructure are needed to reduce reliance on third-party carriers and to take full advantage of service operations, customer support, and safety communications applications such as ATS, PA/CIS, and CCTV. Furthermore, components of the network, such as segments of fiber optic cable and copper cable, are reaching the end of their useful life.

The present subway radio system is nearing the end of its useful life, and due to Federal Communications Commission requirements, the system must migrate from wide-band to narrow-band transmission standards. Moreover, inadequate and deteriorating subway antenna cable must be replaced. These projects have important operational, security, and safety implications. These upgrades will be coordinated with the replacement of the bus radio system.

The 2008-2013 Capital Program

NYC Transit proposes \$1.607 billion for mainline signal modernization investments and \$580 million for communication system improvements, for a total of \$2.187 billion.

Signal Modernization

The proposed 2008-2013 signals program features complete modernization of the Dyre Avenue line including its two interlockings, as well as six interlockings elsewhere. The Dyre Avenue project (\$245 million) will modernize 9.8 miles of signal equipment and bring the entire A division signal system into SGR. Six B division interlockings are proposed for modernization, including one on the Queens Boulevard line (\$157 million), one on the Culver line (\$230 million), and four on the 6th Avenue line (\$580 million). The replacement of degraded signal cable and various similar projects to address signal deficiencies system-wide are planned (\$250 million). Investments in ATS on the B division are planned, supporting RCC and reporting functions (\$51 million). Lastly, a test track will be developed on a non-revenue segment of the Culver line for integration testing of new technology signal equipment (\$94 million).

Communications Systems

The proposed program features upgrades to the network backbone cable infrastructure, including copper cable (\$45 million), fiber optic cable (\$40 million), and antenna cable (\$30 million). Improvements to communication rooms are proposed (\$81 million); these assets protect and consolidate communications equipment. In addition, with the upcoming completion of the new fiber optic network, a project has been added to begin the cutover of existing phone and data lines onto the new network (\$25 million). The subway's VHF radio system and portable radio units will be replaced (\$224 million). Public address systems with connections to the RCC and customer information screens at 87 stations (\$87 million) will be advanced. In addition, \$22 million is proposed for initial investments in Supervisory Control and Data Acquisition (SCADA) to monitor power, pump, and other critical support systems and in wireless mobile technology (WMT) to support roaming station customer agents. New installations of passenger identification CCTV are also planned (\$27 million).

NEW YORK CITY TRANSIT POWER CATEGORY T-609

NYCT consumes 2.2 billion kilowatt-hours of electricity annually, including 1.8 billion kilowatt-hours for train propulsion. The energy is supplied by the local electric utility but is delivered to the subway third rail via NYCT substations and power distribution infrastructure.

NYCT operates 216 substations, located throughout the subway system. Substations receive high-voltage alternating-current (AC) power from the electric utility 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. Power is then transmitted to the third rail by means of the power distribution system, which includes positive and negative cables and circuit breaker houses (CBHs). CBHs are small trackside enclosures, which feed power to the third rail and include remotely-actuated circuit breakers to disconnect power when necessary. There are currently 299 CBHs in service throughout the subway system.

For emergency removal of power from the wayside, alarm units and telephones are placed throughout the NYCT system. These Emergency Alarm Units (EAUs) allow NYCT personnel to shut off third rail power to a section of track, and also include telephones for emergency communication. There is a total of 2,663 EAUs systemwide.

The power network has received periodic reinvestment for modernization since the 1950s. By mid-2008, 96 percent of substations and 89 percent of CBHs will have achieved a state of good repair, but there is a need for ongoing normal replacement investment. In prior capital programs, some substations have received comprehensive modernizations, including replacement of all antiquated equipment and rehabilitation of the substation enclosure. Many other substations, however, only received component-based investment to replace selected equipment (particularly, to replace obsolete rectifiers). Many of these substations require normal replacement investment to address other components, including some equipment that dates back to the original construction of the subway.

The 2008-2013 Capital Program

NYCT proposes \$361 million for traction power investments, including:

- \$40 million for the full modernization of one IND substation in Brooklyn.
- \$148 million to address deficient substation components at various locations, including switchgear, roofs, enclosures, and hatchways.
- \$80 million to rehabilitate six circuit breaker houses at various locations.
- \$67 million to replace traction power cables and ducts on the 4th Ave. and 6th Ave. lines.
- \$27 million to replace emergency alarm units.

NEW YORK CITY TRANSIT SHOPS CATEGORY T-610

Shops are critical to ensure the proper condition, integrity, and safety of the NYCT rail car fleet and infrastructure. Modernized shops are especially important for the Scheduled Maintenance System and work on high-tech rail cars entering the fleet. NYCT has a large number of shops to support the system, including two rail car overhaul shops, 14 maintenance shops, 22 specialty support shops, eight car washers, 45 car-cleaning facilities, and various types of shop equipment. The major overhaul and maintenance shops are used for the inspection, repair, and overhaul of rail cars. The specialty support shops, which include track, signal, infrastructure, and electrical facilities, allow NYCT to repair and maintain specific, non-fleet assets by performing a wide variety of functions, including ironwork, signal maintenance, power cable, and track fabrication.

Approximately 63 percent of the overhaul and maintenance shops, 50 percent of support shops, and all of the car washers and car cleaning facilities are in good repair. NYCT's long-term strategy is to provide an adequate and safe work environment, and improve rail car maintenance capabilities. Investments are required in shops to handle new technology rail cars. Wider work aisles, improved shop equipment, and space for new diagnostic equipment are necessary to handle the increasingly complex computer and information systems that are included on the new cars.

The 2008-2013 Capital Program

NYCT's proposed 2008-2013 Capital Program includes \$193 million to address multiple system-wide shop facilities. One of the most important proposed shop projects is the completion of the final two phases (\$49 million) of the rehabilitation of the 207th St. Overhaul Shop, which was started in the 2005-2009 plan and will total approximately \$200 million for all phases. The 207th St. Overhaul Shop is one of only two overhaul shops in the NYCT network and, consequently, handles approximately half of the cars of the fleet. Rehabilitation of 207th St. Overhaul Shop will yield industrial process improvements to handle the next generation of subway cars.

Additionally, the Livonia Maintenance Shop will receive priority rehabilitation work (\$30 million) to address immediate needs of this 85 year old facility. Also, four maintenance shops not yet in a state of good repair will receive targeted upgrade work (\$50 million) directed at priority needs. This project will survey and address component deficiencies that cannot wait for more comprehensive investments. The plan also provides for the replacement of certain outdated heavy shop equipment critical to ongoing shop operations.

NEW YORK CITY TRANSIT YARDS CATEGORY T-611

NYC Transit operates 23 yards located in four boroughs to provide secure storage for revenue trains and non-revenue trains and reduce the number of trains stored on the mainline.

Yards include 105 miles of track and 35 miles of non-revenue track (with both figures including the distance occupied by 880 yard switches), signals at each yard, and yard lighting and hydrants at each yard. Approximately 74 percent of yard track, 85 percent of non-revenue track, and 92 percent of yard switches have remaining useful lives of six or more years. Approximately, 56 percent of the yard signal systems are less than fifty years old, and 78 percent of the yard lighting and hydrants are in good repair.

The 2008-2013 Capital Program

NYCT proposes \$406 million in yard investments in the 2008-2013 Capital Program. Major projects include the Rehabilitation of Relieving Platforms at 148 St and 207 St Yards (\$42 million) the Rehabilitation of the 38 St Yard Lead Viaduct (\$30 million), and a Jamaica Yard Interlocking project (\$150 million). In both of these projects, urgent rehabilitation needs will be addressed. The expansion of the Jamaica Yard (\$75 million) represents the first phase of a project to reduce mainline lay-ups on the Queens Blvd. line and improve subway operations. A security project to replace and upgrade yard fencing is also included in the proposed program (\$29 million).

The proposed program also allocates \$17 million to replace approximately six miles of yard and non-revenue track and \$47 million to replace 80 yard switches.

NEW YORK CITY TRANSIT DEPOTS CATEGORY T-612

NYCT operates 20 depots and two major base shops located throughout New York City to support more than 4,500 buses. Depots are needed 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. The service capability and design configuration of a depot affect the efficiency of bus operations. Depots should be sized and configured appropriately to provide optimal support to the associated bus fleet. Base shops provide an extension to the maintenance capabilities of depots and perform scheduled bus overhaul/service, remanufacture components, and address other major repairs. All but two of the 22 facilities are considered to be in a state of good repair. In addition to the shops, the bus system has 46 bus washers, 20 paint booths, one non-revenue fleet facility, and the bus wireless radio system, all of which are in a state of good repair.

To support recent and projected future bus fleet growth, NYCT's long-term plan is to construct multiple new bus depots. A new depot is being built at Charleston in Staten Island. Also, planned is a new depot to replace the existing Jamaica Depot in Queens and additional sites in Staten Island and Manhattan. As existing depots reach the end of their useful life, NYCT will make needed normal replacement investments as well. Other significant long-term depot investment needs include the cyclical replacement of the bus radio system and the system-wide installation of an advanced automatic vehicle location and control system.

The 2008-2013 Capital Program

A total of \$925 million is proposed for depot projects, including \$484 million to rehabilitate and/or build new depots. Major projects include \$150 million for initial funding of a new depot to replace the existing Jamaica Depot and support expanded depot facilities related to congestion mitigation. Also proposed is \$10 million to explore and conceptually design potential locations for a new Lower Manhattan Depot, and \$289 million for reconstruction of the Clara Hale Depot. Initial funding for the design and demolition of the 126th St Depot (\$15 million) is also included.

In addition to depot rehabilitation and reconstruction projects, funding is also allocated to other depot investments including replacing bus lifts, washers, and heavy depot equipment, and upgrading HVAC systems, storage tanks and paint booths. A major project to replace the bus wireless radio system (\$190 million) is also included in the proposal. This investment will provide greater capacity for the enlarged fleet as the bus radio system is critical to daily bus operations and addressing emergency response capabilities. \$96 million is allocated for the continued rollout of NYCT's Automated Vehicle Location (AVL) System, which will allow the tracking of in-route buses, a more efficient management of the fleet, and improved service delivery.

NEW YORK CITY TRANSIT SERVICE VEHICLES CATEGORY T-613

NYCT owns and operates specialized fleets of non-revenue rubber-tire vehicles and work trains. Work trains are used system-wide and are the backbone of NYCT's track maintenance program. These vehicles support major construction (capital) and maintenance (operating) work, help to repair assets, and perform other critical services vital to supporting the successful and efficient operations.

The fleets consist of a total of approximately 1,500 rubber-tire vehicles, many of which are replaced through the capital program. Vehicles include armored trucks, tow trucks, mobile station washer trucks, and other miscellaneous vehicles. NYCT's approximately 450 work trains include diesel locomotives, refuse cars, hopper cars, snow throwers, flat cars, track geometry cars, and other vehicles. Locomotives transport all non-propulsion work cars for various track, signal, and electrical projects. These fleets have been in state of good repair since 1987. It is essential that service vehicles be maintained at a high-level of reliability and availability. Delays or cancellations in the services provided by these vehicles may result in significant customer impacts, project delays, and operational inefficiencies.

The 2008-2013 Capital Program

The proposed 2008-2013 Capital Program includes \$120 million to purchase new work trains and new non-revenue rubber tire vehicles.

\$42 million is allocated for the purchase of 10 locomotives to replace the R47s. \$33 million is allocated to replace 54 R72 and R101 flatcars built in the 1980s and scheduled for retirement. Eight snow fighting cars are also being purchased in order to ensure that tracks are kept clear and service is not compromised during winter storms.

\$33 million is allocated to replace non-revenue rubber tire vehicles at the end of their useful lives. This includes \$6 million to install emissions-reducing particulate filters on the fleet. This is being done in order to ensure that NYCT continues to comply with changing and strengthened regulations on heavy duty vehicle emissions.

NEW YORK CITY TRANSIT MISCELLANEOUS CATEGORY T-616

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

The 2008-2013 Capital Program

The proposed 2008-2013 Capital Program includes \$644 million for miscellaneous investments. The program support components included in this category are in scale with previous capital programs. This investment includes \$20 million for insurance and \$214 million for engineering services, scope-development, and the MTA independent engineer to support miscellaneous technical needs of the program.

Other investments include \$241 million for improvements and repairs at assorted employee facilities including the money room, the Maspeth warehouse, Livingston Plaza, and many employee facility rooms located in various stations. Certain management information systems such as network infrastructure and WAN/LAN equipment will be addressed (\$38 million). NYCT will address various environmental and safety needs, such as asbestos monitoring and removal (\$36 million), installation of fire alarms/sprinklers at various facilities (\$49 million), and environmental soil remediation (\$20 million).

STATEN ISLAND RAILWAY

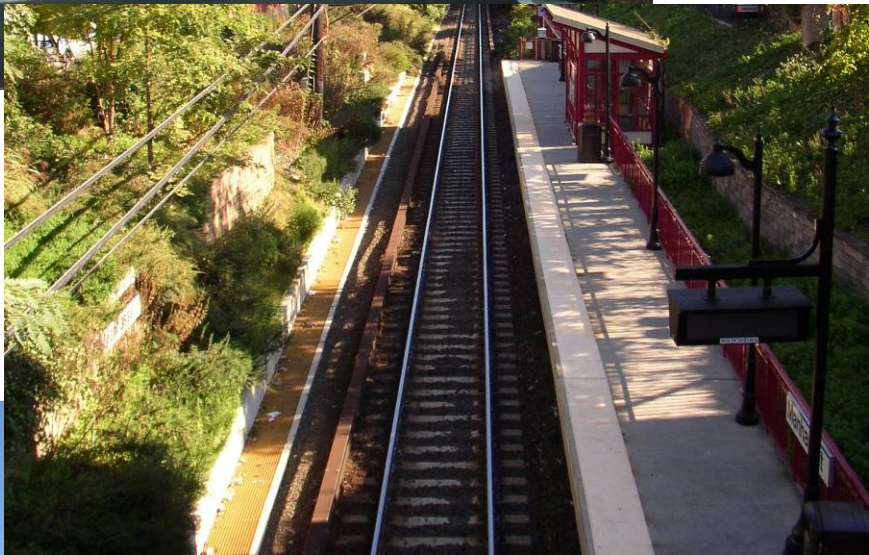
Category SIR

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 15,000 weekday riders and includes 23 stations, 64 rail cars, 30 track miles of mainline track, 5.1 track miles of yard track, 32 mainline switches, 42 yard switches, two support and maintenance shops, 25 work trains, 28.6 route miles of structures, 28 thru-spans, 48 mainline signals, 41 yard signals, and five power substations. The overall SIR system is in good repair except for two passenger stations, yard track, and yard switches.

The 2008-2013 Capital Program

The proposed 2008-2013 Capital Program includes \$276 million for SIR. The entire R44 railcar fleet will be replaced (\$192 million). The Atlantic and Nassau stations, which are dilapidated and located very close to each other, will be replaced with a single, new, ADA-accessible "Arthur Kill" passenger station (\$16 million). Also planned are Phase 1 of the modernization of track and switches at the St. George Terminal (\$30 million), and the repair of nine bridges/thru-spans (\$38 million).

MTA LONG ISLAND RAIL ROAD



MTA LONG ISLAND RAIL ROAD 2008-2013 CAPITAL PROGRAM OVERVIEW

The Long Island Rail Road is the largest and busiest commuter railroad in North America, carrying 86.1 million passengers annually. LIRR infrastructure includes 594 miles of main line track, 296 at-grade-crossings and 124 stations on 11 branch lines. On an average weekday, the LIRR carries 289,586 passengers on 735 trains.

Continued capital investment through a quarter-century of fully funded five-year programs has allowed the LIRR to bring all but its bridge infrastructure into a state of good repair. Asset inventory databases allow for the tracking and classification of all critical components and form the basis for developing the normal replacement portion of the LIRR's 2008-2013 Capital Program. In addition to these investments - which maintain Long Island Rail Road's ability to reliably run the current level of service - a significant portion of the 2008-2013 program is focused on readiness for forecasted ridership growth and the new LIRR service into Grand Central Terminal (East Side Access).

The MTA's proposed 2008-2013 Capital Program demonstrates the agency's ongoing commitment to maintaining and enhancing mobility, economic health, and quality of life in the region.

Investments in Mobility

The MTA and its subsidiary, the Long Island Rail Road, have a long history of contributing to the quality of life of area residents. From its founding in 1834, the Long Island Rail Road has been a vital lifeline for Long Island, leading to the growth and development of the communities it serves and providing a gateway for the economic growth of the region. Today, LIRR is an essential component of the region's transportation infrastructure.

The LIRR is a particularly dominant force in the Long Island-to-New York City commuter market. Fully 76 percent of Nassau and Suffolk County residents who commute to Manhattan for work use the LIRR, and that reliance on public transportation leads to cleaner air, improved mobility, and an all-around better quality of life for residents of this populous region. Long Island Rail Road also plays a growing role in the transportation of intra-Island and commuters working non-traditional hours, as well as leisure travelers taking advantage of the region's wealth of cultural attractions.

The MTA's steady investment in the LIRR through its Capital Program has helped Long Island Rail Road continue to play a prominent role in job and population growth in the region. From the time it was completed in 1988, the Main Line electrification between Hicksville and Ronkonkoma ushered in tremendous growth in this important corridor. With more trains, shorter travel times, and direct service to Manhattan, ridership grew dramatically, and the improved commute made the western and central Suffolk County communities served along the Main Line more attractive for residents, businesses, and development.

In order to continue contributing to the region's future growth and well-being, and remain the vital force in transportation Long Islanders rely on, LIRR must prepare for the future. At present, capacity issues at key locations impact LIRR's ability to respond to market demand. Penn Station, LIRR's Manhattan terminal, is currently at capacity during many periods of the day. The

station's 21 tracks – shared by the LIRR, Amtrak and New Jersey Transit – carry over 1,000 trains each day, and service growth is simply impossible. The East Side Access project, which will provide the LIRR with a second Manhattan terminal (Grand Central Terminal), will allow direct Long Island Rail Road service to the east side of Manhattan, for the first time ever. This enhanced train service will bring Long Island residents closer to their final destination, thus reducing travel time and congestion at Penn Station and the subway lines serving it.

Another capacity constraint is the Main Line Corridor between Floral Park and Hicksville, which carries the trains of the Port Jefferson, Ronkonkoma, Hempstead and Oyster Bay Branches and some Montauk Branch trains. With just two tracks and an average of 235 scheduled trains per day, the Main Line Corridor is one of the busiest segments of the LIRR. Forty-one percent of LIRR customers -- 115,000 riders -- travel over all or part of this section of the Main Line each day. With coordinated bus services at Mineola, Hicksville and Farmingdale, the Main Line Corridor allows access to key Long Island employment centers in Garden City/Roosevelt Field, Woodbury, Melville, and the Route 110 corridor.

A key investment is the Third Track, which will add a “passing lane,” separating express trains from local trains, offering greater capacity, operational flexibility, and faster recovery time in the event of incidents or delays. Other community benefits include improvements at grade crossings and upgrades to key bridges throughout the corridor, such as Ellison Avenue in the Village of Westbury.

Public involvement proved to be invaluable during the development of the project's alignment and grade crossing proposals. Over 40 meetings with federal, state and village officials, and community leaders helped refine the alignment and identified alternatives which will significantly reduce potential property impacts.

The Main Line Corridor Improvements project is critical for the region, improving service for current – and future – customers, enhancing regional mobility, providing a stimulus for regional economic and employment development, and improving the quality of life for residents along this essential transportation corridor.

Investments in Customer Satisfaction

21st Century Electric Fleet

Between 2002 and 2007, the LIRR completed a major fleet replacement effort, retiring the almost 40 year old M-1 electric cars and replacing them with 836 M-7 cars. The state-of-the-art M-7 fleet has proven to be extremely reliable, as demonstrated by the increase in the number of miles traveled prior to unscheduled maintenance.

The M-7 car has set the standard for a comfortable 21st century LIRR experience. The design of the new car reflects feedback received from customer focus groups, through the incorporation of improvements in seating, enhanced lighting, window design, public address systems, and restrooms. Auxiliary power units and climate control units have been doubled for greater reliability and comfort. The M-7 fleet also meets all requirements of the Americans with Disabilities Act.

Station and Parking Improvements

The last 15 years have seen numerous investments in LIRR stations through out the system. This has included installation of elevators and other improvements to make stations wheelchair accessible, rehabilitation of public restrooms, waiting areas, and ticket offices, station plaza

areas, platforms, and replacement/upgrading of station components. The LIRR has also targeted parking rehabilitation and expansion, to maximize the availability of parking for LIRR customers.

During the 2005 - 2009 Capital Program, two of the LIRR's busiest stations, Jamaica and Flatbush Avenue underwent tremendous transformation. As the LIRR's hub station, Jamaica has long served as the connecting point between 10 LIRR branches and the three Western Terminals (Penn Station, Flatbush Av, and Hunterspoint Av). Since the Port Authority of New York and New Jersey's JFK AirTrain service began in December 2003, Jamaica Station has also become a busy transfer point for travelers to and from JFK Airport. With recently completed capital investments, Jamaica Station ushers in the 21st century, with a vaulted glass and steel structure, passenger bridges, and new elevators and escalators. The re-imagined Jamaica Station also has new platforms, canopies, lighting, and passenger waiting rooms.

The transformation continues with the renovation of Flatbush Avenue station for LIRR customers to Downtown Brooklyn and Lower Manhattan. Customers will enjoy a brighter and more comfortable platform area as a result of new platform tiles, PA system, lighting, staircases, platform seating, and a new tempered air system. The most dramatic change to the station will be the new multi-story glass entry pavilion at the corner of Flatbush Avenue and Hanson Place, providing a much greater community presence for customers entering and exiting the underground complex.

On the Port Washington Branch, the recently completed Broadway Station included replacement of platforms, railings, and other station components, along with a renovation of the station building. On the Babylon Branch, work has just begun at Seaford Station, including platform replacement and associated station improvements (including a new elevator).

In the last few years, parking investments have been made at a number of key stations, including Mineola, Valley Stream and Ronkonkoma. Located in the heart of Nassau County, the Mineola Intermodal Center opened in October 2006, offering 700 commuter spaces in an attractive new facility immediately south of the station. This new facility, which also houses MTA Long Island Bus bays serving seven bus routes, provides for seamless intermodal travel on MTA trains and buses. It has received praise from LIRR customers. At Valley Stream and Ronkonkoma Stations, surface parking lots were rehabilitated and expanded, increasing the number of spaces available at these two stations. Since 1986, over 14,000 parking spaces have been newly built or rehabilitated at LIRR stations throughout the system.

Investment in Safety and Security

The Long Island Rail Road continues to embrace customer and employee safety as our highest corporate priority. Along with customer awareness and employee safety programs, safety is maintained and enhanced through the timely replacement of aging capital assets to maintain their structural and functional integrity.

The proposed 2008-2013 Capital Program demonstrates this commitment to safety and security through the investment in projects that enhance customer and employee safety on trains, in stations and terminals, in yards and employee facilities, and along LIRR's right-of-way.

Most notable is the investment in our Line Structures Asset category, including nearly \$83 million in East River Tunnel Fire and Life Safety efforts, such as repairing the tunnel lining, installation of employee walkways, tunnel waterproofing, and installation of an emergency power system. Railroad bridges systemwide will be rehabilitated or replaced, along with the

replacement of seven LIRR-owned highway bridges which are past their useful lives.

Security in LIRR terminals and stations, and along the right-of-way is closely coordinated with the MTA as well as with other local, state and federal agencies. Continued emphasis is placed on structural hardening, surveillance, and physical barriers - such as fencing – to secure the LIRR system and its assets.

Investments to Maintain the Core Infrastructure

The Long Island Rail Road continues the progress made since the inception of the first Capital Program in 1982, with significant infrastructure investments in the proposed 2008-2013 Capital Program. Investments to maintain the core infrastructure account for almost 60 percent of the proposed 2008-2013 Capital Program, across all asset categories. This intensive level of investment assures that all system components are replaced at the end of their useful life, avoiding the service disruptions and added maintenance expenses that occur when components unexpectedly fail. All LIRR asset categories, with the exception of Bridges and Viaducts in the Line Structures category, are in a state of good repair. Maintaining this classification is the goal of funding the projects identified in the Stations, Track, Communications and Signals, Shops and Yards, Environmental, Power, and Penn Station investment categories.

From a customer perspective, these investments maintain service levels and on time performance. All system components must work reliably in order to deliver the high quality of transportation so vital to the region and its economy.

THE PROPOSED 2008-2013 CAPITAL PROGRAM

The Long Island Rail Road's proposed 2008-2013 Capital Program includes investments of \$2.630 billion over the next five years (Table 6). These investments will maintain LIRR in a state of good repair through funding of its most essential components - rolling stock, track, signals, power and communications. In addition, "network enhancement" projects that will support new service to GCT and expand capacity are also included, along with continued investment in bridges/viaducts and the East River Tunnels.

Table 6
MTA Long Island Rail Road
2008-2013 Capital Program by Investment Category
(\$ in millions)

Category	Proposed 2008-2013	Percent
Rolling Stock	\$242	9%
Stations	154	6%
Track	730	28%
Line Structures	390	15%
Communications and Signals	326	13%
Shops and Yards	384	15%
Power	239	9%
Miscellaneous	164	6%
Total	\$2,630	100%

Numbers may not total due to rounding

* Totals do not include projects included in the Capacity Expansion Investments section of the proposed capital program

The highlights of the program include the following (more detailed summaries of the projects are discussed in later sections):

Rolling Stock

The Rolling Stock investment for the Long Island Rail Road fleet amounts to \$242 million in the proposed 2008-2013 Capital Program. This includes the purchase of M-9 electric cars to allow for increased service following the opening of East Side Access. Also included is the replacement of work locomotives, which are used in support of LIRR track maintenance and to address fall and winter weather conditions. Finally, the proposed program includes the purchase of protect locomotives to support operations in the 63rd Street tunnel following the opening of East Side Access service.

Stations

Stations investments in the proposed 2008-2013 Capital Program total \$154 million. The investments include replacement of platforms, escalators and elevators at the busy Babylon Station, construction of new and rehabilitation of existing parking spaces, and the replacement of elevators, escalators, and station railings at selected branch line stations. At Penn Station, the air conditioning system will be replaced, to ensure continued comfort of LIRR customers, along with other infrastructure improvements in Penn Station.

Track

Track investments in the proposed 2008-2013 Capital Program total \$ 730 million. The ongoing Track program consists of the normal replacement of track components, according to the useful life of various assets. The proposed Capital Program has allocated a total of \$379 million for track normal replacement work. Elements of the Track Program include installation of wood ties (mechanized), rail, wood switches, concrete switches, field welds, surfacing, drainage, rail profiling and rehabilitation of grade crossings.

In addition to the ongoing program, a key track project will replace the wood-half ties and concrete track bed in the Atlantic Avenue tunnel between East New York and Jamaica. Also, building upon the replacement of Babylon Branch direct fixation track advanced in the previous capital program, the Merrick / Bellmore / Massapequa Park direct fixation track system will be designed and early stages of construction will begin.

Also included in the Track category are projects to address track stability / retaining walls, drainage control, culverts, and fencing. Finally, two projects will expand train lay-up capacity at two of the LIRR's busiest branch segments – Great Neck Pocket Track Extension and Massapequa Pocket Track.

Line Structures

The Long Island Rail Road has allocated \$390 million for Line Structures in the proposed 2008-2013 Capital Program. This program consists of rehabilitation of bridges and viaducts, including the second phase of the Atlantic Avenue viaduct. This phase of the viaduct rehabilitation also includes the replacement of station components at the elevated Nostrand Ave station and the installation of two elevators, making this station wheelchair accessible. Along with the rehabilitation of railroad bridges in Queens, Nassau and Suffolk Counties, the LIRR will replace seven LIRR-owned roadway bridges over railroad tracks. The program includes \$83 million to advance Fire & Life Safety Improvements in the East River Tunnels, including a new emergency power system, tunnel waterproofing, installation of new employee walkways, and repairs to the tunnel lining.

Communications and Signals

Communications and Signals investments in the proposed 2008-2013 Capital Program total \$326 million. This program advances the normal replacement of communication infrastructure used for radio communication and other communication needs with eight Communications projects totaling \$114 million. This includes a continuation of the fiber optic build-out efforts, in line with the LIRR's Communication Strategy. In addition, the deteriorated radiax communication cables in the Atlantic Avenue and East River Tunnels will be replaced with new fiber optic cable. Communication poles and copper cable infrastructure will be replaced in various locations throughout the LIRR system. As part of the LIRR's ongoing security enhancement efforts, closed circuit cameras will be installed at some of the LIRR's busiest branch line stations, adding to the security camera infrastructure which is already in place.

The Long Island Rail Road's 2008-2013 Capital Program includes \$212 million to advance the LIRR's long-term signal strategy. Included in this proposed program is the continuation of the Babylon to Patchogue signal project, installing a modern signal system east of Babylon. Another project replaces signal equipment in the vicinity of Babylon Station, modernizing the signal infrastructure in this area. A key LIRR initiative, Centralized Train Control will be advanced during this program. This will consist of the migration of the Movement Bureau, the Power Director and two train dispatch towers into the new train control facility in Jamaica. In conjunction with this initiative, the signal supervisory control hardware will also be upgraded.

Shops and Yards

Investments for Shops and Yards total \$384 million in the 2008-2013 Capital Program. Highlights include the replacement of Rolling Stock Support Equipment, a continuation of remediation efforts at the Long Island City yard, and a demolition and rebuilding of a structure in Morris Park utilized to maintain and repair diesel locomotives. This proposed program also includes improvements to yards at Montauk, Speonk and Jamaica, repair of employee facilities

systemwide (including Hillside Facility roof and Babylon Employee Facility), along with a reconfiguration of the Port Washington Yard to increase train storage capacity.

Included within the Shops and Yards category is \$174 million for the design and construction of two new yards needed to support growth and service enhancements and the new service into Grand Central Terminal, both presently in various stages of development.

Power

The proposed 2008-2013 Capital Program includes \$239 million for power program-related investments. In keeping with Long Island Rail Road's long-term power strategy, this program replaces and upgrades the necessary systems that support the movement of electric trains. The Capital Program includes the replacement of power system components that have reached the end of their useful lives, including numerous system components utilized to deliver traction power. A key element of this program will be to replace 13 substations, many of which were constructed in the mid-20th century and are now at the end of their useful lives. The proposed Power program will also replace lighting in the Atlantic Avenue tunnel as well as platform lighting and station building electrical systems at selected branch line stations.

Miscellaneous

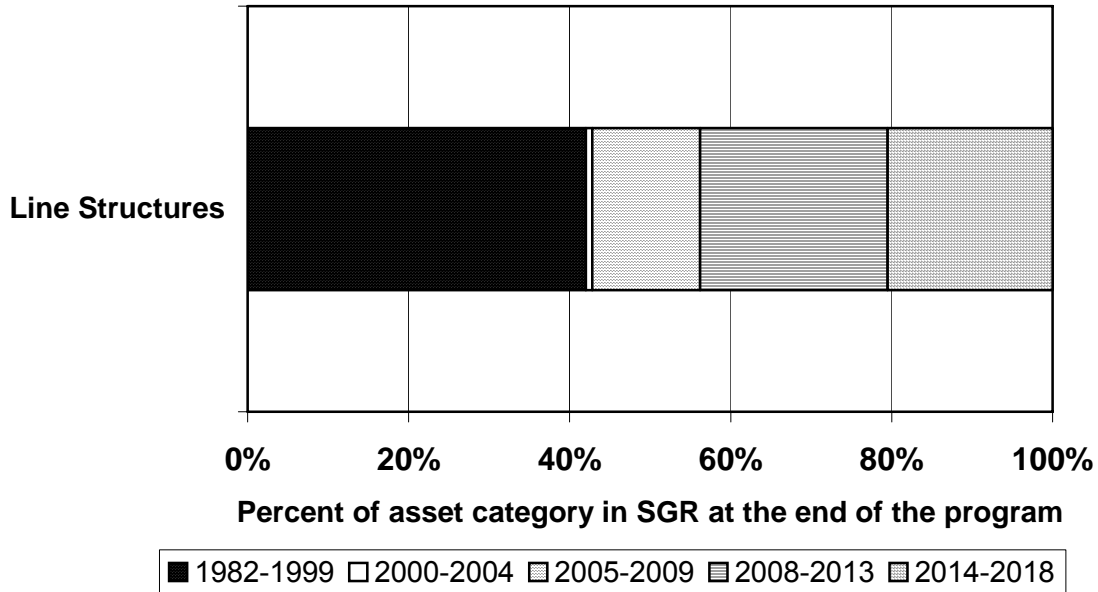
The Long Island Rail Road proposed 2008-2013 Capital Program includes a Miscellaneous category totaling \$164 million. Environmental remediation investments in this category advance the Long Island Rail Road's long-term environmental strategy with \$34 million in the proposed 2008-2013 Capital Program. This includes remediation efforts at Yaphank Landfill, Smithtown Viaduct, and LIRR substations. This category also includes \$130 million for the various administrative costs required to support and manage the program.

SYSTEM CONDITION AND ACCOMPLISHMENTS

Investments in its capital assets since 1982 have allowed the Long Island Rail Road to improve its operations, thus providing an invaluable service to the region. The MTA's 2008-2013 Capital Program continues this tradition and looks to the future with "network enhancement" initiatives that will expand capacity, increase levels of service, and support new LIRR service to Grand Central Terminal.

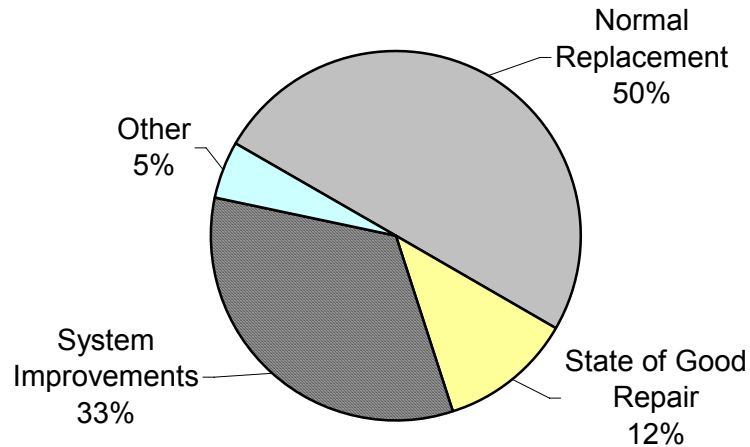
Through intensive investment, LIRR's infrastructure has achieved a state of good repair in all but one asset category, Bridges and Viaducts in the Line Structures category. The proposed 2008-2013 Capital Program includes a significant capital investment in this category complemented by extensive maintenance work. Through these concentrated efforts, this asset category as a whole is anticipated to achieve SGR in the next capital program. However, additional investments and rehabilitation efforts will be required in future capital programs to maintain the category on a normal replacement cycle.

Chart 2
Progress Toward State of Good Repair
LIRR Investment Categories



The proposed 2008 – 2013 Capital Program allocates 62% percent of its funding to State of Good Repair and Normal Replacement projects, and 33% percent to System Improvement investments (Figure 2).

Figure 2
MTA Long Island Rail Road 2008-2013 Capital Program
Investments by Needs Category



Major Accomplishments of the 2005 - 2009 Capital Program

The electric fleet replacement effort spanning multiple capital programs was completed during the 2005-2009 Capital Program. In total, 836 new M-7 electric rail cars were purchased, and the almost 40 year old M-1 fleet was completely decommissioned.

Significant investments were also made in the power category to support the operation of the new fleet. Investments included replacement of aging substations and substation batteries, third rail cable, third rail protection board, and the installation of composite third rail.

This period saw the final phase of the Flatbush Avenue Terminal reconstruction. Elements of this station project included: LIRR concourse, new customer service areas and amenities, a police facility, concessions, new stairs, and a grand street-level entrance pavilion. Platform enhancements included resurfacing, lighting, public address system, and ventilation.

Improvements to station buildings and parking improvements were another important component of the 2005-2009 Capital Program. Station improvements, rehabilitations and restorations as well as parking reconstruction were carried out system-wide. Also included was the purchase and installation of Ticket Vending Machines (TVMs) at LIRR stations systemwide, expanding the number of TVMs in service, providing additional ticket-selling capacity at stations and decreasing customer wait time. The Mineola Intermodal Center was opened for business during in this plan period, which progressed the LIRR's parking strategy by providing 700 parking spaces at this busy Nassau County LIRR station. Parking lot rehabilitation was completed at Valley Stream and Ronkonkoma stations, addressing the lot surface, drainage, lighting, pavement, curbs, striping and other elements, while also expanding the number of parking spaces available at these stations.

PLANNING THE PROPOSED 2008-2013 CAPITAL PROGRAM

The 2008-2013 Capital Program is a critical investment period for the LIRR. During this time, the LIRR will implement rolling stock and infrastructure strategies while expanding our system to ready our infrastructure for service to Grand Central Terminal – the first expansion of the LIRR system in over 100 years.

The Long Island Rail Road has continued to utilize a participative asset task force process for the development of the 2008-2013 Capital Program. A full State of the System Needs Assessment was prepared throughout 2007. This process included the updating of asset condition databases for all LIRR assets, incorporating the latest age and condition of each asset. These databases, in addition to asset strategies, formed the basis of the LIRR's forecasted needs for this proposed Capital Program. A critical component of these needs is the network enhancement – large-scale infrastructure changes that improve our capacity and ready us to deliver the most robust service to GCT.

This proposed Capital Program includes projects which address key findings that resulted from the asset database updates, asset strategy updates and study findings, and the review process. A robust bridge and viaduct rehabilitation and bridge replacement program addresses previous deferred maintenance in the Line Structures Asset category, while the Power program replaces numerous traction power substations, many of which are located near some the most heavily-traveled sections of the LIRR system. The Power program also addresses areas identified in the traction power load study for power capacity expansion, by designing and constructing new substations in areas of critical power demand.

The 2008-2013 Capital Program development involved developing forecasted needs for this five year time period and the creation of project proposals including scopes, estimates, justifications, and summaries for each project. This set of project proposals were presented to and discussed by the LIRR's Capital Program Governing Board and then reviewed by LIRR Executive Staff, for final inclusion in the 2008-2013 program. The projects put forth by the LIRR in the 2008 – 2013 Capital Program represent the highest order capital needs within our system and enable the LIRR to attain and maintain a state of good repair, while readying our infrastructure for East Side Access. The Long Island Rail Road is fully able to implement the program of projects put forth in the 2008 – 2013 Capital Program while providing the world-class service that our customers have come to expect and enjoy.

MTA LONG ISLAND RAIL ROAD PROGRAM PLAN

MTA LONG ISLAND RAIL ROAD

ROLLING STOCK

CATEGORY L-601

MTA Long Island Rail Road currently has a fleet of 836 M-7 EMU cars, 170 M-3 EMU cars, 45 locomotives (including 22 DM and 23 DE), 134 bi-level coaches, and a fleet of work locomotives.

From 2002 to 2007, LIRR rolling stock underwent its most dramatic transformation in over 30 years. The M-1 cars, which entered service in 1968-1972, were decommissioned and 836 new M-7 cars were put into service. The M-7 cars incorporate improvements in lighting, HVAC, and on-board announcements. The reliability of this new fleet has greatly exceeded contract goals, being able to travel hundreds of thousands of miles before unscheduled maintenance.

Another asset vital to service performance is work / protect locomotives. These locomotives are used to transport material, fight icing and fall leaf conditions, and haul disabled trains.

The 2008-2013 Capital Program

The Rolling Stock investment for the Long Island Rail Road electric fleet amounts to \$242 million in the proposed 2008-2013 Capital Program. The rolling stock focus of this Capital Program is to purchase new M-9 electric cars to expand the LIRR's fleet, in order to prepare for LIRR service to Grand Central Terminal and meet other service growth projections. The proposed program also includes replacement of work locomotives and the purchase of protect locomotives which will be used in the 63rd Street Tunnel.

M-9 Procurement

In order to increase LIRR service by operating trains directly to Manhattan's East Side and expand service to meet customer needs, the LIRR is required to expand its fleet size. This project will purchase M-9 cars, the next generation of MTA commuter rail electric fleet. This project funds the purchase of 68 cars, with additional fleet purchase planned for the future. The cost for this project is \$205 million.

Work Locomotive Spec Development / Procurement

Included in this proposed program is the specification development and purchase of 12 locomotives, to replace aging work locomotives that are past their useful lives. These locomotives are used to apply alcohol to the rails during ice condition, apply sandite during autumn leaf season, and transport materials as part of the LIRR infrastructure maintenance. The cost for Work Locomotive Spec Development is \$2.8 million, plus \$23 million dollars for the procurement.

Protect Locomotive Spec Development / Procurement

This project includes the development of a specification and purchase of two protect locomotives to support LIRR service to Grand Central via the 63rd Street tunnel, as well as the East River Tunnels and their approaches. The locomotive profile of the current fleet of protects is too large to operate in the 63rd Street tunnel. Protect locomotives are utilized to rescue disabled passenger trains as well as operate work trains. The two new protect locomotives will be located in western Queens, where they can serve both sets of tunnels under the East River. The cost for Protect Locomotive Spec Development is \$2.8 million, plus \$9 million dollars for the procurement.

MTA LONG ISLAND RAIL ROAD STATIONS CATEGORY L-602

The Long Island Rail Road operates 11 rail branch lines and serves customers at 124 stations. The Station Program fulfills LIRR's short-term and long-term customer service objectives. The short-term objective is to eliminate identified safety-related problems on platforms and stairs at target locations throughout LIRR service territory. The long-term objective is to keep each station's condition in a state of good repair where normal cyclical replacement and maintenance can keep the station at such a level.

The Long Island Rail Road, currently responsible for 60 percent of the train service in Penn Station, will continue to utilize the station as its exclusive New York Terminal for the next six years. At the end of this period, LIRR's Penn Station Terminal Service will be complemented by service to Grand Central Terminal.

In accordance with its utilization of Penn Station, the LIRR contributes significantly to the routine, extraordinary, and overtime maintenance of the facility. Because Penn Station is LIRR's most important and busiest terminal, it is essential that this facility be kept in a state of good repair. It is anticipated that through these improvements the LIRR will maintain and improve its service.

The 2008-2013 Capital Program

In the proposed 2008-2013 Capital Program, the LIRR includes \$154 million to increase customer satisfaction by providing a comfortable and safe station environment. These projects invest in many station components, including platforms, staircases, shelters, waiting rooms, railings, escalators, elevators, and station parking.

Babylon Station Platform Replacement

Includes platform replacement consisting of the following: design, demolition of the existing platform and construction of a new platform, replacement of platform waiting rooms, escalators and elevators. This \$39 million dollar project will replace 1960's station assets at this busy transfer station.

Station Railing Replacement

This project replaces railings at 10 branch line stations. This first phase of station railing replacement will remove existing platform railings and replace them with a modern railing design which increases customer safety and meets ADA guidelines. Additional branch line stations will undergo station railing replacement in future phases. The cost for this first phase of the project is \$8 million.

Elevator Replacement

This \$12 million dollar project allows for the replacement of passenger elevators at Great Neck, Rockville Centre, Freeport, Woodside and Flatbush Avenue stations. Elevators at Woodside and Flatbush Avenue have experienced high levels of utilization since being installed because they serve both LIRR and NYCT customers at these busy station complexes. The Woodside and Flatbush Avenue elevators selected for replacement connect the street level with the station and thus serve a crucial role in the station's function and in customer satisfaction.

Other Station Improvements

Also included in the proposed 2008-2013 Capital Program is the replacement of escalators at Merrick, Bellmore, Massapequa Park and Lindenhurst stations, platform and other structural repairs at Hunterspoint Avenue station to maintain a safe environment, and the design of a new Republic Station on the Main Line in Suffolk County, to be constructed at a future date.

Parking

The proposed 2008-2013 Capital Program also includes the development and rehabilitation of commuter parking areas and expands commuter parking through the construction of a multistory parking garage. The parking program will consist of reconfiguration, resurfacing, striping, capacity increases through reconfiguration or by expansion into available fringe areas, ADA access, curbs, sidewalks, fencing, lighting, drainage, signage and landscaping, as it relates to the parking facility. The Intermodal Facility Development project will construct a fourth level at the Mineola Intermodal Center and design and construct a new Intermodal Center at a busy branch line station, in order to increase the availability of commuter parking. All together, the proposed Capital Program includes \$58.9 million in parking investments.

Penn Station

Penn Station investments in this proposed program total \$26 million. This includes efforts to address track, tunnel and platform repairs/replacements to maintain the LIRR's busiest station in a state of good repair. An \$11 million project will fund the replacement of the air conditioning units which serve the LIRR's area of Penn Station. Installed as part of the 1994 Penn Station improvements, these air conditioning units have reached the end of their useful lives and have shown increasing failures. Replacing the air conditioning units at this station is vital to ensure customer comfort and satisfaction.

MTA LONG ISLAND RAIL ROAD

TRACK

CATEGORY L-603

MTA Long Island Rail Road has 594 miles of main line track and 106 miles of yard track, all of which are currently in a State of Good Repair. The track program is focused on economically supporting the safe operation of trains at maximum allowable speed with full Federal Railroad Administration (FRA) compliance, while minimizing the impact of track outages on customers. Track assets are currently maintained through on-going annual track rehabilitation programs, which replace components on a life-cycle basis. The cyclical replacement of track rail components is based on age, condition and physical inspection.

System enhancement initiatives include two projects to expand track capacity on the Main Line in both Nassau and Suffolk Counties, as well as two projects to increase train lay-up capacity at critical locations on the Port Washington and Babylon Branches.

Right-of-way projects consist of drainage control, track stability/retaining walls, demolitions and fencing, which are intended to improve the physical condition of the ROW, to ensure safe and efficient operation of trains system-wide.

The 2008-2013 Capital Program

Track investments in the proposed 2008-2013 Capital Program totaling \$730 million build upon significant investments in previous programs. The projects fully support LIRR's long-term goals, which are built upon a Track Strategy, to keep the track assets in a state of good repair.

Track Program

The track program consists of the normal replacement of track components, based upon component age and condition. Elements of the Track Program include installation of wood ties (mechanized), rail, wood switches, concrete switches, field welds, surfacing, drainage, rail profiling and track stability along the right of way, and rehabilitation of grade crossings, as well as \$10 million for new construction equipment to support track projects. Total cost in the proposed 2008-2013 Capital Program is \$379 million.

Atlantic Branch Half-Ties

The track structure in the Atlantic Avenue Tunnel between East New York and Dunton consists of wood half-ties embedded in a concrete track bed. This project will replace the existing track structure, which has reached the end of its useful life. The current track structure dates to 1940-41, when the tunnel between East New York and Jamaica was constructed. The cost for this project is \$55 million.

Merrick / Bellmore / Massapequa Park Direct Fixation

This project will advance the replacement of the direct fixation track on the viaduct along portions of the Babylon Branch. This type of track system involves track infrastructure fastened directly onto the viaduct structure, which was constructed in the early 1970's, and is in need of replacement. During the proposed Capital Program, this entire project will be designed, and construction will be undertaken on the Merrick viaduct portion, the cost for this phase of the project is \$23 million.

Right-of-Way Improvements

Drainage/Flood Control

This project addresses drainage and culvert deficiencies along the ROW. The scope of the drainage project extends from replacing concrete sluice stairways to installation of leaching basins and some drainpipe cleaning. Total cost in the proposed 2008-2013 Capital Program is \$10 million.

Fencing

Approximately five miles of high security fencing per year is programmed for 2008-2013. Fencing will be installed at sites which have been identified as priority, based upon site risk and history by trespassers. Total cost in the proposed 2008-2013 Capital Program is \$13 million.

Demolitions

This project will demolish abandoned structures along the ROW that pose a potential danger to employees and customers and are eyesores in the communities where they are located. Total cost in the proposed 2008-2013 Capital Program is \$3 million.

Double Track Farmingdale to Ronkonkoma - Phase 1

To address current and future travel demand which cannot be accommodated because of infrastructure constraints, the LIRR will advance efforts to expand track capacity on the Main Line. The Double Track Farm to KO project - Segment C will construct a full second track from Ronkonkoma to Central Islip. This is the first phase in the effort to provide full two track infrastructure between Farmingdale and Ronkonkoma – an area that today is single track (with selected railroad passing sidings). This proposed phase has a cost of \$40 million.

Main Line Corridor Improvements

The objective of the Main Line Corridor Improvements is to increase track capacity along the Main Line in Nassau County, to greatly improve service reliability and allow for increased train service along this critical segment of LIRR infrastructure. This project will continue to advance the construction efforts started in the 2005-2009 Capital Program. The cost for this proposed Capital Program project is \$150 million.

Massapequa Pocket Track

This project will design and construct a new lay-up track on the Babylon Branch east of Freeport, which will accommodate a 12-car consist. The preferred site is east of Massapequa Station. Construction of a new pocket track will facilitate additional mid-branch train starts, which will improve service and seating availability for customers at central Babylon Branch stations, including future service to Grand Central Terminal. The budget for this proposed project is \$18 million.

Great Neck Pocket Track Extension

This project will extend the existing Great Neck Pocket to accommodate a second 12-car train consist. By constructing additional train storage capacity east of Great Neck Station, the LIRR will be able to increase service to Great Neck and stations west, including future service to Grand Central Terminal. The budget for this proposed project is \$24 million.

MTA LONG ISLAND RAIL ROAD

LINE STRUCTURES

CATEGORY L-604

MTA Long Island Rail Road maintains 30 viaducts and 640 bridges system-wide (including pedestrian, overgrade and undergrade bridges), along with the Atlantic and Bay Ridge Branch Tunnels. In conjunction with Amtrak, the LIRR advances the Fire and Life Safety and other improvements within the four East River Tunnels. The long-term Bridge and Viaduct program aims to bring those structures into a state of good repair in the following capital program. Currently, the Line Structures asset category is the only LIRR category not in a State of Good Repair. This however, does not mean that the asset is in an unsafe condition. It characterizes the level of cost and effort to maintain the asset through the operating budget.

The 2008-2013 Capital Program

The Long Island Rail Road has allocated \$390 million for Line Structures in the proposed 2008-2013 Capital Program. This program consists of the rehabilitation / replacement of bridges and viaducts, as well as improvements to the East River Tunnels. The investments will allow LIRR to continue its move toward achieving a state of good repair in this asset category.

Atlantic Avenue Viaduct – Phase 2

This project will complete the viaduct's rehabilitation which was initiated during the 2005-2009 Capital Program. The budget for Phase 2 is \$138 million. In addition to completing the replacement of steel superstructure components along the length of the viaduct, this project will also rehabilitate the elevated Nostrand Avenue passenger station, at the viaduct's far western end, including the installation of two elevators to facilitate wheelchair access.

Replacement of Highway Bridges

This proposed project will replace seven LIRR-owned roadway bridges which, due to an 1897 New York State law, are property of the Railroad. These 19th century structures are obsolete as they were not designed to accommodate modern levels of vehicular traffic. The bridges, located in Nassau and Suffolk County, are in deteriorated condition and require total replacement. The cost for this project is \$42 million.

Bridge and Viaduct Painting

In order to progress state of good repair efforts on bridges and viaducts, the railroad has established a bridge and viaduct painting program, with a budget of \$15 million. 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.

Rehabilitation / Replacement of Railroad Bridges

A number of bridges in Queens, Nassau and Suffolk County have been identified for rehabilitation, and in a few cases, full replacement. Repairs to these bridges will address elements from damaged retaining walls and undermined bearings, to timber and bracing deterioration. Rehabilitation efforts may include, but are not be limited to: strengthening of the primary bridge members, removal and replacement of bearings, reconstruction of bearing seats, rehabilitation of deck systems, removal of unsound concrete, and repair of concrete cracks and spalls. Total cost for this project is \$112 million.

East River Tunnels (ERT)

As part of the ongoing Fire & Life Safety efforts for the East River Tunnels, the 2008-2013 Capital Program includes five ERT projects, which will repair the tunnel's structure, install a new emergency power system, provide tunnel waterproofing, and design and install new employee walking surfaces. Total cost for East River Tunnel investments in the proposed Capital Program is \$82.9 million.

MTA LONG ISLAND RAIL ROAD COMMUNICATIONS AND SIGNALS CATEGORY L-605

The various systems which make up the Communications asset serve three main purposes: Communication between LIRR employees, Communication with LIRR customers, and Security-related assets. These systems are supported by the Communications Backbone. The fiber optic network will support all communication system applications, including Security, Radio, Telephone, etc., in addition to the corporate network.

The Communications Backbone system is the system-wide infrastructure, including fiber optic and copper cable, communication poles, and hardware, which supports various vital communications systems and allows transmission of voice, radio and data between locations within the LIRR service area. Communication between LIRR employees includes the vital voice hardware and telephone systems utilized by the Transportation Department. Communication with LIRR customers includes station public address systems / digital displays. The Communications Asset also includes systems which monitor safety and security of LIRR stations, facilities, and structures, including fire alarms and the Atlantic Avenue Tunnel intrusion detection system.

Communication investments focus on the continued fiber optic network build-out, improvements to radio communications, and security-related investments.

The Long Island Rail Road's signal infrastructure ensures the safe routing of 735 scheduled trains each weekday. Because of the LIRR's age and size, the railroad has a very diverse collection of signal types and technologies, ranging from antiquated relay-based systems to modernized microprocessor technology. The LIRR's signal system includes the track circuit-based automatic speed control system as well as the crossing gate protection infrastructure.

Signal investments are determined by the Signal Strategy, which considers the age, condition, reliability, and suitability of the equipment. One of the major focuses of the LIRR is to advance the migration towards a centralized train control system, whereby the dispatching and movement of trains would be facilitated from a central location in Jamaica, instead of through a network of towers controlling sections of the LIRR system.

The 2008-2013 Capital Program

The proposed 2008-2013 Capital Program includes \$326 million for investments that advance the efforts of the LIRR's Communications and Signals Strategies. These strategies address current and future needs, advancing component replacements and system improvements.

Communications

The Long Island Rail Road's 2008-2013 Capital Program includes a project to continue the build out of the fiber optic network. The multi-program effort follows the fiber optic strategy by installing fiber and fiber optic hardware throughout the LIRR network, to facilitate the transmission of data, voice and video data from stations, signal and communication huts, substations, employee facilities, and other key locations. Total cost of this phase of the fiber optic network is \$33 million.

This proposed program will replace the private branch exchange (PBX) and wayside phone systems, utilized by LIRR Transportation employees to allow train crew members to communicate with train control towers and the Movement Bureau in Jamaica. This replacement effort is in accordance with the Communications strategy. Total cost of this project is \$28 million.

Replacement of communications poles and hardware at various locations along LIRR right-of-way will also be continued in this capital program. Communications poles carry the cable providing services to the LIRR Communication Systems, Signal supervisory, Substations supervisory, including fiber optic cables, signal cables, etc, and 3rd party telecommunication companies that hold ROW licenses. This project will also replace deteriorated copper cable infrastructure, which is utilized for communication systems which are not a part of the fiber optic network. Total cost in the proposed 2008-2013 Capital Program is \$7 million.

The FCC – Project 25 Compliance continues the LIRR’s efforts to migrate to a narrow-band radio frequency, in order to meet the Federal Communication Commission (FCC) deadline for system migration to narrow-band. This project includes the construction of new radio towers to increase radio coverage in areas which have been identified as deficient. Also included is the replacement of radios and other infrastructure, in order to have all equipment be compatible with the narrow-band frequency. Total cost for this project is \$10 million.

The Penta radio head-end system, which has reached the end of its useful life, will be replaced. The head-end system facilitates radio communication between the Movement Bureau, Towers, and train crews in the field. It is critical to replace this system now in order to ensure reliable radio communication throughout the LIRR system. Total cost for this project is \$4 million.

In order to address deteriorating cable in the East River and Atlantic Avenue Tunnels, the LIRR has included a radio cable replacement project. This project will replace deteriorated radiax cable in order to improve radio communication in the tunnels. The project will also install fiber optic technology, which will allow for security improvements in these tunnels. Total cost for the tunnel cable replacement effort is \$11.6 million.

A \$20 million dollar Passenger Station Security project will install CCTV cameras at key LIRR branch line stations. This project builds upon the existing network of cameras at Passenger stations which is mainly concentrated at terminal stations, and expands the coverage area to include additional high profile stations. In addition, other locations will be considered for CCTV cameras, including employee facilities, shops, yards, tunnel portals, and other security-sensitive locations.

Total cost for communications improvements in the proposed 2008-2013 Capital Program is \$114 million.

Signals

The Long Island Rail Road’s 2008-2013 Capital Program includes funds to advance LIRR’s long-term signal strategy. Included in the proposed program is the Babylon to Patchogue signal project, with the goal of constructing a modern fully-signalized system between Babylon and Patchogue. Total cost for this project in the 2008-2013 Capital Program is \$46 million.

As part of its ongoing efforts to maintain signal assets in a state of good repair, the LIRR has included a Signal Normal Replacement project of \$10 million. This will replace deteriorated signal components at locations throughout the LIRR system.

Also targeting signal rehabilitation efforts, at one of the most critical areas requiring signal investment, the Babylon Interlocking Renewal project will replace aging signal equipment in the vicinity of Babylon Station. The cost for this phase is \$77 million. Work will continue in the following capital program.

This proposed program also advances efforts to modernize signal infrastructure in the Jamaica area, by beginning renewal of Jay, Hall, and Dunton Interlockings. In addition to advancing normal replacement efforts, this project also addresses signal investments required to accommodate additional train throughput as part of service to Grand Central Terminal. Efforts will also begin on the next phase of the renewal with the design of Jamaica Interlocking. The cost for this phase of Jamaica signal infrastructure renewal is \$35 million.

The proposed program advances one of the LIRR's most crucial efforts, Centralized Train Control. During this phase, both the Movement Bureau and the Power Director will be relocated into the Jamaica Central Control Center Building (JCCB), and two towers (Brook and Babylon) will also have their operations moved into the JCCB. The cost for this phase of Centralized Train Control is \$35.0 million. A related effort, Supervisory Control and RTU, will upgrade and renew supervisory control hardware, for a cost of \$9 million.

Total cost for signal improvements in the proposed 2008-2013 Capital Program is \$212 million.

MTA LONG ISLAND RAIL ROAD

SHOPS AND YARDS

CATEGORY L-606

Currently, the Long Island Rail Road operates 25 shops and yards for fleet storage, maintenance and inspection services. With the purchase of M-9 cars to support East Side Access service, it is necessary to construct new train yards to store and maintain the expanded fleet, ensuring that train consists are housed in locations that allow for full rush hour service.

Another key element of the LIRR's Shops and Yard Strategy is the replacement of Rolling Stock Support Equipment and implementation of the Life Cycle Maintenance Program. These investments will allow the LIRR to improve the reliability and productivity of this equipment, enabling the shop personnel to not only maintain the fleet, but also conduct maintenance in the most cost efficient manner possible. This will reduce rolling stock service outages and increase mean distance between failures. By developing and maintaining a programmed plan for equipment life-cycle management, the LIRR will be able to manage the equipment and required major investments more efficiently, thus reducing downtime, maintenance costs, and increasing service life and reliability.

Employee facilities are an important part of LIRR capital investments. These facilities are multi-functional, encompassing shops and material storage, traditional lockers, lunchroom and office space. The rehabilitation of these facilities will improve the LIRR employee work environment, storage and inventory control. Rehabilitation of these facilities will maintain state of good repair for this asset.

The 2008-2013 Capital Program

Proposed 2008-2013 Capital Program investments in Shops and Yards total \$384 million. Highlights include the construction of two new storage yards for the electric fleet, upgrades to the Morris Park facility to support diesel locomotive maintenance, replacement of Rolling Stock Support Equipment and fueling capacity increases at Port Jefferson Yard, rehabilitation of Employee Facilities, and an increase in train storage capacity at Port Washington Yard.

New Huntington / Port Jefferson Branch Yard

In order to address current and future shortages of train storage capacity on this branch, the LIRR will construct a new electric fleet storage yard on the Huntington / Port Jefferson Branch. Currently, westbound electric train starts at Huntington Station begin at a linear track and not a full storage yard. By increasing train capacity, the LIRR will be able to provide more reliable service on the Port Jefferson Branch and prepare for service to Grand Central Terminal. Total cost in the proposed 2008-2013 Capital Program is \$95 million.

Mid-Suffolk Yard

The construction of a new Mid-Suffolk Yard will 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 plays a critical role in the LIRR's preparation for East Side Access service and builds off of anticipated track capacity enhancements along the Main Line, to increase service frequency and reliability. Total cost in the proposed 2008-2013 Capital Program is \$79 million.

Rolling Stock Support Equipment / Port Jefferson Fueling Capacity

The Long Island Rail Road will rehabilitate and/or replace rolling stock support equipment (RSSE) at LIRR's major shops and yards. This initiative addresses equipment which has exceeded its useful life, while also responding to the maintenance requirements of the M-7 and M-9 electric fleets and the implementation of the Life Cycle Maintenance Strategy. This project also increases diesel fueling capacity in Port Jefferson Yard, to address fleet operations on this heavily traveled diesel branch. Total cost in the proposed 2008-2013 Capital Program is \$22 million.

Life Cycle Maintenance Shop / Diesel Locomotive Shop Upgrade

Efforts continue work begun in the 2005 - 2009 capital program to improve shop facilities to accommodate maintenance and repair of new M-7 EMU's, M-3 EMU's and Diesel fleets. The majority of the work effort will be in the support shops at the Hillside Maintenance Complex and the Morris Park Complex for the Diesel equipment. The Life Cycle Maintenance (LCM) program will allow the LIRR to replace vital components at the end of their useful lives before component failure. In the long term, LCM will result in a more predictable, reliable and stable maintenance program, will reduce unscheduled repairs and increase fleet reliability. Total cost in the proposed 2008-2013 Capital Program is \$78 million.

Long Island City Yard – Phase 3

Building upon projects from previous capital programs, this third and final phase will complete environmental mitigation and yard improvements at Long Island City Yard. In addition to completing the removal of petroleum contaminated soil, this phase includes installation of new electric tracks, new yard lighting, and underground ducts for future wayside power. Total cost for Phase 3 of this project is \$18 million.

Employee Facilities

The proposed 2008-2013 Capital Program includes a capital project for \$20 million for rehabilitation and improvement of select employee facilities. This project addresses various building systems, including windows, HVAC, plumbing, roofing, doors, alarm systems, and other components, to maintain employee facilities in a state of good repair.

Port Washington Yard Reconfiguration

In order to address train storage needs on the Port Washington Branch, the LIRR will reconfigure the tracks at the Port Washington Branch yard in order to increase the number of cars which can be accommodated. Improvements to this yard will allow the LIRR to meet service demands on this heavily traveled branch, including preparation for East Side Access service. Total cost in the proposed 2008-2013 Capital Program is \$12 million.

MTA LONG ISLAND RAIL ROAD

POWER

CATEGORY L-607

The majority of the LIRR's service is in electric territory; electric multiple-unit cars utilizing 750 volts of electric traction power delivered through the third rail. To provide this traction power, the Long Island Rail Road operates and maintains 108 substations/breaker houses and 328 miles of third rail system-wide. In addition to the traction power system, the Power department also operates and maintains lighting on LIRR station platforms as well as yard and tunnel lighting and emergency generator systems.

The long-term goal of Power-related investments is to continue component replacements necessary to maintain the system in a state of good repair and strengthen its reliability and safety. Of particular note, as part of this proposed Capital Program, the Long Island Rail Road will invest substantially in the replacement of traction power substations which have reached the end of their useful lives. Maintaining these assets ensures the safe operation of trains and contains the growth of operating costs.

Relying on industry standards as the basis for component life cycles, Long Island Rail Road has performed asset condition surveys to establish priorities for cyclical normal replacement investments. The need to invest in substation replacement became evident following the conclusion of the traction power load study, which utilized a computer simulation model and incorporated physical characteristics, train schedules and train power consumption. This study considered the power needs (focusing on the increased power requirements of the new M-7 electric fleet) of the current system as well as requirements to support projected system growth and expansion. Numerous aging substations need to be replaced and new substations constructed in critical high traffic locations, in order for the LIRR to reliably operate increased train service in the future.

The 2008-2013 Capital Program

The proposed 2008-2013 Capital Program will replace traction power substations in Queens, Nassau, and Suffolk County which have reached the end of their useful lives. A number of these substations were built in the late 1940's and have been identified as priority replacement. As part of its substation replacement effort, the LIRR will advance the replacement of substations which were originally constructed to accommodate the power needs of the M-1 fleet. Also included in this proposed program is the construction of two new substations, as identified in the traction power load study. These substations, located in Queens, follow the recommendations of the traction power load study by addressing areas of critical power demand, which will accompany the expansion of service with LIRR operations to Grand Central. The total cost for substation replacement / new substation construction is \$185 million.

The proposed 2008-2013 Capital Program also calls for the replacement and/or upgrade of sections of third rail cable, protection board, composite rail, substation pilot wires and relays, power line poles, third rail disconnect switches, volt feeders, and signal power lines. Also included are upgrades to third rail cable feeders and negative reactors. During this program, the deteriorated platform lighting at selected stations will be replaced, and the replacement of station building electrical systems is also included. Completing an effort begun under a previous capital program, the LIRR will replace deteriorated and insufficient lighting in portions of the Atlantic Avenue Tunnel between Flatbush Avenue and Jamaica. Total cost for all Power investments in the proposed 2008-2013 Capital Program is \$239 million.

MTA LONG ISLAND RAIL ROAD

MISCELLANEOUS

CATEGORY L-609

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 system-wide environmental remediation, protective liability coverage, independent engineer services, value engineering services, and scope development.

The 2008-2013 Capital Program

A total of \$164 million of the proposed 2008-2013 Capital Program is allocated to fund miscellaneous projects. Included are: program administration, insurance, and system-wide environmental remediation.

Environmental Remediation

The Environmental remediation includes remediation of Yaphank Landfill, substations, and Smithtown Viaduct, and remediation support for the Port Jefferson Yard Fueling Project. Also included in this proposed program is a project to provide environmental support for various capital program efforts which may uncover hazardous materials or contamination during the course of their project. Total cost for all Environmental Remediation efforts in the proposed 2008-2013 Capital Program is \$34 million.

Yaphank Landfill Remediation

Yaphank Landfill, a three acre property owned by the LIRR, was the disposal site for waste generated from LIRR maintenance efforts from the 1950's to the early 1970's. Following the remedial design that was performed in the 2005-2009 Capital Program, the site remediation will progress the course of action which was agreed to by the LIRR and the New York State Department of Environmental Conservation (NYSDEC). Total cost in the proposed 2008-2013 Capital Program is \$9 million.

Substations Remediation – Phase 1

This project will investigate and remediate substation sites which are believed to have contamination. Approximately 30 years ago, the LIRR treated substation sites in response to termite infestation that was destroying high-voltage cables. Depending on the amount of contamination which is identified, the LIRR will undertake remediation at selected substation sites in this Capital Program, with the remainder of the work being performed in future Capital Programs. Total cost for the proposed 2008-2013 Capital Program is \$8 million.

Smithtown Viaduct Remediation

This project will remediate existing soil contamination and replace all excavated material with clean-fill. This effort will also correct erosion issues at the foundation of the Smithtown Viaduct. Total cost for this project in the 2008-2013 Capital Program is \$3 million.

Port Jefferson Yard Fueling

This project will support the environmental efforts which are anticipated as part of the Port Jefferson Yard fueling supply system upgrade. There is potential soil contamination in the yard as a result of oil and fuel leaking from the storage area and diesel train equipment. Excavation and subsurface disruption associated with the fueling system upgrade may uncover contaminated soil. This project will investigate and delineate contaminated soil at this site and implement an approved NYSDEC remediation plan. Total cost for this project is \$2 million.

Environmental Support for Other Capital Projects

This project provides for environmental needs which emerge during the course of construction in the 2008-2013 Capital Program. Total cost for this project is \$12 million.

MTA METRO-NORTH RAILROAD



MTA METRO-NORTH RAILROAD

2008-2013 CAPITAL PROGRAM

OVERVIEW

MTA Metro-North Railroad is celebrating its 25th anniversary in 2008 – 25 years of history making accomplishments and performance. As one of the largest commuter railroads in the country, Metro-North Railroad carried an unprecedented 80.1 million riders in 2007 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. At an annual ridership of 41 million in 1983, this is an increase of 94 percent in the last 25 years for a total of approximately 1.6 billion customers.

Over this same period, the number of trains Metro-North operates has increased by more than 33 percent, the number of revenue passenger miles is up 76 percent and the fleet size has increased by over 36 percent. On-Time Performance has improved dramatically from 80.5 percent to 97.5 percent. The Mean Distance Between Failures of the fleet, the distance a rail car travels between breakdowns, has improved from 13,341 miles in 1988 to 110,361 miles in 2007. Finally, in this time frame, the railroad improved its Fare to Operating Ratio from 36.9 percent to 59.9 percent by maintaining a critical focus on improving financial performance and operating efficiencies.

Metro-North's market share of weekday commuter trips to Manhattan – those that choose to ride the train instead of driving their automobiles - has increased from 70 percent in 1991 to 81 percent in 2006. The increase is even more pronounced for the discretionary travelers (non-commuters). Only 39 percent of these travelers took the train in 1991, while in 2006 the market share was 49 percent.

This spectacular turnaround did not happen overnight - or without a cost. The past 25 years have seen major investments in the rolling stock fleet and infrastructure of the railroad over the span of five MTA Capital Programs. The dramatic changes were made possible through capital investments to restore basic railroad infrastructure to a reliable condition. Every day Metro-North fulfills its primary mission to provide a clean, safe, comfortable ride to every customer – reliable and on-time nearly 98% of the time.

While improvements resulting from the past 25 years of investments are impressive, significant state of good repair work remains unfinished in a few categories. In addition, to avoid a return to the conditions prevalent in the 1970s and in the early 1980s at the inception of Metro-North, it is essential not only to continue state of good repair work, but to protect the past 25 years with investments in normal replacement projects as well. As a result, 90 percent of the investments proposed in the core Metro-North 2008-2013 Capital Program are earmarked for state of good repair and normal replacement projects. At the same time, Metro-North remains focused on strategies and initiatives that will provide targeted improvements resulting in increased ridership and revenue throughout the system. Metro-North will continue to build on the excellence achieved over the past 25 years and strive for even greater improvements in the coming decades.

The proposed 2008-2013 Capital Program demonstrates the agency's ongoing commitment to maintaining and enhancing mobility, economic health, and quality of life in the region.

Investments in Mobility

Regional mobility will be improved through projects that reduce travel times and increase reliability and dependability throughout all aspects of the railroad. Projects are planned to accommodate increasing ridership and expanded service. Key Metro-North projects include:

- Continuing implementation of Metro-North's Rolling Stock strategy using rolling stock replacement and maintenance programs to modernize and expand the fleet to meet projected ridership demand. Vital fleet modernization efforts include the ongoing M-8 and proposed EMU Replacement procurements, which will provide additional capacity for ridership growth and replace the 35-year-old New Haven Line M-2 fleet and retire the final Hudson and Harlem M-1's with new high-performance fleets utilizing the lessons of the highly-successful M-7 procurement. Critical Systems Replacement programs will be performed on the New Haven Line's M-4 and M-6 fleets to modernize select components and ensure reliability through their remaining useful life.
- Expanding station facilities and parking and progress toward the development of key Strategic Intermodal Facilities to improve station facilities and access and expand commuter parking to address the thousands of parking spaces needed throughout the Metro-North system. These projects will promote increased rail ridership and revenue as well as meet current and projected customer demands for station and parking access. Stations and parking investments are coordinated with local governments and promote economic development.
- Continuing extensive traction power improvements essential to meet the increased power demand on the Hudson and Harlem Lines, to maintain reliable and dependable service and to support the service growth strategy encompassed in the 2025 Service Plan. Replace Substation Bridge 23, an aging AC traction power substation. This is the only substation that feeds the New York State section of the New Haven Line and is critical to maintaining service reliability.
- Continuing the multi-program project to replace the aging signal system, equipping Metro-North with the latest technology to accommodate current operations which have continued to expand and enabling compatibility with future service needs. The next signal system segment to be replaced will be from North White Plains to Brewster.

Investments in Customer Satisfaction

Customer Satisfaction benefits result from improvements in trip quality, the station environment, customer information, and ease of fare payment. Key projects to enhance the customer experience include:

- Completing the highly successful Hudson Line Stations Improvements program with the replacement/rehabilitation project at Tarrytown Station.
- Improving customer communications in Grand Central Terminal (GCT) and at outlying stations. The current visual information network in GCT will be replaced with a new customer communications network including new signs, gate boards and a Big Board. Customers at outlying stations will benefit from the rollout of the model communications station program to priority locations. Stations improvements will include new platform LED signs and LCD monitors that can be used to display enhanced train information and schedules to customers.

- Beginning Phase 1 of a program to replace the aging and obsolete ticket selling machines at outlying stations and in Grand Central Terminal.
- Continuing the investment necessary to bring the Port Jervis Line infrastructure to a state of good repair following Metro-North's lease of the Line from Norfolk Southern in 2002. Track, viaduct, and bridge work will continue to be advanced.

Investments in Safety and Security

Safety and Security projects focus on both customer and employee safety and security. Key projects include:

- Continuing the Undergrade Bridge Program – east and west of the Hudson River as well as the east of Hudson Overhead Bridge Program to progress these bridges to a state of good repair.
- Continuing investments in emergency preparedness such as CCTV improvements at priority locations under this program.

Investments to Maintain the Core Infrastructure

Achieving core infrastructure state of good repair and protecting past core infrastructure investment remains one of the most critical elements of the proposed 2008-2013 Capital Program. Metro-North must progress critical infrastructure state of good repair work while ensuring that all the improvements resulting from the last 25 years of Capital Program work are not lost, causing systems to slip back into a state of disrepair. Key projects include:

- Advancing the multi-program replacement of the Croton-Harmon Shop, the cornerstone of Metro-North's long-term shops and yards strategy to upgrade and adequately size shops and yards for storage, maintenance and inspection services.
- Continuing multiple infrastructure improvement programs such as Cyclical Track, Turnouts: Mainline/High Speed Turnouts, and GCT Trainshed Structural Repairs.

THE 2008-2013 CAPITAL PROGRAM

Table 7 details the proposed 2008-2013 Capital Program by asset category and percentage of overall program. Investment highlights for each asset category are described directly following the table (more detailed summaries of the projects are discussed in later sections).

Table 7
MTA Metro-North Railroad
2008-2013 Capital Program by Investment Category
(\$ in millions)

Category	Proposed 2008-2013	Percent
Rolling Stock	\$373	21%
Stations	309	17%
Track and Structures	348	20%
Communications and Signals	86	5%
Power	89	5%
Shops and Yards	469	27%
Miscellaneous	95	5%
Total	\$1,770	100%

Numbers may not total due to rounding

* Totals do not include projects included in the Capacity Expansion Investments section of the proposed capital program

Rolling Stock

Upon completion of the delivery of purchases made under the currently approved 2005-2009 Capital Program, the revenue fleet available for service will total 1,228 units including 201 push-pull coaches, 866 electric cars (including the first 114 M-8's¹ for which Metro-North has paid \$100 million, its 35% share), 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.

Previous Capital Program investments in rolling stock have substantially modernized the Metro-North fleet, beginning with the dual-mode and coach purchases in the 1995-1999 Capital Program and continued in the 2000-2004 and currently approved 2005-2009 Capital Program with such projects as the M-7 procurement, the M-2 and M-4 Critical System Replacement (CSR) programs, the purchase of a new fleet of coaches for the West of Hudson territory, partial replacement of its aging and diverse shuttle and switcher locomotive fleet with a single locomotive type capable of performing all non-GCT duties, and the initial purchase of M-8 cars for service on the New Haven Line.

The goal for the proposed 2008-2013 Capital Program \$373 million investment in rolling stock is to largely complete the expansion and modernization of the fleet so that at the end of the program, the entire fleet will be on a normal replacement cycle, and Metro-North will have sufficient equipment to meet projected ridership increases until the next fleet replacements are due. This goal will be progressed through the completion of the M-8 procurement and M-4 and M-6 CSR programs for the New Haven Line, the completed replacement of the shuttle/switcher fleet, and the final replacement of the M-1 fleet.

This modernized fleet, with components standardized wherever possible to the highly successful M-7's, will provide high-performance, high-reliability electric equipment for all lines

¹ A total of 300 M-8 cars were purchased. This discussion assumes purchase of 114 M-8's as this is all Metro-North funded. In the next Capital Program, Metro-North will have to pay to CDOT its share of 186 M-8 cars.

and a new, uniform, multipurpose diesel fleet for shuttle and switcher service.

Grand Central Terminal and Stations

The proposed 2008-2013 Capital Program includes \$309 million for the continuing rehabilitation of the historic Grand Central Terminal complex, the rehabilitation of select stations on the Hudson and Harlem Lines, continuation of the rehabilitation of historic station buildings and the rehabilitation of existing parking facilities and the advancement of strategic intermodal station/parking facilities.

Grand Central Terminal (GCT) is a nearly 100 year old Beaux-Arts building which serves as an important link in the region's transportation system connecting train, subway, car and pedestrian traffic. GCT, one of New York City's preeminent architectural landmarks, is the first or last rail stop of nearly 200,000 daily rail trips plus the destination of over 700,000 visitors who use its shops and services. Metro-North operates a total of 652 trains daily, 574 of which travel into and out of this busy rail terminal every weekday. The GCT complex consists of the terminal building plus a multi-level, subsurface trainshed spread over approximately 75 acres. GCT is subject to a high volume of rail and pedestrian traffic and excessive wear and tear due to constant use as a result of these significant train operations, customers and visitors each day as nearly three quarters of million people pass through daily. The extensive complex is in need of continued investment to repair the basic infrastructure – from the sprawling trainshed and tunnel structures to the extensive network of utilities.

The restoration and revitalization work on the Terminal to date has been a spectacular success for rail customers and visitors alike. Metro-North has spent over \$450 million to date on improvements to the Terminal with magnificent results, and these areas must not be allowed to slip back into disrepair. It is now essential to maintain that work in a state of good repair with the proper level of investment and maintenance. Under the proposed 2008-2013 Capital Program, rehabilitation of Grand Central Terminal (GCT) will continue with \$95 million allocated for predominantly normal replacement projects. Major work continuing from previous capital programs will include a significant investment in the ongoing structural rehabilitation of the GCT trainshed (\$42 million) as well as the continued rehabilitation of the GCT elevators (\$12 million). Additional funding is reserved for the normal replacement of the terminal's infrastructure including trainshed track structure improvements, leaks remediation, platform improvements and improvements to the aging water conveyance utilities.

The long-term objectives of the stations and parking program is to achieve a state of good repair, improve operations, increase customer satisfaction/quality of life, increase ridership, increase access and parking, conserve the historic stations along the system and support local development. Metro-North has worked to enhance the customer environment and increase safety of the entire station area including station buildings, platforms, overpasses and underpasses, ADA compliance and miscellaneous customer amenities. Metro-North partners and coordinates with a variety of entities to progress this work including counties, local towns, communities and private organizations as well as New York State agencies such as Department of Transportation and the Department of Environmental Conservation.

At many stations within New York State, major elements such as platforms, overpasses, stairs and elevators are reaching the end of their expected useful life and will need to be repaired and/or replaced to maintain a state of good repair. The Tarrytown Station Improvements project (\$37 million) will complete the highly successful Hudson Line Station improvements program providing renovated stations all along the Hudson Line from Morris Heights to Ossining. The Stations program also includes a \$41 million Harlem Line Stations Improvements project to

rehabilitate various structural components (platforms, canopies, stairs, overpasses) of the stations to protect investment and maintain these stations in a state of good repair. The project includes stations from Botanical Gardens to Tuckahoe. When completed, these projects will increase customer satisfaction/quality of life and improve safety and convenience.

Metro-North's program to rehabilitate historic station buildings continues as well with work at Poughkeepsie Station building and at the Fordham Station building. The costs to renovate these structures to a state of good repair are significant due to the building age and historic significance. Metro-North continues to seek public and private partners for the economic reuse of many of its station buildings.

Metro-North's Strategic Intermodal Facilities Program provides for the creation of transportation hubs in key markets. This ensures access and parking capacity is in place to promote the use of mass transit and accommodate anticipated ridership demand throughout the system. Development of these strategic facilities will significantly expand parking and improve station access to promote increased rail ridership and revenue as well as meet current and projected customer demands for parking and station access.

The \$70.0 million Strategic Facilities project includes monies to implement strategic station and parking investments, constructing key intermodal transportation hubs in the Metro-North region. Program work includes major station improvements such as new/expanded station facilities, new intermodal facilities to provide for connections with taxis and buses, major access improvements from interstate highways and major and local roadways, expanding parking, and complementary right-of-way improvements such as track, interlocking, signal and yard work where needed. Key candidate locations initially identified for the program include North White Plains, Southeast, Purdy's and Poughkeepsie. Efforts to advance Metro-North's Transit Oriented Development (TOD) Program in conjunction with MTA Real Estate may be aligned with the Strategic Intermodal Passenger Facility program where applicable. Initiatives in which TOD's are the focus of the project include Beacon, where a Request for Expression of Interest to provide an opportunity for a TOD was recently issued by Metro-North. 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 (housing, commercial, etc) station area.

Track and Structures

Track is the basic nuts and bolts infrastructure of any rail system, and a safe, reliable and comfortable trip means ensuring that these assets remain in a state of good repair. This allows the railroad to operate at maximum allowable speeds and contributes to meeting Metro-North's customer-based on-time performance goals. In addition, investment in structures is essential to customer service and to continue Metro-North's efforts to bring all structures to a state of good repair. Planned investment will also provide the enhancements that will enable Metro-North to meet projected service demand and forecast ridership by improving capacity along the right-of-way. A total of \$348 million is allocated for Track and Structures projects east and west of the Hudson River.

Under the proposed 2008-2013 Capital Program, \$64 million is reserved for the Cyclical Track Program – Wood Ties and Surfacing (east of Hudson). This project provides for the replacement of ties and rail along with cyclical surfacing throughout the entire Metro-North territory in New York State and ensures the protection of past investment through the east of Hudson territory. In addition, the \$62 million Turnout Replacement – Mainline High Speed project provides for the replacement of interlocking switches throughout the entire Metro-North

territory in New York State, as they reach the end of their useful life. The project maintains the switches in a constant state of good repair ensuring high reliability at interlockings. The \$13 million Grand Central Terminal Switch Renewal project will replace the switches located in GCT and provide rail improvements at the platform areas. Multiple projects will address the structures along the right-of-way, e.g., the Undergrade Bridge Program (\$41 million) and Overhead Bridge Program (\$18 million).

In September 2002 Metro-North finalized a long-term lease agreement for the Port Jervis Line with Norfolk Southern and in Spring 2003 assumed responsibility for the Line. Investment in the 65 miles of track and line structures is necessary to bring the infrastructure up to Metro-North's east of Hudson standard. Long-term investment improvements are essential to bring all assets to a state of good repair as well as increase the capacity of the Line. Approximately 19 percent of the 2008-2013 Track and Structures funding is allocated to this need. The \$37 million West of Hudson Track Program provides for track improvements on the Port Jervis Line, while \$26 million will be invested in structures projects, such as the Undergrade Bridge Program and Moodna and Woodbury Viaducts.

Communications and Signals

The signal infrastructure is vital for the safety and reliability of the railroad yet it is a mixture of older systems from previous railroads. Replacement of the aging signal system began under the currently approved 2005-2009 Capital Program. A study is ongoing that will establish the approach for replacing these older systems. The replacement of the New York State portion of the New Haven Line was funded under the 2005-2009 Capital Program as well. Communications and Signals projects for 2008-2013 total \$85.8 million. The primary long-term objective of investments in this area is to continue the replacement of the signal system with the latest technology to accommodate current operations and provide compatibility for future needs and expanded service levels. Nearly 60 percent of the funding is allocated to one project that progresses the asset goal – Signal System Replacement – NWP to Brewster (\$50 million).

Power

Power systems are a fundamental element of basic rail infrastructure. First and foremost the power system must support a safe and reliable operation for customers. Sufficient traction power allows electric cars to operate at maximum allowable speeds and contributes to Metro-North's customer-based on-time performance goals. Inadequate traction power can result in reduced speeds, reduction in train service, and affect the operating characteristics of rolling stock electric cars, all impacting Metro-North's delivery of service and the customer transportation experience.

The Power projects for 2008-2013 total \$89 million. The objective of power investments is to maintain the condition of the existing assets and increase traction power capacity, as traction power is currently limiting capacity on segments of the territory. Improvements are needed to support current service levels and projected service growth over the next decades. Consequently, approximately 55 percent of the funding under this category is for two key projects - the continuation of the multi-program approach to improve traction power on the Upper Harlem Line as well as system-wide, and the replacement of Substation Bridge 23, a critical risk on the traction power grid as the main and only source of traction power for the New York State portion of the New Haven Line.

Shops and Yard

Metro-North's Shops and Yards strategy is to: rehabilitate/replace the older shops; adequately size its shops and yard facilities to accommodate additions to the rolling stock fleet for increased

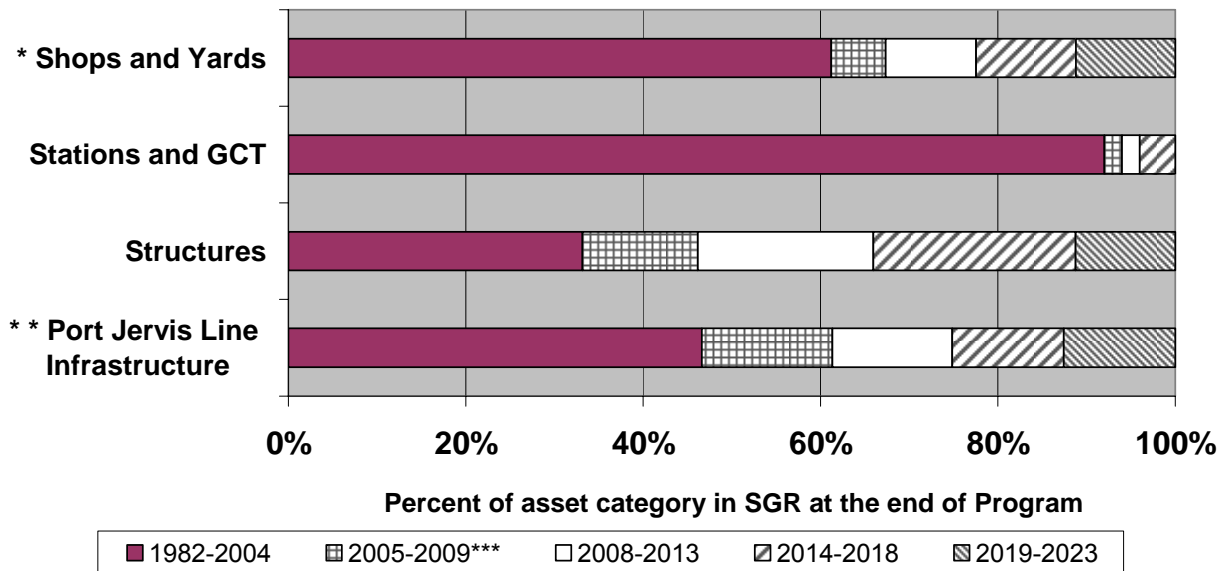
service (such as M-7 electric cars and West of Hudson coaches); support the Reliability Centered Maintenance philosophy; and improve on-time performance. Storage yards provide capacity for overnight and midday storage and the shops support reliable operation by providing facilities for periodic inspection and maintenance. Metro-North's maintenance activities and programs are significantly impacted by the lack of modern facilities at Harmon as Harmon Shop represents 80 percent of the shop spots on the railroad. At the same time, the need for increased and improved overnight storage is becoming critical at multiple locations east and west of the Hudson River, as ridership growth and reduced car capacity drive train lengths up, and planned service expansions require streamlined terminal operations that can only be achieved by rationalizing existing facilities. As a result, significant investments will be needed not just to complete the work at Harmon, but to ensure that adequate capacity is available throughout the Metro-North territory.

The Shops and Yards projects total \$469 million. The most significant project is the start of Phase 4 of the continuing multi-program replacement of the Croton-Harmon Shop (\$425 million). The primary objective of Phase 4 is to reconstruct the Main Shop at Harmon as well as construct a new Support Shop. Additional projects focus on other Shops and Yards needs, such as priority repair and capacity needs at the Brewster and Wassaic Yards on the Harlem Line and Port Jervis Yard West of the Hudson. These investments will keep Metro-North moving toward state of good repair, while accommodating fleet and service growth.

SYSTEM CONDITION AND ACCOMPLISHMENTS

Since 1982, when the first Capital Program began, Metro-North Railroad has committed a total of \$6 billion to replace rail car equipment and restore a majority of its infrastructure to a state of good repair, establishing a normal replacement cycle for its assets and making select system improvements. All obsolete track was replaced by 1986 (with the exception of the recently acquired Port Jervis Line). The work to bring the Communications and Signals assets to a state of good repair was completed by 2000. The Power assets reached a state of good repair by the end of the 2000-2004 Capital Program. These assets are in a cycle of normal replacement in order to maintain a state of good repair.

**Chart 3
Progress to State of Good Repair for Remaining
Metro-North Investment Categories**



* Significant SGR investment required at Harmon Yard.

** Port Jervis Line maintenance assumed by Metro-North in 2003 through a lease with Norfolk Southern. Infrastructure includes track, structure and signals.

*** As currently approved

As shown in Chart 3 at the end of the currently approved 2005-2009 Capital Program, the Shops and Yards assets will have reached 66 percent state of good repair. Extensive capital investment is required to continue the effort to achieve a state of good repair for this category – most critically for the completion of the Harmon Shop project. The over 100 year old shop complex includes yard facilities, and coach, locomotive and electric shops that provide fleet storage and maintenance and inspection services for the majority of the Metro-North Hudson and Harlem fleets. Due to the magnitude of the work, the Harmon Shop project has been phased over multiple capital programs. The condition of the EMU Shop at Harmon has impacted the overall condition of the Shops and Yards assets, as it is Metro-North’s oldest and largest shop (80 percent of shop spots) and is in a deteriorated condition. In addition, the complexities of certain portions of the Harmon work over past, present, and future programs has required a prolonged phasing, contributing to deferred repairs of other Shop and Yard elements, causing some elements to slip to a deteriorated condition. If the required funding is received in upcoming programs, the Shops and Yards assets are anticipated to reach 100 percent state of good repair post-2020.

Stations (including Grand Central Terminal) will be at 93 percent state of good repair at the end of the currently approved 2005-2009 Capital Program and these assets are slated for state of good repair completion by 2019. Many elements of Grand Central are in a deteriorated condition but to date the deteriorated conditions have not had a detrimental impact on safety, operations or services. Continued investment in normal replacement projects for the aging infrastructure is critical to ensure that the Terminal does not slip into further disrepair. With the completion of the proposed 2008-2013 Capital Program, including the rehabilitation of Tarrytown and work on various Metro-North station buildings, such as Poughkeepsie station, will

come close to achieving a state of good repair. While additional station building work remains over the following program to achieve full state of good repair, many of the station elements are reaching the end of their useful life making it critical to maintain normal replacement investment to ensure that the gains of the past years are not compromised.

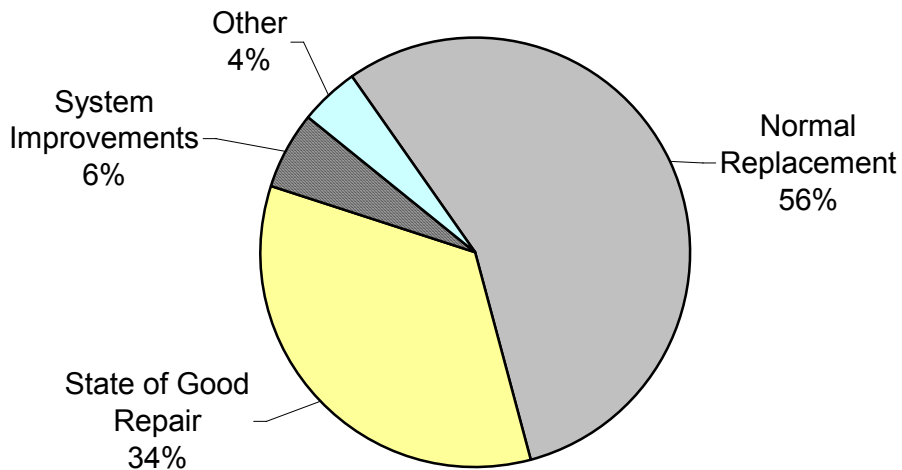
Structures will be at almost 45 percent state of good repair by the end of the currently approved 2005-2009 Capital Program. State of good repair work for these assets will continue beyond 2020. While many of the structures have not been brought to a state of good repair, inspection occurs regularly and maintenance is performed to keep the structures serviceable and maintain the safety of Metro-North customers. Many of these bridges will require more substantial investment over the upcoming programs.

Finally, in 2003 Metro-North assumed responsibility for the Port Jervis Line under a lease agreement with Norfolk Southern. State of good repair work began under the 2000-2004 Capital Program and will progress to almost 62 percent complete under the currently approved 2005-2009 Capital Program and will continue beyond 2020 for this new asset. Given anticipated investment, track will reach state of good repair in 2014, with normal cyclical replacement beginning in 2015. Structures work to date has been focused on keeping many of the structures safe and serviceable; many of these bridges must ultimately be replaced.

In the proposed 2008-2013 Capital Program Metro-North will invest approximately 34 percent of the program on projects to progress work towards achieving a state of good repair (see Figure 3 Critical projects in the state of good repair category include a significant investment in the continuation of the phased work at the Harmon Shop complex, required for Metro-North to maintain its rolling stock fleet. The rehabilitation of Tarrytown Station will bring all elements to a state of good repair. In addition, while much of Grand Central Terminal has been upgraded in conjunction with past rehabilitation efforts, further repair is needed including the ongoing remediation of leaks in the Terminal complex. Finally, the continued rehabilitation/replacement of undergrade bridges to progress the state of good repair effort for those structures is essential to maintain and improve safety and the reliability of the operation.

Historically, as many asset groups have achieved state of good repair, the percentage of funding for state of good repair projects has decreased accordingly since the inception of the capital program at Metro-North. As a result, Metro-North can now devote budgetary resources to normal replacement. Accordingly, the proposed 2008-2013 Capital Program allocates 56 percent to the normal replacement of assets that have reached their expected useful life (Figure 3). Normal replacement projects include the continuation of the M-8 procurement, the purchase of the EMU Replacement cars, the majority of work in Grand Central Terminal and most Stations projects, as well as the majority of Track, Power and Communications and Signals projects. Normal replacement is critical to protect the investments of the past 25 years, ensure that infrastructure does not fall out of disrepair and support safe, comfortable and reliable service for Metro-North customers.

Figure 3
MTA Metro-North Railroad 2008-2013 Capital Program
Investments by Needs Category



Metro-North strives to include system Improvement projects, as funding allows, to meet the increasing service demand and ridership growth system-wide. Due to the continued significant need for state of good repair and normal replacement efforts, system improvement projects represent only six percent of Metro-North’s proposed 2008-2013 Capital Program. Much of the system improvement funding is devoted to parking expansion and strategic intermodal facilities. Additional system improvement funds are included for the expansion of Wassaic and Port Jervis Yards and improved customer communications at priority stations.

Major Accomplishments of the 2005-2009 Capital Program

- In 2006, Metro-North completed the delivery of 336 M-7’s to replace the ACMU and M-1 fleets, which began in 2004 as part of a joint procurement with the Long Island Rail Road. This procurement replaced cars with an average MDBF of 29,000 miles in 2004 with a fleet that provided an MDBF of 425,000 miles in 2007. 2005-2009 Capital Program funding for this project was \$86.9 million, out of a total of \$733 million over the 2000-2004 and 2005-2009 programs.

- Metro-North has ordered 300 M-8 cars for the New Haven Line to provide additional capacity for ridership growth and begin to retire the 30-year-old M-2 fleet. Delivery is expected to begin in late 2009 and continue through 2012. \$100 million was provided in the 2005-2009 Capital Program for this project with the remaining Metro-North share to be funded under the proposed 2008-2013 Capital Program.

- Metro-North and CDOT have ordered 11 new diesel locomotives to begin replacement of the aging fleet of locomotives used for shuttle and switcher service. Delivery is expected in the spring of 2008. 2005-2009 Capital Program funding for this project is \$9 million.

- Metro-North's M-2 CSR program has continued to refurbish a portion of the 30-year-old New Haven Line M-2 fleet to allow them to operate through completion of the M-8 deliveries, with the result that MDBF for completed cars is 31% higher than that of cars which have not completed the program. \$9 million for this project remains funded in the 2005-2009 Capital Program, out of a total of \$36.0 million over the 2000-2004 and 2005-2009 programs.
- Metro-North purchased four West of Hudson locomotives in 2006 to meet projected ridership growth. 2005-2009 Capital Program funding for the purchase and overhaul of these locomotives is \$9 million.
- Metro-North has invested significantly in the rehabilitation of stations. For example, the Hudson Line Station Improvements project, which includes rehabilitation of stations from Hastings to Ossining (except Tarrytown), is a major effort that will be completed in 2010. 2005-2009 Capital Program funding for this project is \$97 million
- Metro-North continued the replacement of the Croton-Harmon Shop complex with work including: the procurement of a tandem wheel true machine; design/build of a wheel true facility designed to accommodate the new M-7 revenue equipment; design/build of the Coach and Locomotive shops including a Locomotive Wash Facility; and the preliminary design for the Phase 4 – Stage 1 Support Shop Facility, which includes an industrial engineering study for the floor plan of the shop maintenance equipment layout and current conditions of the existing main shop. 2005-2009 Capital Program funding for this project is \$366 million.

PLANNING THE PROPOSED 2008-2013 CAPITAL PROGRAM

A full State of the System Needs Assessment was prepared in 2007. This process began with development of an Asset Inventory/Condition Database for all assets on the railroad to update and assemble all asset conditions into a central inventory database, the State of the System. Along with the asset strategies, the State of the System Assessment was a key underpinning for the railroad's formulation of this capital plan and provided critical input into refining the long-term investment needs of the railroad.

Metro-North's proposed 2008-2013 Capital Program projects were identified for inclusion based on the condition assessment and Metro-North strategies. Master Plans were developed for projects included in the proposed plan based on condition, strategy, and priority. The projects identified are all required to progress work toward achieving a state of good repair, protect past investments through normal replacement and implement targeted initiatives to provide for ridership growth and service expansion.

MTA METRO-NORTH RAILROAD PROGRAM PLAN

MTA METRO-NORTH RAILROAD

ROLLING STOCK

CATEGORY M-601

The goal for the proposed 2008-2013 Capital Program \$373.3 million investment in rolling stock is to continue modernization and expansion of the fleet. Upon completion of the delivery of purchases made under the 2005-2009 Capital Program, the revenue fleet available for service will total 1,228 units including 201 push-pull coaches, 866 electric cars (including the first 114 M-8's for which Metro-North has paid \$100 million, its 35% share), 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 2008-2013 investments, Metro-North will continue fleet modernization and expansion efforts to meet ridership growth and enhance the quality of service for railroad customers.

The 2008-2013 Capital Program

Metro-North's purchase of rolling stock is needed to replace equipment that has reached the end of its useful life and to provide additional seating as ridership continues to grow. Rolling Stock projects total \$373 million and represents approximately 21 percent of the program for the 2008-2013 period.

M-8 Procurement

Metro-North will complete the purchase of 342 M-8 cars in a joint procurement with CDOT to begin the modernization of its electric multiple unit fleet, two-thirds of which is comprised of M-2 cars originally built in the early 1970's and to accommodate projected New Haven Line ridership growth. This is the second phase of a project begun in the 2005-2009 Capital Program to provide a total of 342 new cars to replace the M-2 fleet and provide seats for ridership growth. Metro-North provided \$100 million for this project in the currently approved 2005-2009 Capital Program, which began with an advance of \$166 million from CDOT to facilitate the order of the first 300 cars. The total cost in the proposed 2008-2013 Capital Program is \$221 million, which includes Metro-North's repayment of that advance and its share of the final 42 cars to be ordered for New Haven Line service.

EMU Replacement – 30 Cars

This project will purchase 30 EMU cars to replace the last 30 M-1's in the Metro-North fleet. Exact procurement will be based on a rolling stock strategy currently under development jointly with Long Island Rail Road. Total cost for this proposed 2008-2013 Capital Program project is \$100 million.

M-4 and M-6 Critical Systems Replacements (CSR)

These projects are needed to complete the M-4 CSR which received initial funding in the 2005-2009 Capital Program, and continuing with a similar program for the M-6 fleet to ensure the reliable performance of this equipment through the end of its useful life. The 54-car M-4 fleet was purchased in 1987, and the 48-car M-6 fleet in 1993. Neither fleet has ever had a significant overhaul program, and key components of these fleets either have reached the end of their useful life, are obsolete, or have become difficult to replace in a cost-effective manner, which significantly degrades current and future reliability. These programs will take advantage of technological upgrades now available to significantly improve reliability for the fleet's remaining life. Total cost in the proposed 2008-2013 Capital Program is \$20 million for the M-4 fleet and \$20 million for the M-6 fleet.

Purchase of Switcher and Shuttle Locomotives

This project provides for the acquisition of five new 2,000 horsepower diesel locomotives suitable for road and switching service and equipped with head end power (HEP) for shuttle service. The project will complete the program begun in the 2005-2009 Capital Program (with the purchase of eleven similar locomotives) and 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 in seven different classes, which, along with three more recent locomotives confined to duties at Harmon Yard and GCT, made up the switcher and shuttle fleets. The uniformity of the new fleet will provide operational flexibility, improve reliability, and standardize maintenance procedures, as only one class of locomotive will need to be maintained. Total cost in the proposed 2008-2013 Capital Program is \$12 million.

MTA METRO-NORTH RAILROAD STATIONS CATEGORY M-602

There are 85 Metro-North passenger stations in New York State, 73 east of the Hudson River and 12 more west of the Hudson. The long-term objective of Grand Central Terminal, outlying station and parking rehabilitations is to achieve a state of good repair, improve operations, increase customer satisfaction, and conserve the historic stations along the system. In addition, Metro-North will make progress toward constructing new facilities to accommodate increased ridership and increase access and parking opportunities. These initiatives support local development opportunities as well.

The 2008-2013 Capital Program

Included in Metro-North's proposed 2008-2013 Capital Program is the continuing rehabilitation of the historic Grand Central Terminal complex, rehabilitation of stations on the Hudson and Harlem lines, and the parking and strategic facilities. Grand Central Terminal, Stations, Parking and Strategic Facilities projects total \$309 million, approximately 17 percent of the total Metro-North Capital Program.

Grand Central Terminal Rehabilitation Projects

Rehabilitation of Grand Central Terminal (GCT) will continue in the proposed 2008-2013 Capital Program with \$95 million allocated for normal replacement and state of good repair projects. Major work continuing from the 2005-2009 Capital Program includes the elevator rehabilitation program and the ongoing structural rehabilitation of the GCT trainshed. Additional funding is reserved for the normal replacement of the terminal's infrastructure including trainshed/tunnel structural rehabilitation, GCT/Park Avenue expansion joints, trainshed track structure improvements, leaks remediation (under an Agreement with the City of New York), platform improvements, and water conveyance utility improvements.

Hudson Line Station Improvements- Tarrytown Station

The purpose of this project is to rehabilitate/replace all station elements at Tarrytown Station, including the tear-down and replacement of the north and south overpasses, elevators and stairs, and the island and side platforms. The total project cost is \$37 million and the work completes the 17 stations on the Hudson Line from Morris Heights to Greystone and from Hastings to Ossining.

Harlem Line Stations Improvements – Botanical Garden - Tuckahoe

The purpose of this project is to rehabilitate key station elements to ensure the stations remain in a state of good repair. Stations include Botanical Garden, Williams Bridge, Wakefield, Mount Vernon West, Fleetwood, Bronxville and Tuckahoe. Work includes repair of platforms, canopies and stairs along with miscellaneous amenities. When completed, this project will improve customer comfort and convenience. Total cost in the proposed 2008-2013 Capital Program is \$41 million.

Station Building Rehabilitation

Funding is allocated to address the needs of rehabilitating station buildings throughout the system. Many of Metro-North's station buildings are historic, built in the late 1800's/early 1900's, and in varied condition. Costs to renovate these structures can

often be high because of building age and condition. Under the proposed 2008-2013 Capital Program, Metro-North will implement the following station building projects:

- **Poughkeepsie Station Building - Phase II** Project will continue the phased approach to improving the historic Poughkeepsie Station building. Repairs identified in an assessment funded in the 2000-2004 Capital Program began in the 2005-2009 Capital Program. This Phase II project will address building elements, such as doors, monumental windows in the front facade of the building as well as windows in the remainder of the building and prioritized remaining work, including brick repointing, interior wall repairs, fire protection, plumbing, HVAC, and electrical systems. Total cost is \$10 million.
- **Fordham Station Building** Project will continue the rehabilitation of the Fordham Station building begun under the currently approved 2005-2009 Capital Program. As part of Metro-North's continued efforts to improve the station environment, the scope of work at Fordham was expanded to include work to maximize access/egress for Metro-North customers. This project entails construction of pedestrian access from Webster Avenue to the north end of the inbound platform; aesthetic improvements to the Fordham plaza entrance to south of the station as well as the south end of the platforms. The total cost for this project is \$4 million
- **Station Building Rehabilitation** The purpose of this project is to provide critical improvements to station building elements at various Metro-North station buildings. Work at Hartsdale Station includes: replace existing building roofing system including gutters and leaders, rehabilitate existing windows and doors, repoint exterior brick façade and paint the building structure and repair cracks and spalls. Funding includes rehabilitation of other outlying stations such as Port Chester and may supplement ongoing work at Fordham and Poughkeepsie Station buildings as well. Funding is also allocated to progress net lease opportunities with private commercial entities if opportunities arise. Total cost is estimated at \$24 million.

Customer Communications in Grand Central Terminal

This project will improve communications in GCT for customers through replacement of the current visual information network with new signs, gate boards, and a new Big Board. Metro-North will pursue advertising opportunities in concert with the improved communications. The proposed 2008-2013 Capital Program includes \$6 million for the project. Connecticut Department of Transportation (CDOT) participation will supplement this funding.

Customer Communications at Outlying Stations

This project will improve communications at outlying stations by rolling out communications model station technology to a first phase of priority stations system-wide. Stations improvements will include new platform LED signs and LCD monitors that can be used to display enhanced train information and schedules to customers. Metro-North will pursue advertising opportunities in concert with the improved communications. The proposed 2008-2013 Capital Program includes \$6 million for the project. Connecticut Department of Transportation (CDOT) participation will supplement this funding.

Ticket Selling Replacement

This project will begin Phase 1 of the replacement of ticket selling machines throughout the Metro-North system. The initial group of machines will have reached the end of their useful life in this capital program. Replacement units will utilize technological advancements to enhance machine capabilities and customer convenience. The proposed 2008-2013 Capital Program includes \$18 million for this project. Connecticut Department of Transportation (CDOT) participation will supplement this funding.

Strategic Intermodal Facilities

The \$70 million Strategic Intermodal Facilities and Parking Expansion project includes monies to implement strategic station and parking investments to construct key intermodal transportation hubs in the Metro-North region. Key candidate locations initially identified for the program include North White Plains, Southeast, Purdy's and Poughkeepsie. In some cases, Transit Oriented Development (TOD) is the focus of the project, such as Beacon where a Request for Expression of Interest to provide an opportunity for a TOD was issued by Metro-North. 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 (housing, commercial, etc) station area. Metro-North partners and coordinates with many third party groups to progress these projects, 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 Rehabilitation

This \$5 million Parking Rehabilitation project consists of the rehabilitation of select parking facilities to restore them to a state of good repair. Project sites identified include Rye and Garrison Stations. These parking facilities have exceeded their useful life and are in need of repair. Work includes: resurfacing parking lot pavements; restriping of space markings for a maximum number of parking spaces; bringing facilities up to current ADA standards; implementing drainage improvements including the cleaning and replacement of drains and catch basins in the lot; improving and replacing lighting, fencing and guard rails; upgrading and adding revenue collection devices, shelters, standardized facility signage, emergency communications landscaping and security enhancements.

This investment will allow Metro-North to attract and retain customers through the rehabilitation of parking facilities. Furthermore, the restriping and/or reconfiguration of a parking facility provides additional spaces upon completion. Combined with improved accessibility (instituting ADA standards and improvement of signage) and the provision of an increased sense of security (through improved lighting, replacement of fencing and improved emergency communication), this project will support continued efforts to attract new riders and increase parking revenues to the Railroad.

MTA METRO-NORTH RAILROAD TRACK AND STRUCTURES CATEGORY M-603

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 miles are electrified. The long-term objective of investments in this area is to maintain the condition of the majority of the existing assets that are in a state of good repair and achieve a state of good repair for undergrade bridges after 2020. The ongoing rehabilitation of the trackage 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 rehabilitation and replacement that maintains track structure components and switch facilities in proper operating condition. Similarly, the continued integrity of line structures along the railroad right-of-way is vital to its smooth and safe operation. This includes overhead and undergrade bridges, viaducts, tunnels, and retaining walls.

The 2008-2013 Capital Program

A total of \$348 million is allocated for track and structures projects, representing approximately 20 percent of the proposed 2008-2013 Capital Program.

Cyclical Track Program – Wood Ties and Surfacing

This project provides for the replacement of ties and rail along with cyclical surfacing throughout the entire Metro-North territory in New York State. The project maintains Metro-North's track in a constant state of good repair ensuring that the track structure does not deteriorate, and ensures conformance to Federal Railroad Administration track standards. This program protects the capital investment already made that brought the track infrastructure up to a state of good repair, continuing the rehabilitation program undertaken between 1982 and 2009. The scope of work for this project includes the purchase of rail, ties, track ballast and other track materials associated with installation. Total cost in the proposed 2008-2013 Capital Program is \$64 million.

Turnout Replacement – Mainline High Speed

This project provides for the replacement of interlocking switches at select locations throughout the Metro-North territory in New York State as they reach the end of their useful life. The scope of work for this project includes, for some locations, turnout replacement in kind; and for other locations, improving existing standard turnouts with high-speed turnouts. By installing high-speed turnouts, that territory can accommodate increased speeds. This improvement will result in reduced travel time for Metro-North customers and greater flexibility for the railroad. Project includes potential new turnouts at select locations to support track maintenance as well as support capacity needs. Total cost in the proposed 2008-2013 Capital Program is \$62 million.

Grand Central Terminal Switch Renewal

This project is a continuation to replace the switches located in Grand Central Terminal along with the stick/jointed rail that currently exists at the platform areas. 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 maintain a constant state of good repair ensuring that the terminal operation can operate reliably. Total cost in the proposed 2008-2013 Capital Program is \$13 million.

Turnout Replacement – Yards and Sidings

This project provides for the normal replacement of turnouts as they reach the end of their useful life, and for the construction of track improvements at various yard and siding locations in New York State. The turnouts and track replacements are scheduled for the following locations: Mott Haven Yard, East Highbridge Yard, Mount Vernon West Yard and IBM, Tuckahoe, Pleasantville, and the Mount Kisco Gas Company sidings. Total cost in the proposed 2008-2013 Capital Program is \$5 million.

West of Hudson Track Improvements

This project will replace rail and ties, as well as perform surfacing on selected track areas on the Port Jervis Line. The proposed 2008-2013 Capital Program includes the replacement of 14.5 miles of rail, 90,000 ties, 130 miles of resurfacing and 10 turnouts; all are at the end of their useful life. Total cost in the proposed 2008-2013 Capital Program is \$37 million.

Undergrade and Overhead Bridge Program

The focus of these projects is the repair and replacement of bridges over or supporting the railroad's right-of-way, which are approaching the end of their useful lives, or do not meet current loading standards. The proposed 2008-2013 Capital Program provides new funding for the superstructure replacement of the bridge carrying Track 4 of HU 32.81 in Croton-on-Hudson, superstructure replacement of NH 25.74 in Port Chester, and the rehabilitation of approximately eight additional undergrade bridges - two on the Hudson Line, three on the Harlem Line and three on the New Haven Line. The project also includes the inspection, load rating and underwater inspection of all bridges located East of Hudson. Total project cost is \$41 million. The Overhead Bridge program includes the Metro-North share of the replacement of the Bridge Street bridge in Poughkeepsie as well as the repair of multiple bridges. Total project cost is \$18 million. Metro-North coordinates and funds the bridge programs with New York State Department of Transportation.

Remove Obsolete Facilities

This safety initiative includes demolition and removal of old facilities for reasons of safety and appearance. This project includes structures, small and large buildings, abandoned station buildings, signal cases and bungalows, switch machines, track and signal field equipment and materials, and overhead third rail in Grand Central Terminal. Total cost in the proposed 2008-2013 Capital Program is \$4 million.

Employee Welfare and Storage Facilities

This project provides for the upgrade of employee welfare facilities with suitable and adequate conditions and resources. The areas targeted for improvement in this program include locker rooms, bathrooms, meal and rest areas, and storage/work spaces in GCT

and outlying field locations. Project includes the rehabilitation of space in GCT to provide adequate crew/welfare facilities for Train and Engine crews, GCT services staff and the GCT Fire Brigade. Total cost in the proposed 2008-2013 Capital Program is \$12 million.

Harlem River Life Bridge Cable Replacement

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 have exceeded their useful life but the bridge must be maintained in operable condition as the Harlem River is a navigable waterway subject to the requirements of the U.S. Coast Guard. Total cost for project is \$8 million.

Moodna and Woodbury Viaducts – West of Hudson

This project continues the state of good repair work that began on the Moodna and Woodbury viaducts on the Port Jervis Line under the 2005-2009 Capital Program. On both viaducts, components such as girders, floor beams, connectors, rivets, columns, cover plates and bearings are deteriorated to varying degrees, which require either repair or total component replacement. Total cost in the proposed 2008-2013 Capital Program is \$10 million.

Undergrade Bridge Program – West of Hudson

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 rehabilitation of structures determined as top priorities based on condition surveys. Total cost in the proposed 2008-2013 Capital Program is \$12 million.

Other Track and Structures Projects

Additional projects in the proposed 2008-2013 Capital Program include improvements to drainage and undercutting, remediation of rock slopes, rehabilitation of rail top culverts, 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, 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. Approximate cost of all remaining track and structures projects: \$63 million.

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

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 the aging signal system (wayside and operations control center) with the latest technology to accommodate current operations and provide compatibility 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 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.

The 2008-2013 Capital Program

The communications and signals projects total approximately \$86 million. This represents 4.8 percent of the total proposed 2008-2013 Capital Program budget.

Signal System Replacement – North White Plains to Brewster

This project continues the multi-program replacement of the aging signal system providing the latest technology to accommodate current operations and ensuring compatibility with future service needs. The project consists of the replacement of the signal system from North White Plains to Brewster that is at the end of its useful life and to meet the future 2030 service plan on the Harlem Line. Communications and Signal projects and Power projects, in combination with track work previously completed, will provide Metro-North will the ability to improve schedule flexibility and to add needed service. Total cost in the proposed 2008-2013 Capital Program is \$50 million.

Other Communications and Signals projects

The remainder of the communications and signals projects include a Phase 1 replacement of fiber/communication and signal cables, replacement of the field code system at Mott Haven, crossing upgrades, the design and replacement of track relays on the Harlem and Hudson lines, installation of a wheel impact detection system, replacement/refurbishing of electric switch machines, CTC/SCADA intrusion testing, replacement of high cycle relays, the first phase of network infrastructure improvements to provide station connectivity at priority locations, funding towards replacing the public address infrastructure, a C&S Management System, replacement/upgrade of the PBX, mobile/portable radios, rolling stock radios and public address equipment, and replacement of radio base station equipment. Total cost of the remaining projects in the proposed 2008-2013 Capital Program is \$36 million.

MTA METRO-NORTH RAILROAD

POWER

CATEGORY M-605

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, 256 track miles of DC 3rd 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 substation and three yard distribution systems. The long-term objective of investments in this area is to maintain the condition of the existing assets and increase traction power capacity to support current service levels and projected service growth over the next 20 years.

The 2008-2013 Capital Program

The proposed 2008-2013 Capital Program allocates \$89 million, or approximately five percent of the total capital program budget, to power projects. Approximately 55 percent of this budget is allocated to two projects.

Substation Bridge 23

This project will replace the existing Substation Bridge 23 located at Mount Vernon East. This project is necessary as the substation has reached the limit of its electric traction power capacity, is the only feed to the New York State portion of the New Haven line and also requires replacement to prevent the leakage of potentially hazardous materials. Total cost in the proposed 2008-2013 Capital Program is \$27 million.

Harlem/Hudson Power Improvements

This project will continue the multi-program phasing of improvements recommended in the Traction Power Study completed under the 2000-2004 Capital Program. These improvements are required to support the future growth in ridership and service and to reduce equipment failures due to low voltage conditions. The traction power system is currently limiting capacity in some locations system-wide, in particular on the Upper Harlem Line. Therefore, this project includes additional funding to complete substations on the Upper Harlem Line, upgrade circuit breaker houses at 86th Street and Claremont, install new return reactors at the M72 and M110 substations and complete a Hudson Line siting study to develop recommendations for Hudson Line traction power improvements. Power projects and Communications and Signal projects, in combination with track work previously completed, will provide Metro-North with the ability to improve schedule flexibility and to add needed service. Total cost in the proposed 2008-2013 Capital Program is \$22 million.

Other Power Projects

Other power projects include rehabilitation of Harlem and Hudson Line substations, replacement of motor alternator power supplies for signal power; Harlem River Lift Bridge motor controls; cyclical replacement of substation batteries; construction of the Park Avenue Tunnel and Viaduct Alarm system, replacement of sectionalizing switches. Total cost in the proposed 2008-2013 Capital Program of the remaining projects is \$40 million.

MTA METRO-NORTH RAILROAD

SHOPS AND YARDS

CATEGORY M-606

Metro-North operates 11 shops and/or yard facilities system-wide, 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. The shop and yard facilities provide for fleet storage, maintenance and inspection services. Metro-North's long-term shops and yards strategy is to upgrade and adequately size these facilities to accommodate additions to the rolling stock fleet (such as the M-7 electric cars), to support the Reliability Centered Maintenance philosophy, to improve on-time performance, and to ensure customers are provided with a safe, reliable and comfortable ride. In support of the long-term strategy, 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 operating and maintenance practices.

The 2008-2013 Capital Program

There are four major projects within the \$469 million shops and yards allocation (approximately 27 percent) in the proposed 2008-2013 Capital Program. These projects address the replacement of outmoded 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. Other shops and yards improvements include work to progress the expansion of Brewster Yard to meet car storage needs as fleet size expands to meet increases in demand on the Harlem Line.

Croton-Harmon Shop Replacement

Continuation of the Harmon shop replacement program will consist of investments to support an expanded fleet of electric and diesel hauled rail cars and provide improved productivity as a result of a more modern and efficient complex that strives to separate maintenance functions and equipment. With the Phase I (South Diesel Yard) and Phase 2 (Site Preparation for the Coach and Locomotive Shops) complete in the 2000-2004 Capital Program, Phase 3 (Coach and Locomotive Shops and Wheel True Facility) is underway in the 2005-2009 Capital Program, Phase 4 will be the focus of the proposed 2008-2013 Capital Program and future Capital Programs. Phase 4 will include an assessment to evaluate the existing main shop and make facility improvements required to support the equipment maintenance and inspection programs, and continued emphasis on Reliability Centered Maintenance. Phase 4 will also construct a Support Shop which will be the Mechanical Department's primary component repair and rebuild facility. This structure will be constructed adjacent to the existing Material Distribution Center to facilitate the movement of parts and material between the two facilities and will maintain space for a number of other campus-wide support functions such as Quality Control, Engineering, Training and Production, and Maintenance Planning. Total cost in the proposed 2008-2013 Capital Program is \$425 million.

Wassaic Yard Improvements

Funds are allocated for extension of 2-yard tracks that 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. Total cost in the proposed 2008-2013 Capital Program is \$3 million.

Port Jervis Yard Improvements

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 with 480V standby power, an increase to yard spots from 58 to 71. Other supporting services and facilities will be constructed as well. Total cost in the proposed 2008-2013 Capital Program is \$8 million.

Other Shop and Yard Improvements

Other shop and yard projects will cover various priority shops and yards needs including possible additional funds for Harmon Shop and funding for environmental review/design for the initial phase of construction for the Brewster Yard Improvements (e.g. expanded yard storage, toilet dump, fueling and watering services, etc.) to address projected increases in service demand on the Harlem Line. This work will be coordinated with the Southeast Strategic Facility project. Total cost in the proposed 2008-2013 Capital Program for these shop and yard improvements is \$33 million.

MTA METRO-NORTH RAILROAD MISCELLANEOUS CATEGORY M-608

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 system-wide environmental remediation, protective liability coverage, independent engineer services, value engineering services, scope development, and security. Total cost in the proposed 2008-2013 Capital Program is \$95 million.

MTA BUS COMPANY



 **Bus Company**

MTA BUS COMPANY

2008-2013 CAPITAL PROGRAM

OVERVIEW

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 1,350 buses and approximately 3,300 employees, the agency operates 47 local bus routes serving the Bronx, Brooklyn, and Queens and 35 express bus routes between Manhattan, the Bronx, Brooklyn, and Queens. In 2007, the MTA Bus Company's ridership was approximately 110 million riders. The Bus Company's round-the-clock service complements and is coordinated with subway, train and bus services provided by other MTA agencies.

MTA Bus was created in September 2004 to merge into one organization the services formerly provided by seven private bus companies under franchise agreements with the City of New York. Those companies included: Command Bus, Green Bus Lines, Jamaica Bus, Liberty Lines, New York Bus Company, Triboro Coach, and Queens Surface. Transition of service began in January 2005 and was completed in February 2006.

MTA Bus inherited a substantial bus fleet and maintenance network, all requiring significant operating and capital improvements. The fleet consisted of 15 different bus models with an average age of over 13 years. The depots varied in condition and age, with several built before the 1950s. MTA Bus operates eight depots, including: Baisley Park, College Point, Eastchester, Far Rockaway, JFK, LaGuardia, Spring Creek, and Yonkers. The City of New York owns three of the depots (College Point, Spring Creek and Yonkers) and leases the others from private owners.

Improving service - with adjustments in service and schedules, better maintenance, new buses, and upgraded facilities - are top priorities for MTA Bus. Through evaluations of customer demand and operating constraints, the agency has addressed a number of fundamental areas, such as running time deficiencies, overcrowding, service frequency, hours of service, and route structure. Improvements in these areas have increased ridership 10 percent on weekdays (35,000 riders) and 14 percent on weekends (22,000 riders). 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, including scheduled operation inspections, heavy scheduled overhauls of undercarriage components every three years, exterior bus painting, engine in-chassis overhauls, and other measures. These steps have helped to more than double fleet reliability by increasing its MDBF (mean distance between failures) from 2,154 miles to 4,841 miles.

With 2000-2004 Capital Program funding, the Bus Company is procuring a total of 932 new buses. Through 2007, 759 new buses have entered the fleet, including 475 high-capacity coaches for express service and 284 hybrid-electric standard buses for local service. Additional local buses - 105 hybrid-electric standard buses and 68 articulated buses - are being procured and are expected to enter service in 2009. The new buses have enabled retirement of overage and unreliable fleets and reduced the fleet average age to approximately four years. In the process, the MTA Bus fleet has become more environmentally friendly with the introduction of low-emission technology, such as of hybrid-electric propulsion and ultra-low sulfur fuel.

The Bus Company has also made numerous initial improvements and repairs to facilities. These include: asbestos abatement, electrical repairs, regulatory testing and repairs, select structural modifications and equipment replacement to accommodate new buses, installation of tailpipe exhausts, and upgrade of paint booths and battery rooms. Additional improvements are planned in the agency's 2005-2009 Capital Program.

The proposed 2008-2013 Capital Program demonstrates the Bus Company's commitment to maintaining and enhancing the mobility, economic health, and quality of life in the region.

Investments in Mobility

Since its creation, the MTA Bus Company has been moving to optimize seven formerly discrete bus services. Looking ahead, renewal of its main service delivery asset - its bus fleet - is the dominant part of the proposed capital program. A two-fold strategy is visible. First is to keep the fleet in good condition by replacing buses at the end of their 12-year useful lives and avoiding the past practice of keeping them in service far longer. Second is the introduction of additional buses to expand the fleet to meet new demand and new markets. This is especially important as MTA Bus experiences ridership increases in all areas of its services, local and express, and weekday and weekend. Presently, MTA Bus is the fastest growing element of the MTA family of transit service providers. In concert with the agency's improved maintenance programs, these replacement buses and fleet expansion buses will enable MTA Bus to continue providing a reliable, affordable, and attractive transportation service.

Investments in Customer Satisfaction

Prior to creation of the Bus Company, the quality of the services left much to be desired. Service was irregular. Maintenance was substandard. Bus reliability was poor. Passengers' discomfort and dissatisfaction were high. The agency has already made many steps to improve customers' experience and satisfaction since assuming control of operations. As noted earlier, new buses and improvements in maintenance and service delivery have resulted in large ridership increases. Clearly, the public responds favorably when the transportation network delivers reliable service.

Though these efforts have yielded much success, more is needed and the proposed capital program builds on them. The normal replacement of buses at their planned retirement age establishes and reinforces the sense of reliability in the bus service. Similarly, expanding the fleet supports the riders' needs and those of their communities by delivering the appropriate service with regularity and frequency. Customer satisfaction will also be enhanced through important facility improvements. For example, upgraded fueling systems will provide greater capacity and faster servicing of buses at depots. New bus washers will keep buses clean, attractive and help prevent long-term deterioration from street dirt and grime. Such improvements translate into preparing buses for service faster, putting more buses into service when needed, and providing a bus with a comfortable environment for customers.

Investments in Safety and Security

The MTA Bus Company embraces customer and employee safety as a key corporate policy. Along with awareness and training programs, safety is maintained and enhanced through the timely replacement and / or upgrade of aging capital assets. In the proposed capital program, the most notable safety investment for the fleet is the replacement of aging buses with new buses that are supported by the Bus Company's scheduled maintenance program. Important worker safety improvements also are planned, including new ventilation and fire alarm systems

Investments to Maintain the Core Infrastructure

Replacement of buses accounts for 69 percent of the proposed capital program, and reflects the Bus Company's commitment to keeping its core transportation assets in good repair. Certain facility improvements are also planned, mainly focusing on service delivery-related infrastructure, such as fueling and washing systems. Looking forward, the Bus Company will undertake a comprehensive assessment of all its fleet and facilities. This assessment will help provide the strategic direction for future capital investments.

THE PROPOSED 2008-2013 CAPITAL PROGRAM

The MTA Bus Company's proposed 2008-2013 Capital Program, totaling \$363 million, provides the resources needed to restore, replace, and modernize significant portions of the agency's fleet and infrastructure. Table 8 identifies these investments by asset category.

Table 8
MTA Bus Company
2008-2013 Capital Program by Investment Category
(\$ in millions)

Category	Proposed 2008-2013	Percent
Bus Company Projects	\$363	100%
Total	\$363	100%

Numbers may not total due to rounding

Bus fleet and depots are the core of MTA Bus' service. Highlights of the plan follow.

Bus Fleet

All overage buses are being replaced with purchases made in the 2000-2004 Capital Program. The proposed 2008-2013 Capital Program includes \$293 million to purchase a total of 484 new buses, including: 233 hybrid-electric buses and 62 articulated buses for local service, and 189 high-capacity coaches for express service. MTA Bus will expand the fleet to meet ridership demands, and diversify the fleet with new types of buses to better meet different types of services. Of the total to be purchased, 100 buses are intended for growth.

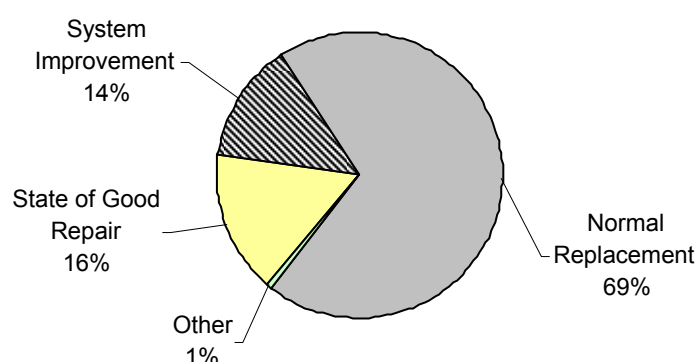
Depots

The proposed 2008-2013 Capital Program includes \$71 million for facility investments. These investments include: the building of a new maintenance annex at the College Point Depot, fueling system improvements and bus washers at various locations, a new roof and ventilation system at the JFK Depot, and fire protection systems at four depots. Also planned is replacement of various heavy duty non-revenue service vehicles and shop equipment in depots. Last, a system-wide engineering assessment of fleet and facilities will be conducted to guide the Bus Company's future strategic capital investments.

SYSTEM CONDITION AND ACCOMPLISHMENTS

Figure 4 illustrates the mix of investments by needs category in the proposed 2008-2013 Capital Program. The program continues the MTA Bus emphasis on achieving and maintaining a state of good repair by devoting approximately 85% percent of the funding to replacing fleet and restoring facilities. The MTA Bus Company's purchases of 932 buses under the 2000-2004 Capital Program have eliminated overage buses from the fleet and brought the fleet into a normal replacement cycle. Thus, all purchases in the proposed program are either normal replacement or fleet growth (i.e. – "System Improvement") purchases.

Figure 4
MTA Bus 2008-2013 Capital Program
Investments by Needs Category



Prior to MTA Bus assuming control of operations, the knowledge of the condition of the facilities was based on a 2002 visual survey of the private bus lines' assets and facilities. That study did not include new technology requirements, power upgrades or structural assessments. In general, as cited in the survey and compounded by the increase in service, all MTA Bus locations appeared inadequately sized for the fleet and require extensive repairs and upgrades to accommodate the fleet and personnel. New depots, central maintenance facilities and fleet storage locations are necessary, especially in light of expected population and economic growth in the City. A comprehensive equipment replacement program is necessary. Major structural renovations are required in each facility. In addition to the issues raised by the survey's visual findings, ongoing environmental issues are present at a number of locations. While great progress has been made regarding the fleet, more detailed study will be needed to determine the proper pace of investment for the facilities.

Major Accomplishments of the 2000-2004 and 2005-2009 Capital Programs

As the newest member of the MTA family of agencies, the MTA Bus Company has been included in the capital program only since 2004. Since then, the agency and its customers have seen some very positive impacts of its initial capital investments, as highlighted below. Most fleet investments already have been completed while others (mainly facility projects) are still in design or about to enter construction.

- Of a total of 932 new buses to be purchased, 759 have already entered service. More

than half the fleet is now less than four years old. The remaining buses are expected to enter service in 2009. The 932 include 389 hybrid-electric standard buses and 68 articulated buses for local service and 475 high-capacity coaches for express service. All buses were purchased in tandem with orders by New York City Transit.

- With the purchase of 389 hybrid-electric standard buses, coupled with the retirement of older technology models, MTA Bus introduced state-of-the-art clean-fuel technologies into its fleet to reduce emissions. Ultra-low sulfur diesel fuel is used throughout the system.
- Design is underway for a variety of facility improvement projects, including: new roofs and ventilation systems, power upgrades and emergency generators, parking improvements, and security and fire alarm systems. Construction is expected to begin in 2009. These projects will improve operations and safety for employees.

PLANNING THE CAPITAL PROGRAM

In addition to the consultant survey of the private bus companies done before operations were transferred to the MTA, the MTA Bus Company's proposed 2008-2013 Capital Program is informed primarily by its State of the System Assessment, conducted in 2007. The assessment is largely based on the agency's experience and knowledge of its system gained since assuming control of operations in 2006. As part of this process, an initial inventory of assets and their condition was developed. Concurrently, MTA Bus began to evaluate strategies related to fleets and facilities. It should also be noted that MTA Bus has partnered with and relied on other MTA agencies' expertise for certain technical assistance. All these efforts have provided critical inputs into prioritizing projects and developing the proposed capital program.

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**MTA BUS COMPANY
PROGRAM PLAN**

MTA BUS COMPANY

BUS COMPANY PROJECTS

CATEGORY U-603

The MTA Bus Company operates the 10th largest bus fleet in the United States and Canada, serving nearly 400,000 riders daily. The fleet of 1,354 buses operates on 47 local bus routes serving the Bronx, Brooklyn, and Queens and 35 express bus routes between Manhattan, the Bronx, Brooklyn, and Queens. At year-end 2007, the fleet consisted of 729 standard buses and five articulated buses for local service, and 620 express buses. Maintaining a normal cycle of bus replacement is critical for service reliability and the ongoing infusion of new technologies and improved environmental standards. The Bus Company's fleet strategy is to continue normal replacement based on a 12-year useful life for buses and to invest in new buses and clean fuel technologies such as hybrid-electric to reduce emissions. The average age of the fleet is approximately four years.

The fleet operates out of eight depots. These include: Baisley Park, College Point, Eastchester, Far Rockaway, JFK, LaGuardia, Spring Creek, and Yonkers. The City of New York owns three of the depots (College Point, Spring Creek and Yonkers) 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 2008-2013 Capital Program

The proposed 2008-2013 Capital Program includes a total of \$363 million, including: \$293 million for bus purchases and \$70 million for facility and equipment projects. A total of 484 new buses will be ordered. These include 253 hybrid-electric standard (\$139 million) and 62 articulated (\$48 million) buses for local service and 189 high capacity coaches (\$106 million) for express service. The new bus purchases represent a fleet growth of approximately 12 percent in "standard bus equivalents" (SBEs) over the current fleet.

Facility improvements feature construction of a new annex at the College Point Depot in Queens. The annex will be used to maintain articulated buses since their use at this location is well suited for the many high volume routes based here. Fuel storage and dispensing systems will be improved and new bus washers installed at the Eastchester, LaGuardia, Baisley Park, and JFK depots. In separate projects, new fire protection systems also will be installed at these depots. The roof at the JFK Depot will be replaced and a new ventilation system installed. In addition, a variety of non-revenue vehicles to support operations, such as tow trucks, bucket trucks, forklifts, etc., as well as necessary shop equipment will be purchased. Lastly, a detailed engineering assessment of all MTA Bus fleet and facilities will be conducted to help the agency identify long term needs and investment priorities.

MTA SECURITY

MTA SECURITY

2008 -2013 CAPITAL PROGRAM

OVERVIEW

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 will continue to progress this program in subsequent programs. While the program is being implemented, continuing police presence supplements these efforts. As recognized in a recent NYS Comptroller's report, the overall security environment has been enhanced with the completion of capital security improvements and the implementation of these other security initiatives.

Table 9
MTA Security
2008-2013 Capital Program
(\$ in millions)

Category	Proposed 2008-2013
Vulnerability Assessment Projects	\$590
Total	\$590

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 current program total of \$770 million, including an additional \$31 million of DHS grant support.

The 2005-2009 Capital Program originally allocated \$495 million to fund the next phase of projects with the intent to pursue funding for them from Homeland Security and other federal sources. However, the federal level of support for Phase II has been significantly lower than provided in Phase I. As a result, MTA added \$141 million – primarily of its own funds to progress critical work. The Phase II program currently funds \$177 million of work of which \$36 million has been secured from the Department of Homeland Security with the balance advanced by the MTA.

For the 2008-2013 Capital Program, the MTA is proposing a \$590 million security program to continue addressing the key vulnerabilities. This program will include those projects remaining unfunded from the 2005-2009 Program (\$318 million) as well as \$272 million in new projects. The MTA will continue to vigorously pursue funding from Homeland Security and other federal sources to fund these critical projects. In the absence of federal funds, alternate funding sources will be sought.

MTA SECURITY PROGRAM PLAN

Due to the sensitive nature of the security effort, the 2008 -2013 Capital Program identifies a single budgetary reserve for \$590 million, which will be used to progress the next group of projects from the remaining large-scale initiatives identified by the security experts.

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MTA INTERAGENCY

MTA INTERAGENCY 2008-2013 CAPITAL PROGRAM OVERVIEW

The interagency section of the program includes several categories of investment that benefit the MTA family of agencies. It includes investments for the MTA Police, MTA Planning, MTA Headquarters, and funds for market and project uncertainty.

The MTA's police department 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 2008-2013 Capital Program continues to fund the capital needs for the MTA Police Department, including district offices and the statewide radio system, as a separate investment category in this section.

Additionally, this section of the capital plan budgets for a number of MTA-wide integrated initiatives, including rehabilitation of MTA facilities to support the MTA-wide integrated systems initiative and consolidate various inter-agency leaseholds, an allocation for Planning studies to support the MTA's capital program, and a fund to address market and project uncertainties.

Table 10
MTA Interagency
2008-2013 Capital Program
(\$ in millions)

Category	Proposed 2008-2013
MTA Police Department	\$90
MTA Facilities Rehabilitation	150
MTA Planning Initiatives	8
Fund for Project and Market Uncertainty	920
Total	\$1,168

MTA INTERAGENCY MTA POLICE DEPARTMENT CATEGORY N-610

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 2008 -2013 capital program will continue to assist the MTA Police to accomplish its mission of providing safety/security throughout the MTA network.

The 2008-2013 Capital Program

The MTA Police Department's proposed 2008-2013 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 11).

Table 11
MTA Police Department
2008-2013 Capital Program by Investment
(\$ in millions)

Project	Proposed 2008-2013
Nassau County District Office	\$6
Staten Island District Office	7
Public Safety Radio - Phase 2	76
Total	\$90

Numbers may not total due to rounding

Nassau County District Office: District 2

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 at Hicksville yard. The trailers are in a state of disrepair and do not provide adequate facilities required to operate an effective district office. Total cost in the 2008 -2013 Capital Program is \$6 million.

Staten Island District Office: District 9

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. Total cost in the 2008 -2013 Capital Program is \$7 million.

Public Safety Radio – Phase 2

The goal of this investment is to have a dedicated MTA Police public safety radio system, built seamlessly as part of the New York Statewide Wireless Network (SWN). The benefits of this project include ensuring system-wide radio coverage, allowing interoperability among participating agencies and standardization of one system for the MTA Police. The total cost of the project is currently estimated at \$165 million. The 2005-2009 capital program included \$45 million which funded design but is insufficient to award the full design-build costs. Security Reserve funds remaining from the MTA's 2007 operating budget will contribute \$44 million in additional funds with the proposed 2008-2013 Capital Program adding \$76 million to complete this project.

MTA INTERAGENCY MTA FACILITIES REHABILITATION CATEGORY N-611

The NYCT building at 370 Jay Street in Brooklyn (418,000 square feet) is nearly vacant. This building offers the MTA an opportunity to satisfy a number of its office space needs, both short and long term – but would need extensive rehabilitation in order to do so. In particular, it is presently a prime candidate to become the site for the MTA’s proposed Business Service Center which would house 400 employees supporting the MTA-wide shared services initiative in the areas of finance and human resources starting in 2010. Additional shared services could also be located there after the initial occupancy.

In addition, the building could provide housing for NYCT staff currently located in a number of leased locations, such as 180 Livingston Street, 3300 Northern Boulevard and 340 Flatbush Avenue, thereby providing office space housing at operating cost rather than at market rate.

The site is currently operated by the MTA which allows for the gradual occupancy envisioned by the planned ramp up of the shared services initiative as well vacating other the other leased space noted above.

To meet the above described needs, the building will need a full interior (gut) rehabilitation as well as the replacement of the façade and all windows. The expected cost for this project is \$150 million.

Table 12
MTA Facilities Rehabilitation
2008-2013 Capital Program by Investment
(\$ in millions)

Project	Proposed 2008-2013
Jay Street Building Rehabilitation	\$150
Total:	\$150

MTA INTERAGENCY MTA PLANNING INITIATIVES CATEGORY N-612

The 2008-2013 Capital Program includes \$8 million to support ongoing research and analytical activities in support of the MTA's Long Range Planning Framework. The Long Range Planning Framework centralizes the MTA's planning effort to identify long term capital transportation needs and develop solutions addressing those needs. Budgeted activities include:

- Maintaining and upgrading MTA's ridership model used to identify the need and conceptual scope for the MTA's network expansion projects. 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 Alternatives Analyses.
- Developing a computer program to estimate origins and destinations for bus and subway trips. This data helps support MTA's ridership model.
- 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: regional rail initiative, congestion pricing, analysis of regional trends

Table 13
MTA Planning Initiatives
2008-2013 Capital Program by Investment
(\$ in millions)

Project	Proposed 2008-2013
MTA Long Range Planning Support	\$8
Total:	\$8

MTA Planning will also be initiating or coordinating the major studies supporting the early stages of the network enhancements identified in the Capacity Expansion Initiatives section of this program.

MTA INTERAGENCY FUND FOR PROJECT AND MARKET UNCERTAINTY CATEGORY N-614

In consideration of the overheated construction environment and the accelerated timeframe for developing project scopes, the MTA 2008-2013 Capital Program will establish a program-wide reserve fund in order to ensure that the projects that have been promised will have the necessary funds to be built. Release of funds will be dependent on a review by the MTA Office of Construction Oversight and the Independent Engineering consultant.

Table 14
MTA Reserve for Project and Market Uncertainty
2008-2013 Capital Program by Investment
(\$ in millions)

Project	Proposed 2008-2013
Construction Fund	\$920
Total:	\$920

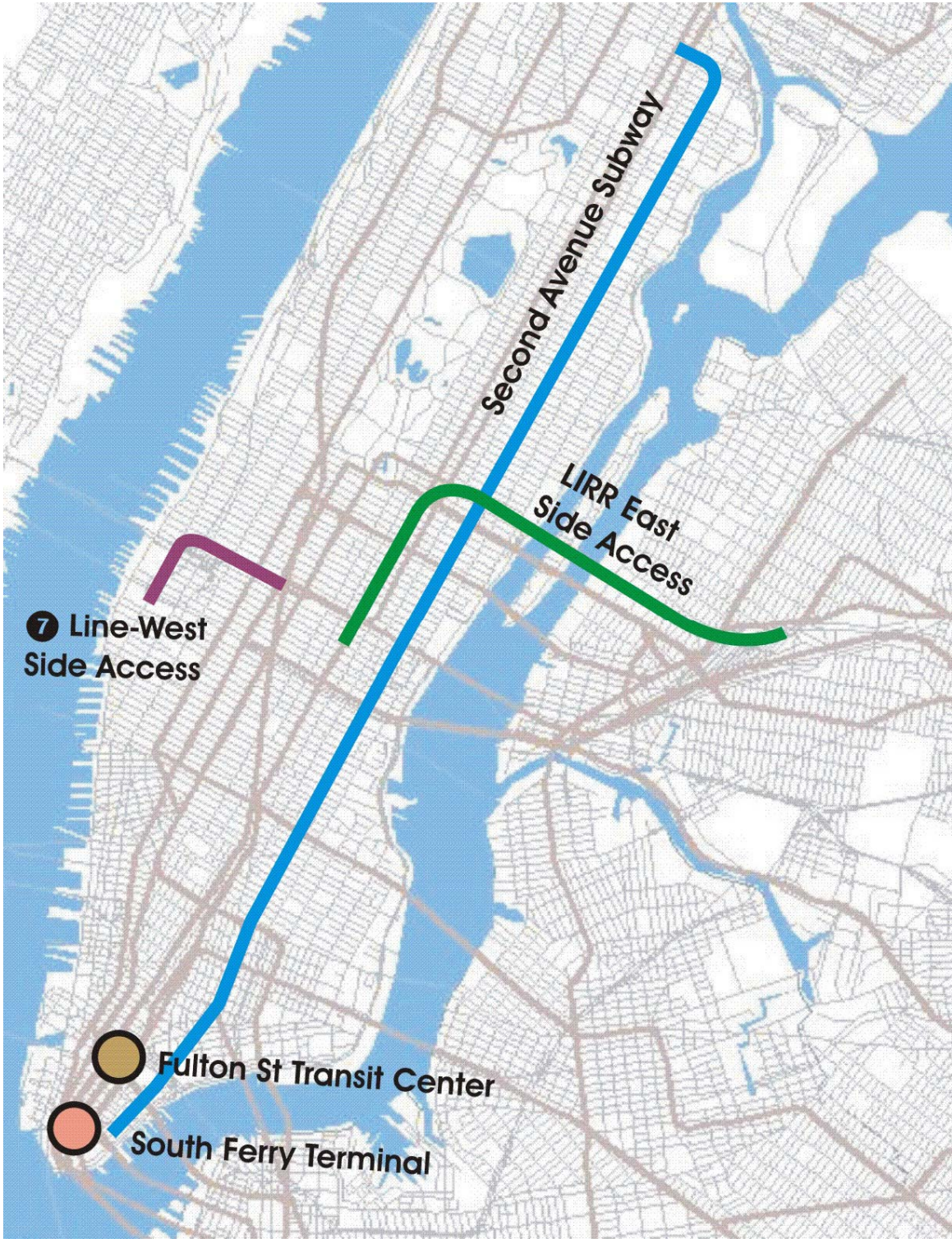
Tier 1 of the capital program, totaling \$20.038 billion, includes \$173 million to address project and market uncertainties. Tier 2, totaling \$26.309 billion and includes completion of the existing expansion projects, and adds another \$747 million for project and market uncertainty for a total of \$920 million across the program.

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CAPACITY EXPANSION

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MTA CAPITAL CONSTRUCTION COMPLETING CURRENT EXPANSION PROJECTS



MTA CAPITAL CONSTRUCTION 2008-2013 CAPITAL PROGRAM OVERVIEW

In July 2003, the MTA Board authorized creation of the MTA Capital Construction Company (MTA CCC) 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 MTA CCC's expansion portfolio has focused on the construction of East Side Access (ESA), 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 MTA CCC 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 Street Transit Center, are largely Federally funded, although local funds will be 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 initiated excavation of tunnel tubes in Manhattan.

While these and other noteworthy accomplishments have moved these projects toward completion, the economic climate has shifted significantly since the initial submission of the 2005 – 2009 capital plan in October 2004 when the construction costs were forecasted for these projects. The MTA's Capital Program as a whole has experienced unanticipated impacts of inflation fueled by the global demand for materials, a devalued US dollar, a city-wide construction boom and other factors largely beyond the immediate control of the Authority. Nationally, it appears that most public infrastructure agencies and private builders are being affected by rising construction services and materials costs. Despite a softening in the national economy, economists forecast construction costs to continue rising well above the general rate of inflation for the next several years as construction activity, especially for major projects, remains robust.

As a result of the increase in demand for construction services, the MTA CCC has seen fewer bidders for its large projects. With fewer and sometimes even single bidders for contract packages, there has been less competition and contract costs have been higher. In response, the MTA CCC has divided contract scope into smaller packages to enable smaller contractors to bid and maximize competition. The agency has also revised its cost estimates and adjusted its schedules for these large scale projects to account for higher cost factors and balance the benefits of earlier in-service dates against the cost of more ambitious schedules and the associated risk. These adverse influences have been mitigated to extent possible through value engineering. In addition, further efforts are underway to reduce non-critical components of the projects to achieve savings without compromising their important transportation benefits.

The full impacts of market conditions on these projects remain uncertain and will depend on market circumstances at the time of procurement. Therefore, the MTA-wide reserve proposed for the 2008-2013 program (as discussed in the Program Controls section of this book) includes funds to address these potential risks, subject to the approval process.

The 2008–2013 Capital Program proposes to award all contracts needed to complete the first phase of the Second Avenue Subway and East Side Access. Table 15 sets forth the funding commitment necessary to accomplish this work.

MTA Capital Construction Company

The 2008-2013 Proposed Capital Program includes funding required to complete the East Side Access Project, Phase 1 of the Second Avenue Subway, the Lower Manhattan recovery transit improvement projects, regional investments to support the East Side Access improvements and enhance travel quality. The Plan requests \$5.519 billion for these initiatives.

Table 15
MTA Capital Construction Company
2008-2013 Proposed Capital Program
(\$ in millions)

	Funding In Prior Capital Program(s)	Proposed 2008-2013	Project Total
East Side Access	\$4,107	\$3,137	\$7,244
Second Avenue Subway	2,964	1,383	4,347
Fulton Street Transit Center	903	295	1,198
South Ferry	490	27	517
Regional Investments	0	476	476
MTA Administration	75	200	275
Total	\$8,539	\$5,519	\$14,058

Numbers may not total due to rounding

MTA CAPITAL CONSTRUCTION PROGRAM PLAN

MTA CAPITAL CONSTRUCTION

EAST SIDE ACCESS

CATEGORY G-609

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 63rd St. tunnel, and traveling under Park Ave. in Manhattan to reach GCT.

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 the soft ground tunnels in Queens
- 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 \$7.244 billion.

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	1st Quarter 2015
Begin Revenue Service to GCT	1 st Quarter 2015

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 \$1.500 billion of ESA funds and \$33.5million 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 63rd 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 Street 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 63rd St. tunnel at 2nd 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 Proposed 2005-2009 Capital Program contains \$2.405 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, rolling stock and real estate necessary to support construction are also funded. The program includes the following major construction elements:

- Fit-out 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 and yard lead
- Construction of bored tunnels under Sunnyside Yard and Harold Interlocking
- Purchase of required real estate interests

The 2008-2013 Proposed Capital Program

The Proposed 2008-2013 Capital Program contains \$3.137 billion in ESA funds to complete the construction and begin revenue service in the first quarter of 2015. All elements of project management, design, construction management, insurance, rolling stock and real estate 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 and ancillary systems

- Procurement of 160 electric rail cars for opening day service

The scope of the East Side Access project remains unchanged. However, the budget is increasing by \$894 million to a total of \$7.244 billion. This increase reflects the impact of past bids which were higher than budgeted; updated current estimates, escalation and other risks; and an extended schedule. An allocation is included in the proposed program reserve to capture the impact of market and project uncertainties.

The projected revenue service date will extend from December 2013 to February 2015. This delay is the result of efforts to create opportunities for competition in a very tight New York area construction market as well as attempts to offset some of the impacts of potential market risks. The schedule was also affected by a nine-month delay in awarding the Manhattan Structures contract, which required extensive negotiations to bring the awarded contract within available budget.

Based on this and other similar experiences, the ESA project team completed a review of the project schedule and contract packaging plan to create more manageable contract packages expected to promote competition. As part of the FFGA process, MTA CCC participated in a Risk Assessment jointly with the FTA and their Program Management Oversight Consultant (PMOC). With the experiences of the last year demonstrating that there are risks that can materialize that aren't generally anticipated in a risk review, the FTA/PMOC suggested that revenue service be forecasted for February 2015.

Funds totaling \$4.063 billion have been allocated in the MTA's 1995-1999, 2000-2004 and 2005-2009 Capital Programs. The balance of funds required to complete the project is being requested in this program. The ESA project received a \$2.632 billion Federal Full Funding Grant Agreement in December 2006. Through December 2007, the project has committed \$2.6 billion and expended over \$1.2 billion.

MTACC and LIRR are working to evaluate potential cost mitigations to be achieved through more efficient design. These mitigations will not compromise operations or customer service. Mitigations currently being evaluated include design efficiencies for the tail tracks, evaluation of the ventilation requirements, and optimizing operations for ESA/Grand Central Terminal.

MTA CAPITAL CONSTRUCTION

SECOND AVENUE SUBWAY

CATEGORY G-610

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 125th St., only 25 or fewer trains depart Grand Central-42nd 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.

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. The Second Avenue Subway will alleviate congestion on the Lex line and reduce travel time for hundreds of thousands of people who travel to, from, and through the East Side of Manhattan. 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 include:

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

The Second Avenue Subway will provide two new subway services. One will operate along the

full length of the route between 125th St. and Hanover Square. The other will operate along Second Ave. from 125th St. to 63rd St., then travel west along the existing 63rd St. line and join the Broadway (N/R/Q/W) line via an existing connection and serve express stations along 7th 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) 105th St. to 62nd St., including connection to the 63rd St. line; 2) 125th St. to 105th St.; 3) 62nd St. to Houston St.; and 4) Houston St. to Hanover Square.

Prior Program Highlights/Accomplishments

Funds totaling \$2.964 billion have been allocated in the MTA's 2000-2004 and 2005-2009 Capital Programs. The balance of funds required to complete Phase 1 are being requested in this program. Through December 2007 the project has committed almost \$1 billion and expended over \$415 million.

The 1995-1999 Capital Program

- Funded the MESA 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 92nd St. to 62nd St. A tunnel section built in the 1970s between 96th St. and 105th 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:

- Complete design of Phase 1.
- Build structural caverns for new stations at 72nd St., 86th St., and 96th St.
- Install the necessary systems and equipment to operate the new line, including signals, pumps, lighting, and fans.

The 2008-2013 Proposed Capital Program

The proposed 2008-2013 Capital Program contains \$1.383 billion to complete construction and begin revenue service in June 2015. All elements of project management, design, construction management, insurance, rolling stock and real estate necessary to support construction are also funded. The program includes the following major construction elements:

- Installing finishes and equipment in the three new stations at 96th St., 86th St., and 72nd St.
- Upgrading the existing 63rd St. station and vent facility.
- Providing track and systems from 105th St. to 63rd St.
- Purchasing required rolling stock for Phase 1 operations.

The scope of the Second Avenue Subway project remains unchanged. However, the budget is

increasing by \$297 million to a total of \$4.347 billion. The increase reflects updated current estimates, escalation, other risks, and the revised schedule. The forecast revenue service date will extend from June 2014 to June 2015. The change is the result of experiences to date from Contract One, real estate challenges, conditions in the New York construction market, as well as a revised contract packaging plan to offset some of the risks.

Given MTACCC's experience on recent bids in its program, market conditions in the construction industry will put pressure on costs and schedules for very large contracts. In response, the SAS project team is evaluating the construction contracting strategy with the goal of creating more manageable contract packages, keeping similar work together, while minimizing potential schedule impacts.

MTA CAPITAL CONSTRUCTION FULTON STREET TRANSIT CENTER CATEGORY G-612

This project will rehabilitate and reconfigure the complicated existing station complex into a Transit Center that provides high street-level visibility and access designed to assist the economic recovery of Lower Manhattan. The center will improve accessibility for 12 different subway lines, improve connections between five separate subway stations in the vicinity of Broadway and Fulton Street, and include space for commercial operations. An underground concourse beneath Dey St. will link the Transit Center to the R/W line at the Cortlandt St. station, the planned new PATH Terminal, and the World Trade Center site.

The MTA's Program includes \$903 million for the Fulton Street Transit Center project, including \$847 million in federal funds. The overall FSTC budget is being increased by \$295 million to \$1.198 billion to address emerging needs, revised scopes, and market risks.

Prior Program Highlights/Accomplishments

- Awarded three construction contracts: rehabilitation of the Fulton St. station on the 2/3 line, deconstruction of buildings on the Transit Center site, and construction of the structural shell of the new Dey St. Concourse.
- Completed the 2/3 station rehabilitation and the deconstruction in 2007.

A fourth construction contract was intended to complete the project, and included the Dey Street Concourse finishes, rehabilitation of the 4/5 station, construction of the Transit Center building, reconstruction of the A/C station mezzanines, and restoration of the Corbin building. When this work was originally bid in 2007, two contracting teams expressed interest, but only one submitted a proposal. The cost was more than double the estimate, and this proposal was rejected. MTA Capital Construction met with the two teams. Both confirmed that market conditions were much higher than anticipated and the costs for the complete contract scope would never be close to the project budget.

MTACCC is reorganizing the remaining work into multiple construction contracts with the goal of streamlining the work and fostering competition. The cost estimates have been adjusted accordingly to reflect these changes.

MTA CAPITAL CONSTRUCTION

SOUTH FERRY TERMINAL

CATEGORY G-612

The existing South Ferry station, built in 1905, sits on a small-radius single-track loop with platform space for only half the length of a subway train, only one entrance, and no access for customers with disabilities. Its deficiencies lead to train delays for the entire 1 Subway Line. Six million people use the station each year, including commuters from the nearby Whitehall Ferry Terminal of the Staten Island Ferry and tourists visiting Battery Park, the Statue of Liberty and Ellis Islands. Along with the Fulton Street Transit Center project, this project supports the economic recovery and growth of Lower Manhattan by addressing these deficiencies and improving transit access.

Project Description

The new, terminal is being built under Peter Minuit Plaza and State St. It features: a full-length platform for two subway trains; a new free transfer with the nearby Whitehall St. R/W station; entrances to serve the Whitehall Ferry Terminal, downtown office buildings, and Battery Park; ADA-compliant accessibility; intermodal connections to express and local bus services; and a ventilation system for use in fire and/or smoke emergencies. A 2005 construction agreement with the FTA established terms and conditions, including budget and schedule goals, for federal support.

MTA CCC is also managing the construction of a vent plant in the tunnel bellmouth section at Battery Place under the same project structure. The fan plant will serve the tunnel sections and adjacent stations to the north and south in case of fire and smoke emergencies. Although executed as part of the South Ferry project, it is funded outside of the project's federal grant.

The work has included interagency construction coordination with overlapping and adjacent projects, including the City's Whitehall Ferry Terminal project and the State's Route 9A Promenade South Project. MTA CCC also has reached an agreement with the City to mitigate the impacts of the project on Battery Park. The project is approximately 80 percent complete.

Prior Program Highlights/Accomplishments

The 2000-2004 Capital Program

- The program currently has \$490 million for this work, including \$420 million of federal funds.
- Began site excavation and construction of the station structure, approach tunnel and bellmouth connecting with the existing right-of-way, and the vent plant structure (February 2005).
- Awarded a contract to fabricate and test the signal equipment for the new station (June 2005).
- Awarded a contract to install station finishes and ventilation and signal equipment to make the facility into a working station (August 2006)

The 2005-2009 Capital Program

- Funding for activity during this period is located in 2000-2004 program.

The 2008-2013 Capital Program

The 2008-2013 Proposed Capital Program includes funding of \$27 million to support project wrap-up and change order work needed to complete the project. Specific requirements include engineering and operations staffing, track access, utility company work, and finish contract change orders. The revised total project budget is \$517 million. The project schedule has been extended, with substantial completion forecast in February 2009. However, the project team has sequenced work so that the new station will be completed for passenger service to begin in December 2008.

MTA CAPITAL CONSTRUCTION

REGIONAL INVESTMENTS

CATEGORY G-615

Regional Investments

In the course of designing the East Side Access project, the MTA identified \$476 million in additional investments to be progressed concurrently with East Side Access. These investments are not required to meet the ESA project objectives but rather contribute to the long term growth potential in the region. Harold interlocking is already the busiest passenger rail corridor with 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, NJ Transit and MNR, these improvements will provide critical operational flexibility for all the railroads to meet their long term service plans.

Proposed 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; 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; and a new car washer for Amtrak to replace one that will be demolished to accommodate the new alignment. Regional investments also include the construction of a LIRR Sunnyside Station in Queens and the purchase of additional LIRR cars to support ESA growth.

MTA CAPITAL CONSTRUCTION MISCELLANEOUS CATEGORY G-616

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 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 2005-2009 Capital Program

The 2005-2009 Capital Program includes \$75 million to manage these projects and for incidental project costs not eligible for federal reimbursement.

The 2008-2013 Capital Program

The 2008-2013 Proposed Capital Program requests \$200 million. MTACCC will continue major construction and design of the MTA's system expansion projects and implementation of the system-wide safety program. By 2008, all major underground construction contracts will have been awarded. There will be four tunnel boring machines in operation in Manhattan and two more machines in procurement for construction of tunnels in Queens. Funds are requested to support a headcount of 150. Funds have been budgeted for the provision of company-wide construction support from specialty contractors, oversight agencies, legal support, environmental and archeological 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 MTACCC Administration. Remaining funds have been budgeted for engineering and legal services, claims and disputes resolution, reimbursement of NYCT for administrative support staff and services, and other project office costs such as communications and supplies.

NEW CAPACITY EXPANSION INVESTMENTS

OVERVIEW

The population in New York City has reached 8.2 million, and is expected to swell by another one million over the next 25 years. Growth in the MTA region is forecast to climb by 3.5 million people. Along with growth come changes in demand for mass transit and an exacerbation of current service limitations. Overcrowding persists today in corridors with limited transit options, while operations strain to keep up with the rise in reverse-commuting and intra-county travel. Commutation times have gotten longer, and will continue to grow as more people seeking more affordable housing choose to live further from Manhattan's central business district and other employment markets. Responding to these changes will require the MTA to both expand its service and innovate.

After more than a decade of rescuing the basic infrastructure of the system, the MTA began with its last two Capital Program to invest in the future with its first major system expansion projects since the 1940's — East Side Access, and a new Second Avenue Subway. Funding to extend the #7 subway line westward was subsequently provided by the City of New York. These projects, which are described in the Capital Construction Company section of this program, will reach an important milestone in this plan, as full funding will be achieved.

These investments, as significant as they are, will not allow the region to fully deliver on the promise of its future. For the region to support its projected growth trajectory, transit investments, widely recognized as fundamental to economic prosperity, must keep pace. Since all portions of the region are expected to experience robust growth, and the magnitude of change will require investments spanning many capital programs, the development of new transit services are proposed to begin now to meet these anticipated needs.

Table 16
Capacity Expansion Projects
(\$ in millions)

CAPACITY EXPANSION PROJECTS	Proposed 2008-2013
Congestion Pricing Implementation Projects *	-
<i>Projects to Support Long Term Regional Growth:</i>	
CBTC Flushing and Queens Blvd**	\$1,425
Second Avenue Subway Next Phase**	1,000
Penn Access**	400
Jamaica Capacity Improvements	150
#7 Fleet Expansion	175
Capacity Planning Studies	50
Sustainability Investments	50

* Paid for by Congestion Pricing Revenues

** To be completed over two capital programs

Recognition of the need for this kind of bold investment underlies the work of the New York City Traffic Congestion Mitigation Commission which recommended implementation of congestion pricing with dedication of its revenues to help support transit improvements. The legislation creating the Commission also contemplated this link when it required the MTA to accelerate the submission of its capital program.

This section on new capacity expansion includes two components. It begins with a summary of the MTA's report to the New York City Traffic Congestion Mitigation Commission on the investments needed to implement new and enhanced services aimed at accommodating expected auto diversions which would result from congestion pricing. It also provides detail on the longer-term transit investments proposed to begin in the 2008-2013 Program that support regional growth.

CONGESTION PRICING IMPLEMENTATION PROJECTS

On January 31, 2008 the New York City Traffic Congestion Mitigation Commission released its report recommending the implementation of a pricing-based traffic congestion mitigation plan. Among the principles adopted by the Commission was a desire to see the revenues raised by congestion pricing dedicated to support the MTA's capital plan. The Commission further recommended that strategic improvements to subway, bus and express bus services be in place prior to the start of congestion pricing and that these improvements be financed with revenues raised by congestion pricing.

On October 25, 2008, in accordance with the statute creating the Commission, the MTA prepared a report and presentation that described the impact on the Authority of the implementation of congestion pricing. The report defined how the MTA would meet the increase in demand for public transportation brought on by a pricing strategy, and the additional costs required to respond to this need.

It is estimated that an additional 84,000 daily transit trips would be generated from within the City and from the northern and eastern suburbs. Most of these diversions would be from trips within the City. To address this increase in ridership, the MTA will add service, primarily new bus routes and enhancements to existing bus routes linked to Manhattan, enhanced bus links to subway lines serving Manhattan, and enhancements to key subway lines in Manhattan and the Outer Boroughs.

The new bus service is largely focused on areas, such as far eastern Queens or southeastern Brooklyn, that currently generate a larger share of daily auto trips in the City and therefore would be expected to generate the largest number of diversions to transit. The MTA will add service to these areas primarily through a combination of new bus routes and enhancements to existing routes linking these areas directly into the Manhattan Congestion Zone, and enhanced bus links to subway lines which serve Manhattan and the Congestion Zone. Within Manhattan, bus service is also being bolstered in anticipation of new demand by motorists whose trips originate and end in Manhattan and who transfer from outer borough services that connect to Manhattan. Overall, MTA proposes to use a total of 309 additional buses within New York City to provide the new and enhanced services.

Subway service will be enhanced on key subway lines in Manhattan and the outer boroughs during midday and shoulder periods, where demand is likely to occur and where additional capacity exists. The plan includes subway service increases on the 1 line (Broadway-7th Avenue) during midday to address some of the projected increase in afternoon trips within the Congestion Zone. To serve neighborhoods in Brooklyn that currently have a relatively high percentage of auto commuters, capacity will be increased on the C (Fulton Street) line by extending all trains from 8 cars to 10 cars. To address some of the projected additional demand from southeast Queens, additional E and F line (Queens Boulevard) service is planned consisting of four additional train trips that extend the duration of peak AM service levels into shoulder periods by one-half hour. Providing this additional subway service will require the purchase of 46 new subway cars.

MTA plans to ramp up these new services by initiating many of them in late 2008 and early 2009 in advance of the April 2009 start of the three year congestion pricing pilot. Assuming the use of \$184 million in available federal funds that have been allocated to the MTA to support the

congestion pricing initiative through the federal Urban Partnership Program (UPA), the unfunded capital costs associated with these new congestion pricing related service total \$767 million.

Table 17
Summary of Congestion Pricing Related Capital Needs
(\$ in millions)

Expense Category	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
City buses	220.0	-	-	-	-	-	-	-	-	-	220.0
Subway cars	105.8	-	-	-	-	-	-	-	-	-	105.8
2 bus depots	-	80.0	-	-	-	106.7	106.7	106.6	-	-	400.0
Bus lay-up	2.5	2.5	20	-	-	-	-	-	-	-	25.0
BRT	-	10.9	3.7	3.7	3.6	-	-	-	-	-	21.9
Suburban Buses	-	38.2	-	-	-	-	-	-	-	-	38.2
Park & rides	-	8.0	32.0	-	-	-	-	-	-	-	40.0
Station Renovations	-	-	-	50.0	50.0	-	-	-	-	-	100.0
Less UPA	184.3	-	-	-	-	-	-	-	-	-	184.3
TOTAL	144.0	139.6	55.7	53.7	53.6	106.7	106.7	106.6	-	-	766.6

NEW CAPACITY EXPANSION PROJECTS TO SUPPORT LONG TERM REGIONAL GROWTH




In addition to the program of projects needed to meet the demand brought on by congestion pricing, this section describes new regional capacity projects and other studies designed to prepare the region for anticipated growth.

Communications Based Train Control (CBTC): Queens Capacity Enhancements

Communications based train control, an advanced signal system that enables real-time centralized train supervision and monitoring, permits trains to operate at higher speeds and with shorter headways, thus increasing capacity. It also provides information regarding the exact location of trains, enhancing normal operations and emergency response. MTA New York City Transit recently completed a CBTC installation on the Canarsie Line, which is expected to increase capacity significantly. CBTC applications are proposed for the Flushing Line and the Queens Boulevard Line to substantially increase capacity in Queens. A total of \$1.425 billion is proposed to complete the Flushing project and advance all the preparatory work for the Queens project in the 2008-2013 plan period.

Second Avenue Subway (SAS) Next Phase: Relieving Overcrowding on the East Side of Manhattan

When fully completed, the SAS will stretch 8.5 miles along the length of Manhattan's East Side, from 125th Street in Harlem to Hanover Square in Lower Manhattan. In addition, a track connection to the existing 63rd Street and Broadway Lines, will allow a second subway line to provide direct service from East Harlem and the Upper East Side to West Midtown via the Broadway express tracks. Sixteen new stations will be built, serving communities in Harlem, Upper East Side, East Midtown, Gramercy Park, East Village, the Lower East Side, Chinatown and Lower Manhattan. Phase 1, which will provide subway service from 96th Street to West Midtown Manhattan and Brooklyn via the Broadway Line, is currently under construction.

The 2008-2013 Program offers the opportunity to progress either phase 2 or phase 3 of the project. Phase 2, currently estimated at \$4.4 billion, would construct from 125th Street to 105th Street, including the utilization of an existing subway tunnel section from 110th – 120th Streets, providing service from 125th Street to West Midtown Manhattan and Brooklyn via a further extension of the  train (Broadway Line). Phase 3, estimated at \$5.7 billion, would construct from 72nd Street to Houston Street, providing subway service by the  train from 125th Street to West Midtown Manhattan and Brooklyn via the Broadway Line, as well as a new  train from 125th Street to Houston Street and 2nd Ave. (Phase 4 would complete the line to Hanover Square). A total of \$1 billion is proposed to be committed during the 2008-2013 plan period to begin one of these new phases which would then be completed in a subsequent program.

Penn Station Access

Two rail lines owned by Amtrak, the Empire Line on Manhattan's west side and the Hellgate Line to the east in Queens, will be used to provide a link to Pennsylvania Station for Metro-North's Hudson and New Haven lines respectively. New stations will be provided along these two new links in the Eastern Bronx and the west side of Manhattan. The new lines will lessen travel times by more than 20 minutes. It will also serve a number of new markets, including service to Penn Station from the Bronx and the suburbs, and reverse commutation service for City residents. Metro-North's Penn Station Access will serve as an element of improved

regional connectivity by completing the direct connections among all of the New York metropolitan region's commuter and regional rail services (Metro-North, LIRR, NJT, and Amtrak) at Penn Station. Ridership for the proposed Hudson and New Haven Line service is projected to be 15.9 million trips per year in 2020, an increase of 4.7 million new trips on Metro-North. The total cost included in the 2008-2013 period is \$400 million, which will fund the initial phase of this \$1.2 billion project.

Jamaica Capacity Improvements: Enhanced Service to Brooklyn, Queens and Manhattan

The current infrastructure in the vicinity of Jamaica Station is inadequate to accommodate the additional train service that will be provided when East Side Access becomes operational. Improvements are needed at Jamaica to realize the full benefits of ESA. The Jamaica Capacity project will redesign the track and switch layout both east and west of Jamaica, in order to facilitate the new service into Grand Central Terminal as well as new cross-borough service between Flatbush Avenue and Jamaica. By establishing a dedicated platform and train route for Brooklyn customers, the Long Island Rail Road will be able to increase the frequency of trains to and from Brooklyn, thereby improving service for East New York, Nostrand Avenue, and Flatbush Avenue customers. This allows the Long Island Rail Road to establish service exclusively for Brooklyn and Queens customers. A total of \$150 million is proposed in the 2008-2013 to design and build the first track and platform elements supporting this service.

#7 Fleet Expansion

New York City Transit is experiencing significant ridership growth along its heavily used lines in Queens. The implementation of Communication Based Train Control (CBTC) along the Flushing and Queens Blvd. Lines discussed above will both serve this growth and encourage additional ridership. The additional capacity created by CBTC creates a need for new cars; in addition, the extension of the #7 to the west side of Manhattan also creates an incremental need for additional fleet. The total cost included in the 2008-2013 period is \$175 million, which funds the purchase of additional train sets to support this projected growth in ridership.

Capacity Planning Studies

A program of planning studies will be undertaken to identify potential solutions for existing travel problems (beyond the problems addressed by the current expansion projects) and problems that will occur as a result of the robust growth forecasted for the MTA region. These studies will evaluate a broad range of travel issues, including relieving overcrowding, reducing travel times and improving access to the transit system, throughout the MTA region. Specific studies include:

- A Queens Alternatives Study to evaluate potential solutions beyond CBTC to address overcrowding during the peak period and reverse commutation needs;
- A Bronx Alternatives Study to evaluate potential solutions to address crowding and long travel times to the Bronx Hub and the Manhattan CBD and reverse commutation needs;
- An Upper West Side Subway Alternatives Study to evaluate potential solutions to address: train overcrowding and delays, reduced train throughput caused by operational constraints of the subway system, and long travel times from Upper Manhattan;
- A Southeastern Brooklyn Alternatives Study to evaluate potential solutions to address long travel times and lack of access to the subway system for travel to Downtown Brooklyn and the Manhattan CBD;
- A Staten Island North Shore Alternatives Study to evaluate potential solutions to address long and unreliable travel times to the Manhattan CBD, overcrowded buses and lack of direct access to Bayonne/Jersey City;
- A Long Island Service Enhancement Study to evaluate potential solutions to address long travel times from eastern Long Island;

- A West of Hudson Regional Transit Access Study Alternatives Analysis to evaluate ways to improve travel for commuters and air travelers between Stewart Airport and destinations in the Hudson Valley and New York City.

The total cost of these studies included in the 2008-2013 Capital Program is \$50 million.

Sustainability Investments

These initiatives will fund projects that will enhance MTA's environmental stewardship and improve its ecological footprint by reducing the release of carbon dioxide and other greenhouse gases, and minimizing waste, water and other resource use. Investments will help the MTA advance sustainability projects, including but not limited to: reducing energy use; reducing the carbon emissions; decreasing water usage; utilization of recycled materials; and making MTA facilities more efficient in the use of energy and water. These investments will help ensure that the MTA and the operating agencies continue to be leaders in the field of sustainability as it applies to rapid transit, regional rail, buses, and bridges and tunnels. Strategies for carbon reduction and carbon avoidance (reducing VMT in the region) will help the New York metropolitan region achieve a competitive advantage vis-à-vis other global centers in the world. The total cost for these investments included in the 2008-2013 Capital Program is \$50 million.

PROGRAM PROJECT LISTINGS

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 NEW SUBWAY CARS								
01 208 B-Div Cars	NR	.0	.0	624.0	.0	.0	.0	624.0
02 382 B-Div Cars (R160 Opt 2)	NR	843.1	.0	.0	.0	.0	.0	843.1
Element Total 01		\$843.1	\$0	\$624.0	\$0	\$0	\$0.0	\$1,467.1
Category Total 601		\$843.1	\$0	\$624.0	\$0	\$0	\$0.0	\$1,467.1

* Represents values less than \$50,000

New York City Transit

BUSES T - 603

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
02 BUS REPLACEMENT								
01 99 Express Buses 2009	NR	.0	75.5	.0	.0	.0	.0	75.5
02 61 Articulated Buses 2009	NR	.0	63.9	.0	.0	.0	.0	63.9
03 224 Std Buses 2009	NR	.0	141.7	.0	.0	.0	.0	141.7
04 Filters: 1558 Paratransit Vans	SI	.0	.0	15.6	.0	.0	.0	15.6
05 411 Paratransit Vans 2010	NR	.0	.0	32.5	.0	.0	.0	32.5
06 330 Standard Buses 2010	NR	.0	.0	212.0	.0	.0	.0	212.0
07 57 Articulated Buses 2010	NR	.0	.0	52.4	.0	.0	.0	52.4
08 102 Express Buses 2010	NR	.0	.0	70.1	.0	.0	.0	70.1
09 321 Paratransit Vans 2011	NR	.0	.0	.0	26.4	.0	.0	26.4
10 107 Express Buses 2011	NR	.0	.0	.0	76.7	.0	.0	76.7
11 271 Articulated Buses 2011	NR	.0	.0	.0	259.3	.0	.0	259.3
12 330 Standard Buses 2011	NR	.0	.0	.0	221.0	.0	.0	221.0
13 39 Articulated Buses 2012	NR	.0	.0	.0	.0	38.9	.0	38.9
14 330 Standard Buses 2012	NR	.0	.0	.0	.0	229.9	.0	229.9
15 93 Express Buses 2012	NR	.0	.0	.0	.0	69.3	.0	69.3
16 284 Paratransit Vans 2012	NR	.0	.0	.0	.0	24.3	.0	24.3
17 41 Articulated Buses 2013	NR	.0	.0	.0	.0	.0	42.5	42.5
18 78 Express Buses 2013	NR	.0	.0	.0	.0	.0	60.4	60.4
19 330 Standard Buses 2013	NR	.0	.0	.0	.0	.0	239.1	239.1
Element Total 02		\$.0	\$281.1	\$382.6	\$583.4	\$362.4	\$342.1	\$1,951.5
Category Total 603		\$.0	\$281.1	\$382.6	\$583.4	\$362.4	\$342.1	\$1,951.5

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
04 FARE COLLECTION								
02 83 HEETs	SI	.0	.0	4.7	.0	.0	.0	4.7
03 MVM Electronic Cmpnts Ph 1	NR	.0	.0	.0	50.0	.0	.0	50.0
04 HEETs Electronic Cmpnts Ph 1	NR	.0	.0	.0	2.8	.0	.0	2.8
Element Total 04		\$0	\$0	\$4.7	\$52.8	\$0	\$0.0	\$57.5
07 STATION ESCALATORS/ELEVATORS								
01 Repl 2 Escal Roosevelt Av QBL	NR	.0	16.0	.0	.0	.0	.0	16.0
02 Repl 11 Hydraulic Elevators	NR	.0	.0	48.6	.0	.0	.0	48.6
03 Repl 3 Escalators: S Manhattan	NR	.0	.0	25.4	.0	.0	.0	25.4
04 Repl 10 Hydraulic Elevators	NR	.0	.0	.0	.0	45.0	.0	45.0
Element Total 07		\$0	\$16.0	\$74.0	\$0	\$45.0	\$0.0	\$135.0

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
11 STATION REHABILITATION								
01 Rehab Beach 98 St RKY	SGR	21.7	.0	.0	.0	.0	.0	21.7
02 Rehab Beach 90 St RKY	SGR	20.9	.0	.0	.0	.0	.0	20.9
03 Rehab Mott Av FAR RKY	SGR	16.4	.0	.0	.0	.0	.0	16.4
04 Rehab Beach 105 St RKY	SGR	21.0	.0	.0	.0	.0	.0	21.0
05 Railings 2008-2010 Rehabs	SGR	6.4	.0	.0	.0	.0	.0	6.4
06 Rehab Beach 67 St FAR RKY	SGR	20.0	.0	.0	.0	.0	.0	20.0
07 Rehab Beach 44 St FAR RKY	SGR	20.9	.0	.0	.0	.0	.0	20.9
08 Rehab Beach 60 St FAR RKY	SGR	21.0	.0	.0	.0	.0	.0	21.0
09 Rehab Beach 36 St FAR RKY	SGR	20.4	.0	.0	.0	.0	.0	20.4
10 Rehab Beach 25 St FAR RKY	SGR	21.7	.0	.0	.0	.0	.0	21.7
11 Rehab Ft Hamilton Pkwy WES	SGR	.0	27.7	.0	.0	.0	.0	27.7
12 Times Square North End Stair	SGR	.0	22.1	.0	.0	.0	.0	22.1
13 Stn Work: 55 St WES	NR	.0	6.8	.0	.0	.0	.0	6.8
14 Stn Work: 50 St WES	NR	.0	6.8	.0	.0	.0	.0	6.8
15 Water Condition Remedy 2009	SGR	.0	4.2	.0	.0	.0	.0	4.2
16 Rehab 71 St WES	SGR	.0	13.9	.0	.0	.0	.0	13.9
17 Rehab 79 St WES	SGR	.0	13.8	.0	.0	.0	.0	13.8
18 Rehab 18 Av WES	SGR	.0	13.4	.0	.0	.0	.0	13.4
19 Rehab 20 Av WES	SGR	.0	13.2	.0	.0	.0	.0	13.2
20 Dyckman St BW7	NR	.0	17.6	.0	.0	.0	.0	17.6
21 Rehab 25 Av WES	SGR	.0	13.4	.0	.0	.0	.0	13.4
22 Rehab Bay 50 St WES	SGR	.0	12.7	.0	.0	.0	.0	12.7
23 Rehab 62 St WES	SGR	.0	25.6	.0	.0	.0	.0	25.6
24 Rehab Bay Pkwy WES	SGR	.0	24.6	.0	.0	.0	.0	24.6
25 Rehab 9 Av WES	SGR	.0	29.7	.0	.0	.0	.0	29.7
26 Rehab Knickerbocker Av MYT	SGR	.0	.0	26.2	.0	.0	.0	26.2
27 Rehab Metropolitan Av MYT	SGR	.0	.0	15.2	.0	.0	.0	15.2
28 Rehab Fresh Pond Rd MYT	SGR	.0	.0	25.9	.0	.0	.0	25.9
29 Rehab Seneca Av MYT	SGR	.0	.0	23.7	.0	.0	.0	23.7
30 Rehab Central Av MYT	SGR	.0	.0	26.6	.0	.0	.0	26.6
31 Rehab Forest Av MYT	SGR	.0	.0	28.3	.0	.0	.0	28.3
32 Rehab 8 Av SEA	SGR	.0	.0	.0	51.6	.0	.0	51.6
33 Rehab Kings Hwy SEA	SGR	.0	.0	.0	53.5	.0	.0	53.5
34 Rehab Fort Hamilton Pkwy SEA	SGR	.0	.0	.0	57.9	.0	.0	57.9
35 Rehab 20 Av SEA	SGR	.0	.0	.0	43.8	.0	.0	43.8
36 Rehab 205 St BXC	SGR	.0	.0	.0	50.2	.0	.0	50.2
37 Rehab 18 Av SEA	SGR	.0	.0	.0	54.0	.0	.0	54.0
38 Water Condition Remedy 2011	SGR	.0	.0	.0	4.9	.0	.0	4.9
39 Rehab New Utrecht Av SEA	SGR	.0	.0	.0	56.2	.0	.0	56.2
40 Rehab Bay Pkwy SEA	SGR	.0	.0	.0	60.2	.0	.0	60.2
41 Rehab Avenue U SEA	SGR	.0	.0	.0	56.7	.0	.0	56.7
42 Rehab 86 St SEA	SGR	.0	.0	.0	45.2	.0	.0	45.2
43 Rehab 182-183 Sts BXC	SGR	.0	.0	.0	35.6	.0	.0	35.6
44 Rehab New Lots Av NLT	SGR	.0	.0	.0	.0	28.2	.0	28.2
45 Rehab Saratoga Av NLT	SGR	.0	.0	.0	.0	30.6	.0	30.6
46 Rehab Rockaway Av NLT	SGR	.0	.0	.0	.0	27.9	.0	27.9
47 Rehab Sutter Av NLT	SGR	.0	.0	.0	.0	27.4	.0	27.4
48 Rehab Van Siclen Av NLT	SGR	.0	.0	.0	.0	28.5	.0	28.5
49 Rehab Pennsylvania Av NLT	SGR	.0	.0	.0	.0	29.6	.0	29.6
50 Rehab Junius St NLT	SGR	.0	.0	.0	.0	30.7	.0	30.7

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
11 STATION REHABILITATION								
51 Rehab 14 St / BW7	SGR	.0	.0	.0	.0	50.6	.0	50.6
Element Total 11		\$190.4	\$245.5	\$146.0	\$569.6	\$253.6	\$0.0	\$1,405.1
13 DISABLED ACCESSIBILITY								
01 ADA Mott Av FAR RKY	SI	14.5	.0	.0	.0	.0	.0	14.5
02 Retrofit Pltfrm Boarding Areas	SI	20.8	.0	.0	.0	.0	.0	20.8
03 ADA Bay Parkway WES	SI	.0	43.4	.0	.0	.0	.0	43.4
04 Inductive Hearing Loops	SI	.0	66.3	.0	.0	.0	.0	66.3
05 Imprv Platform Edge 34 St 6AV	SI	.0	.0	6.9	.0	.0	.0	6.9
06 ADA Forest Hills-71 Av QBL	SI	.0	.0	66.2	.0	.0	.0	66.2
07 ADA Kingsbridge Rd BXC	SI	.0	.0	56.4	.0	.0	.0	56.4
08 ADA 68 St-Hunter College LEX	SI	.0	.0	79.7	.0	.0	.0	79.7
09 Imprv Platform Edge 34 St BWY	SI	.0	.0	7.1	.0	.0	.0	7.1
10 ADA 23 St LEX	SI	.0	.0	61.7	.0	.0	.0	61.7
11 ADA Hunts Point Av PEL	SI	.0	.0	.0	72.5	.0	.0	72.5
12 ADA Utica Av FUL	SI	.0	.0	.0	61.1	.0	.0	61.1
13 ADA 57 St BWY Ph 2	SI	.0	.0	.0	78.2	.0	.0	78.2
14 ADA Ozone Pk-Lefferts Blvd LIB	SI	.0	.0	.0	.0	74.5	.0	74.5
Element Total 13		\$35.3	\$109.7	\$278.1	\$211.8	\$74.5	\$0.0	\$709.4
14 OTHER STATION IMPROVEMENTS								
01 Canopies 5 Stations BW7	SGR	.0	17.2	.0	.0	.0	.0	17.2
02 Station Ceilings Pilot Ph 1	SGR	.0	25.0	.0	.0	.0	.0	25.0
03 Elevated Stair Repair/Replace	SGR	.0	15.0	.0	.0	.0	.0	15.0
04 Rpr Pltfrm Edge/Expansion Jnt	SGR	.0	30.0	.0	.0	.0	.0	30.0
05 Subway Stair Repair	SGR	.0	15.0	.0	.0	.0	.0	15.0
06 Gap Fillers 14 St LEX Lcl Tks	SGR	.0	43.1	.0	.0	.0	.0	43.1
07 Subway Wall Repair	SGR	.0	15.0	.0	.0	.0	.0	15.0
08 Station Signage	NR	.0	.0	3.4	.0	.0	.0	3.4
09 Ventilator Rehab	SGR	.0	.0	30.0	.0	.0	.0	30.0
10 Grand Central - Access Impr	SI	.0	.0	30.0	.0	.0	.0	30.0
11 Rpr-Repl Canopy/ Windscreen	SGR	.0	.0	30.0	.0	.0	.0	30.0
12 Scrubber Room Drainage 4 Loc	SGR	.0	.0	5.3	.0	.0	.0	5.3
13 Elevated Stair Repair/Replace	SGR	.0	.0	.0	15.0	.0	.0	15.0
14 Rpr Pltfrm Edge/Expansion Jnt	SGR	.0	.0	.0	30.0	.0	.0	30.0
15 Subway Stair Repair	SGR	.0	.0	.0	15.0	.0	.0	15.0
16 Subway Wall Repair	SGR	.0	.0	.0	15.0	.0	.0	15.0
17 Rpr-Replc Canopy/Windscreen	SGR	.0	.0	.0	.0	30.0	.0	30.0
18 Station Signage	NR	.0	.0	.0	.0	3.7	.0	3.7
19 Rehab/Repl Canopies 6 Stn AST	SGR	.0	.0	.0	.0	46.3	.0	46.3
20 Ventilator Rehab	SGR	.0	.0	.0	.0	30.0	.0	30.0
Element Total 14		\$0.0	\$160.3	\$98.8	\$75.0	\$110.0	\$0.0	\$444.0
Category Total 604		\$225.6	\$531.5	\$601.5	\$909.2	\$483.2	\$0.0	\$2,751.0

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
02 TRACK REHABILITATION								
01 2009 Welded Rail	SI	.0	11.7	.0	.0	.0	.0	11.7
02 2009 Track Force Account	NR	.0	35.0	.0	.0	.0	.0	35.0
03 2009 Mainline Track Repl	NR	.0	172.9	.0	.0	.0	.0	172.9
04 2010 Mainline Track Repl	NR	.0	.0	181.1	.0	.0	.0	181.1
05 2010 Track Force Account	NR	.0	.0	35.0	.0	.0	.0	35.0
06 2010 Welded Rail	SI	.0	.0	11.6	.0	.0	.0	11.6
07 2011 Mainline Track Repl	NR	.0	.0	.0	188.6	.0	.0	188.6
08 2011 Track Force Account	NR	.0	.0	.0	35.0	.0	.0	35.0
09 2011 Welded Rail	SI	.0	.0	.0	7.3	.0	.0	7.3
10 2012 Track Force Account	NR	.0	.0	.0	.0	35.0	.0	35.0
11 2012 Mainline Track Repl	NR	.0	.0	.0	.0	196.4	.0	196.4
12 2013 Track Force Account	NR	.0	.0	.0	.0	.0	35.0	35.0
13 2014 Mainline Track Repl DES	NR	.0	.0	.0	.0	.0	1.7	1.7
14 2013 Mainline Track Repl	NR	.0	.0	.0	.0	.0	204.1	204.1
Element Total 02		\$0	\$219.6	\$227.7	\$230.8	\$231.4	\$240.8	\$1,150.4
03 SWITCH REPLACEMENT								
01 2009 Mainline Switch Repl	NR	.0	43.6	.0	.0	.0	.0	43.6
02 2010 Mainline Switch Repl	NR	.0	.0	45.2	.0	.0	.0	45.2
03 2011 Mainline Switch Repl	NR	.0	.0	.0	47.1	.0	.0	47.1
04 2012 Mainline Switch Repl	NR	.0	.0	.0	.0	49.1	.0	49.1
05 2013 Mainline Switch Repl	NR	.0	.0	.0	.0	.0	51.0	51.0
06 2014 Mainline Switch Repl DES	NR	.0	.0	.0	.0	.0	2.7	2.7
Element Total 03		\$0	\$43.6	\$45.2	\$47.1	\$49.1	\$53.7	\$238.7
Category Total 605		\$0	\$263.2	\$272.9	\$278.0	\$280.5	\$294.5	\$1,389.1

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
02 TUNNEL LIGHTING								
01 Tun Ltg 11 St Portal-Qns Plaza	SGR	8.7	.0	.0	.0	.0	.0	8.7
02 Tun Ltg Roosevelt Av-36 St QBL	SGR	.0	.0	.0	76.5	.0	.0	76.5
Element Total 02		\$8.7	\$0.0	\$0.0	\$76.5	\$0.0	\$0.0	\$85.3
03 VENTILATION FACILITIES								
01 Vent Plant 55 St 8AV	SI	.0	183.3	.0	.0	.0	.0	183.3
02 Vent Plant 53 St 8AV	SI	.0	137.7	.0	.0	.0	.0	137.7
03 Vent Plant W4 St-14 St 8AV	SI	.0	114.1	.0	.0	.0	.0	114.1
04 New Fan Controls 26 Locations	NR	.0	.0	14.5	.0	.0	.0	14.5
05 Fan Plant Modifications	NR	.0	.0	31.5	.0	.0	.0	31.5
06 New Vent Plnt Study LEX s/o GC	SI	.0	.0	2.1	.0	.0	.0	2.1
07 Vent Plant: Forsythe St 6AV	SI	.0	.0	.0	125.5	.0	.0	125.5
Element Total 03		\$0.0	\$435.1	\$48.1	\$125.5	\$0.0	\$0.0	\$608.7
04 PUMPING FACILITIES								
01 Deep Wells Rehab NOS	NR	16.0	.0	.0	.0	.0	.0	16.0
02 Deep Wells Rehab XTN	NR	.0	14.0	.0	.0	.0	.0	14.0
03 Pumps 2 Locs Manhattan Midtown	SGR	.0	.0	20.2	.0	.0	.0	20.2
04 Pumps 4 Locs PEL JER LNX	SGR	.0	.0	.0	.0	41.2	.0	41.2
Element Total 04		\$16.0	\$14.0	\$20.2	\$0.0	\$41.2	\$0.0	\$91.4
Category Total 606		\$24.7	\$449.0	\$68.3	\$202.0	\$41.2	\$0.0	\$785.3

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
03 LINE STRUCTURE REHABILITATION								
01 Flood Control Various Locs	SI	182.7	.0	.0	.0	.0	.0	182.7
02 Overcoat Steel Bridges/Wye RKY	NR	2.3	.0	.0	.0	.0	.0	2.3
03 Repair Viaduct FAR RKY/RKY PK	SGR	56.3	.0	.0	.0	.0	.0	56.3
04 Trackway Stabilization FAS	SGR	.0	17.3	.0	.0	.0	.0	17.3
05 Elev Struct 9 Av-Bay 50 St WST	NR	.0	66.7	.0	.0	.0	.0	66.7
06 Nostrand/Flatbush Study/Design	SI	.0	10.0	.0	.0	.0	.0	10.0
07 Ovrct Portal-E180 St WPR	NR	.0	46.5	.0	.0	.0	.0	46.5
08 Strip-Rpnt Portal-41 Av AST	NR	.0	24.9	.0	.0	.0	.0	24.9
09 Ovrct 125 St Arch,Dkmn-215 BW7	NR	.0	30.5	.0	.0	.0	.0	30.5
10 Ovrct Church Av-W8 St CUL	NR	.0	45.4	.0	.0	.0	.0	45.4
11 Ovrct 15 Bridges BRT	NR	.0	.0	7.0	.0	.0	.0	7.0
12 Ovrct E Pkwy-Cypress Hills JAM	NR	.0	.0	31.0	.0	.0	.0	31.0
13 Rehab Emergency Exits 100 Locs	NR	.0	.0	28.5	.0	.0	.0	28.5
14 Emergency Exit Alarms Ph 2	SI	.0	.0	9.5	.0	.0	.0	9.5
15 Ovrct Fulton St-EOL CNR	NR	.0	.0	.0	23.2	.0	.0	23.2
16 Dyre Av Structure Repairs	SGR	.0	.0	.0	10.0	.0	.0	10.0
17 Ovrct Cypress Hills-121 St JAM	NR	.0	.0	.0	32.2	.0	.0	32.2
18 El Struct Cypress Hills-121 JAM	NR	.0	.0	.0	18.4	.0	.0	18.4
19 Pacific-59 St 4AV	NR	.0	.0	.0	124.0	.0	.0	124.0
20 Retaining Wall SEA	NR	.0	.0	.0	42.2	.0	.0	42.2
Element Total 03		\$241.4	\$241.4	\$75.9	\$250.0	\$0.0	\$0.0	\$808.7
Category Total 607		\$241.4	\$241.4	\$75.9	\$250.0	\$0.0	\$0.0	\$808.7

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
03 SIGNAL MODERNIZATION								
01 CBTC Signals Test Track CUL	SI	94.4	.0	.0	.0	.0	.0	94.4
02 Intrlckng Union TnPk QBL	SGR	156.8	.0	.0	.0	.0	.0	156.8
03 Stop Cable Repl Var Locs Ph 3	NR	38.7	.0	.0	.0	.0	.0	38.7
04 Messenger Brackets BRT	NR	.0	1.2	.0	.0	.0	.0	1.2
05 Intrlckng Church Ave CUL	SGR	.0	229.8	.0	.0	.0	.0	229.8
06 EMD Fac Reloc from Chambers St	NR	.0	6.6	.0	.0	.0	.0	6.6
07 Signal Control Line Mods Ph 4	NR	.0	.0	52.0	.0	.0	.0	52.0
09 Signal Eqpt Repl 11 Locs	NR	.0	.0	49.2	.0	.0	.0	49.2
10 Signal Eqpmt Repl 2 Locs	NR	.0	.0	3.5	.0	.0	.0	3.5
11 Signal Mod DYR	SGR	.0	.0	245.2	.0	.0	.0	245.2
13 ST Signal Enhncmts LEX Ph 2	SI	.0	.0	48.9	.0	.0	.0	48.9
14 ATS B URS Reporting Sys Ph 1	SI	.0	.0	15.9	.0	.0	.0	15.9
15 ATS B RCC Facility Ph 1	SI	.0	.0	35.3	.0	.0	.0	35.3
16 Stop Cable Replacement Ph 4	NR	.0	.0	.0	23.7	.0	.0	23.7
17 Intrlckng 34 6AV	SGR	.0	.0	.0	.0	183.4	.0	183.4
18 Intrlckng West 4 ST 6AV	SGR	.0	.0	.0	.0	178.8	.0	178.8
19 Intrlckng York St 6AV	SGR	.0	.0	.0	.0	.0	72.5	72.5
20 Intrlckng Jay St 6AV	SGR	.0	.0	.0	.0	.0	144.9	144.9
21 Signal Key-Circuit Mods Ph 3	NR	.0	.0	.0	.0	.0	26.5	26.5
Element Total 03		\$289.9	\$237.6	\$450.1	\$23.7	\$362.2	\$243.9	\$1,607.4
06 COMMUNICATIONS SYSTEMS								
01 Copper Cable Upgrd/Repl Ph 1	NR	20.0	.0	.0	.0	.0	.0	20.0
02 Stn Wireless Mobile Tech Pilot	SI	10.1	.0	.0	.0	.0	.0	10.1
03 Psgr ID CCTV Rollout	SI	27.2	.0	.0	.0	.0	.0	27.2
04 PA/CIS 87 Stations	SI	.0	87.0	.0	.0	.0	.0	87.0
05 Appl Cutover to SONET Ph 1	NR	.0	25.0	.0	.0	.0	.0	25.0
06 VHF Radio System Ph 1	NR	.0	211.1	.0	.0	.0	.0	211.1
07 SCADA Systems Pilot/Design	SI	.0	.0	11.4	.0	.0	.0	11.4
08 Fiber Optic Cable Repl Ph 1	NR	.0	.0	20.0	.0	.0	.0	20.0
09 Comm Rm HVAC Ph 1	SGR	.0	.0	43.7	.0	.0	.0	43.7
10 Comm Rm Upgrde / Expnsn Ph 1	SI	.0	.0	20.0	.0	.0	.0	20.0
11 Comm Rm Access Control Ph 2	SI	.0	.0	.0	17.0	.0	.0	17.0
12 Replace Portable Radio Units	NR	.0	.0	.0	12.4	.0	.0	12.4
13 Copper Cable Upgrade/Repl Ph 2	NR	.0	.0	.0	25.0	.0	.0	25.0
14 Antenna Cable Upgrade/Repl	NR	.0	.0	.0	.0	30.0	.0	30.0
15 Fiber Optic Cable Repl Ph 2	NR	.0	.0	.0	.0	20.0	.0	20.0
Element Total 06		\$57.3	\$323.1	\$95.1	\$54.4	\$50.0	\$0.0	\$580.0
Category Total 608		\$347.2	\$560.7	\$545.1	\$78.1	\$412.2	\$243.9	\$2,187.3

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
02 SUBSTATIONS								
01 5 Substation Enclosures	SGR	23.3	.0	.0	.0	.0	.0	23.3
02 Undrgrnd SS Hatchways 110 Locs	NR	.0	60.1	.0	.0	.0	.0	60.1
03 Mod 10th St Substation	SGR	.0	.0	39.5	.0	.0	.0	39.5
04 Rehab 5 IRT Substn Roof/Encl	NR	.0	.0	.0	14.1	.0	.0	14.1
05 Repl Switchgear 2 Substations	NR	.0	.0	.0	50.6	.0	.0	50.6
Element Total 02		\$23.3	\$60.1	\$39.5	\$64.7	\$0.0	\$0.0	\$187.6
04 POWER DISTRIBUTION								
01 Repl Negative Cables 4AV	NR	.0	54.8	.0	.0	.0	.0	54.8
02 Rehab CBH #403 Vanderbilt	SGR	.0	.0	15.4	.0	.0	.0	15.4
03 Rehab Ducts Stanton St Substn	SGR	.0	.0	12.4	.0	.0	.0	12.4
04 Rehab CBH #61 Canarsie Tube	SGR	.0	.0	12.0	.0	.0	.0	12.0
05 Repl Emergency Telephnes Pilot	NR	.0	.0	5.7	.0	.0	.0	5.7
06 Rehab CBH #146 Prospect Pk	SGR	.0	.0	15.8	.0	.0	.0	15.8
07 Rehab CBH #74,#74A JAM	SGR	.0	.0	.0	20.4	.0	.0	20.4
08 Rehab CBH #87 Avenue U	SGR	.0	.0	.0	.0	16.3	.0	16.3
09 Repl Emergency Alarms Ph 1	NR	.0	.0	.0	.0	21.0	.0	21.0
Element Total 04		\$0.0	\$54.8	\$61.2	\$20.4	\$37.4	\$0.0	\$173.8
Category Total 609		\$23.3	\$115.0	\$100.7	\$85.0	\$37.4	\$0.0	\$361.4

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Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
04 MAINTENANCE SHOPS								
10 207 St OH Shop: Tk, Signl, Yrd	SGR	.0	31.7	.0	.0	.0	.0	31.7
11 207 St OH Shop: Electrical	SGR	.0	17.7	.0	.0	.0	.0	17.7
12 DCE Shop Components Ph I	SGR	.0	.0	50.0	.0	.0	.0	50.0
13 207 St Maint Shop-DC Pwr Upgrd	SGR	.0	.0	25.5	.0	.0	.0	25.5
14 East New York Ventilation	NR	.0	.0	8.7	.0	.0	.0	8.7
15 Rehab C.I. Pwr Cntrs #2, #3	NR	.0	.0	15.3	.0	.0	.0	15.3
16 Livonia Shop Ph 1 Rehab	SGR	.0	.0	.0	30.0	.0	.0	30.0
17 Repl Heavy Shop Equipment	NR	.0	.0	.0	14.2	.0	.0	14.2
Element Total 04		\$0	\$49.4	\$99.5	\$44.2	\$0	\$0.0	\$193.1
Category Total 610		\$0	\$49.4	\$99.5	\$44.2	\$0	\$0.0	\$193.1

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New York City Transit

YARDS
T - 611

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
02 YARD IMPROVEMENTS								
01 Rehab 38 St Yard Lead Viaduct	SGR	29.7	.0	.0	.0	.0	.0	29.7
02 Yard Fencing 2010	NR	.0	.0	28.9	.0	.0	.0	28.9
03 Rehab Pltfrms 148 St, 207 St	SGR	.0	.0	42.3	.0	.0	.0	42.3
04 Yard Lighting 2 Locs	NR	.0	.0	.0	15.0	.0	.0	15.0
05 Jamaica Yard Expansion Ph 1	SI	.0	.0	.0	.0	75.0	.0	75.0
06 Jamaica Yard Interlocking	SGR	.0	.0	.0	.0	150.0	.0	150.0
Element Total 02		\$29.7	\$0	\$71.2	\$15.0	\$225.0	\$0.0	\$341.0
05 YARD TRACK REHABILITATION								
01 2009 Yard Track Repl	SGR	.0	3.1	.0	.0	.0	.0	3.1
02 2010 Yard Track Repl	SGR	.0	.0	3.3	.0	.0	.0	3.3
03 2011 Yard Track Repl	SGR	.0	.0	.0	3.4	.0	.0	3.4
04 2012 Yard Track Repl	SGR	.0	.0	.0	.0	3.6	.0	3.6
05 2013 Yard Track Repl	SGR	.0	.0	.0	.0	.0	3.7	3.7
06 2014 Yard Track Repl DES	SGR	.0	.0	.0	.0	.0	.1	.1
Element Total 05		\$0	\$3.1	\$3.3	\$3.4	\$3.6	\$3.8	\$17.2
06 YARD SWITCH REPLACEMENT								
01 2009 Yard Switch Repl	SGR	.0	7.8	.0	.0	.0	.0	7.8
02 2010 Yard Switch Repl	SGR	.0	.0	9.1	.0	.0	.0	9.1
03 2011 Yard Switch Repl	SGR	.0	.0	.0	9.4	.0	.0	9.4
04 2012 Yard Switch Repl	SGR	.0	.0	.0	.0	9.8	.0	9.8
05 2014 Yard Switch Repl DES	SGR	.0	.0	.0	.0	.0	1.1	1.1
06 2013 Yard Switch Repl	SGR	.0	.0	.0	.0	.0	10.2	10.2
Element Total 06		\$0	\$7.8	\$9.1	\$9.4	\$9.8	\$11.3	\$47.4
Category Total 611		\$29.7	\$10.9	\$83.6	\$27.9	\$238.4	\$15.1	\$405.6

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
03 DEPOT REHAB AND RECONSTRUCTION								
01 Reconstruct Clara Hale Depot	NR	.0	289.3	.0	.0	.0	.0	289.3
02 Lower Manhattan Depot DES	SI	.0	.0	10.0	.0	.0	.0	10.0
03 East NY Elevator Repl	NR	.0	.0	2.0	.0	.0	.0	2.0
04 Jamaica Depot Replacement	SI	.0	.0	150.0	.0	.0	.0	150.0
05 Paint Shop Conversion Ph 1	NR	.0	.0	.0	.0	.0	20.0	20.0
06 126 St Depot Demolition/Design	NR	.0	.0	.0	.0	.0	15.0	15.0
Element Total 03		\$0	\$289.3	\$162.0	\$0	\$0	\$35.0	\$486.3
04 DEPOT IMPROVEMENTS								
01 AVL Opt 2: Sys-wide Roll-out	SI	.0	95.7	.0	.0	.0	.0	95.7
02 Bus Radio Sys-Bus Com Ctr Fac	NR	.0	60.0	.0	.0	.0	.0	60.0
03 10 Bus Washers KB,GH,MV,CS	NR	.0	21.2	.0	.0	.0	.0	21.2
04 Repl Bus Radio System	NR	.0	190.0	.0	.0	.0	.0	190.0
05 Paint Booths Ventilation 7 Loc	NR	.0	.0	10.0	.0	.0	.0	10.0
06 Upgrd HVAC Sys JG,FP,GH,KB	NR	.0	.0	15.3	.0	.0	.0	15.3
07 Replace Lifts 6 Locs	NR	.0	.0	14.3	.0	.0	.0	14.3
08 Automated Fuel Mgt Sys Upgrade	NR	.0	.0	2.5	.0	.0	.0	2.5
09 Replace Depot Equipment	NR	.0	.0	15.0	.0	.0	.0	15.0
10 ADEPT System (Paratransit)	NR	.0	.0	7.2	.0	.0	.0	7.2
11 Paint Application System	NR	.0	.0	.0	1.7	.0	.0	1.7
12 Tank Upgrades JAM, FP	NR	.0	.0	.0	2.5	.0	.0	2.5
13 Property/Lot Acquisition	SI	.0	.0	.0	3.0	.0	.0	3.0
Element Total 04		\$0	\$366.9	\$64.2	\$7.2	\$0	\$0.0	\$438.4
Category Total 612		\$0	\$656.3	\$226.2	\$7.2	\$0	\$35.0	\$924.7

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Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
02 SERVICE VEHICLES								
01 Purch 8 Auger Snowthrowers	NR	.0	9.4	.0	.0	.0	.0	9.4
02 Rubber Tire Vehicles 2009	NR	.0	.0	13.2	.0	.0	.0	13.2
03 Non-Rev Veh Filters	SI	.0	.0	6.1	.0	.0	.0	6.1
04 Replace 54 Flatcars	NR	.0	.0	32.5	.0	.0	.0	32.5
05 Replace 10 Locomotives	SI	.0	.0	41.6	.0	.0	.0	41.6
06 Replace 12 Locomotives DES	NR	.0	.0	3.2	.0	.0	.0	3.2
07 Rubber Tire Vehicles 2010-11	NR	.0	.0	.0	13.9	.0	.0	13.9
Element Total 02		\$0.0	\$9.4	\$96.7	\$13.9	\$0.0	\$0.0	\$120.0
Category Total 613		\$0.0	\$9.4	\$96.7	\$13.9	\$0.0	\$0.0	\$120.0

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Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
02 MISCELLANEOUS								
02 Capital Revolving Fund 2009		.0	5.0	.0	.0	.0	.0	5.0
03 Capital Revolving Fund 2010		.0	.0	5.0	.0	.0	.0	5.0
04 Capital Revolving Fund 2011		.0	.0	.0	5.0	.0	.0	5.0
05 Capital Revolving Fund 2012		.0	.0	.0	.0	5.0	.0	5.0
06 Capital Revolving Fund 2013		.0	.0	.0	.0	.0	5.0	5.0
07 Insurance and Deductibles		.0	.0	5.0	5.0	5.0	5.0	20.0
Element Total 02		\$0.0	\$5.0	\$10.0	\$10.0	\$10.0	\$10.0	\$45.0
04 MANAGEMENT INFORMATION SYSTEMS								
01 Enterprise Sec Ntwrk Infrstr	SI	.0	10.7	.0	.0	.0	.0	10.7
02 NYCT-Wide SAN/Disaster Recov	SI	.0	.0	17.9	.0	.0	.0	17.9
03 Repl WAN/LAN Eqpt Ph 1	NR	.0	.0	.0	9.6	.0	.0	9.6
Element Total 04		\$0.0	\$10.7	\$17.9	\$9.6	\$0.0	\$0.0	\$38.3
05 ENGINEERING SERVICES								
01 Concrete Cylinder Testing 2009	NR	.0	.7	.0	.0	.0	.0	.7
02 Design Reserve 2009		.0	40.0	.0	.0	.0	.0	40.0
03 MTA Independent Engineer Cons		.0	16.7	.0	.0	.0	.0	16.7
04 G.O. Traffic Checkers 2009-13		.0	35.0	.0	.0	.0	.0	35.0
05 Scope Development 2009		.0	10.0	.0	.0	.0	.0	10.0
06 Engineering Services 2009	NR	.0	5.0	.0	.0	.0	.0	5.0
07 Engineering Services 2010	NR	.0	.0	5.0	.0	.0	.0	5.0
08 Boring Services M / Bx		.0	.0	2.0	.0	.0	.0	2.0
09 Boring Services BK / Q / SI		.0	.0	2.4	.0	.0	.0	2.4
10 Scope Development 2010		.0	.0	10.0	.0	.0	.0	10.0
11 Engineering Services: 2011	NR	.0	.0	.0	5.0	.0	.0	5.0
12 Scope Development 2011		.0	.0	.0	10.0	.0	.0	10.0
13 Design Reserve		.0	.0	.0	40.0	.0	.0	40.0
14 Engineering Services 2012	NR	.0	.0	.0	.0	5.0	.0	5.0
15 Test Pits Contract	NR	.0	.0	.0	.0	2.3	.0	2.3
16 Scope Development 2012		.0	.0	.0	.0	10.0	.0	10.0
17 Scope Development 2013		.0	.0	.0	.0	.0	10.0	10.0
18 Engineering Services 2013	NR	.0	.0	.0	.0	.0	5.0	5.0
Element Total 05		\$0.0	\$107.4	\$19.4	\$55.0	\$17.3	\$15.0	\$214.1
06 ENVIRONMENTAL AND SAFETY								
01 Consult Svcs UST/Remediation	NR	8.3	.0	.0	.0	.0	.0	8.3
02 Asbestos Removal-IQ 2009	NR	.0	8.2	.0	.0	.0	.0	8.2
03 Fire Alarm 207 St OH Shop	NR	.0	4.9	.0	.0	.0	.0	4.9
04 Asbestos/Lead Air Mon IQ	NR	.0	7.0	.0	.0	.0	.0	7.0
05 Fire Alarm Systems 17 Locs	NR	.0	.0	30.0	.0	.0	.0	30.0
06 Fire Sprinkler/Alarm Systems	NR	.0	.0	14.5	.0	.0	.0	14.5
07 Consult Svcs UST/Remediation	NR	.0	.0	.0	6.0	.0	.0	6.0
08 Groundwater and Soil Rmd	NR	.0	.0	.0	6.0	.0	.0	6.0
09 Asbestos Disposal	NR	.0	.0	.0	2.5	.0	.0	2.5
10 Asbestos Abatement	NR	.0	.0	.0	.0	9.2	.0	9.2
11 Asbestos/Lead Air Monitoring	NR	.0	.0	.0	.0	.0	9.0	9.0
Element Total 06		\$8.3	\$20.1	\$44.5	\$14.5	\$9.2	\$9.0	\$105.7

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Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
07 EMPLOYEE FACILITIES								
01 Livingston Plz Emerg Gen Upgrd	SGR	8.8	.0	.0	.0	.0	.0	8.8
02 Jay Street Migration Ph 1	NR	10.0	.0	.0	.0	.0	.0	10.0
03 DOS Roof Replacement Ph 2	SGR	.0	16.6	.0	.0	.0	.0	16.6
04 EFR Selected Improvements	NR	.0	10.9	.0	.0	.0	.0	10.9
05 RTO Tower Hardening	NR	.0	.0	29.1	.0	.0	.0	29.1
06 EFR Jay St FUL	SGR	.0	.0	11.3	.0	.0	.0	11.3
07 EFR RTO Chambers NAS	SGR	.0	.0	8.0	.0	.0	.0	8.0
08 Livingston Plz Repairs	NR	.0	.0	21.6	.0	.0	.0	21.6
09 Perim Hardening RCC/130 Liv	NR	.0	.0	27.3	.0	.0	.0	27.3
10 Money Rm Perim Lighting Upgrd	SI	.0	.0	4.2	.0	.0	.0	4.2
11 Repairs Warehouse	NR	.0	.0	10.0	.0	.0	.0	10.0
12 AFC Eqpt Maint Qtrs 8AV SEA	SGR	.0	.0	.0	2.0	.0	.0	2.0
13 EFR Rehab 9 Locs XTN	SGR	.0	.0	.0	8.3	.0	.0	8.3
14 Facility Roof Rpr & Repl 2011	SGR	.0	.0	.0	14.2	.0	.0	14.2
15 Money Rm Security Sys Upgrade	NR	.0	.0	.0	18.5	.0	.0	18.5
16 Upgrd Power RCC, PCC, Liv Plz	NR	.0	.0	.0	.0	24.1	.0	24.1
17 Facility Roof Rpr & Repl 2013	SGR	.0	.0	.0	.0	.0	15.4	15.4
Element Total 07		\$18.8	\$27.5	\$111.6	\$43.1	\$24.1	\$15.4	\$240.5
Category Total 616		\$27.1	\$170.7	\$203.4	\$132.3	\$60.6	\$49.5	\$643.6
TOTAL PROGRAM		\$1,762.1	\$3,338.5	\$3,380.7	\$2,611.3	\$1,915.8	\$980.1	\$13,988.5

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 SIR: MISCELLANEOUS								
01 New Station: Arthur Kill	SI	16.4	.0	.0	.0	.0	.0	16.4
02 St George Trk/Signal Repl Ph1	SGR	.0	30.0	.0	.0	.0	.0	30.0
03 Rehab 8 Bridges, 1 Culvert	NR	.0	.0	38.0	.0	.0	.0	38.0
04 Purchase 64 SIR Cars	NR	.0	.0	192.0	.0	.0	.0	192.0
Element Total 01		\$16.4	\$30.0	\$230.0	\$0.0	\$0.0	\$0.0	\$276.4
Category Total 607		\$16.4	\$30.0	\$230.0	\$0.0	\$0.0	\$0.0	\$276.4
TOTAL PROGRAM		\$16.4	\$30.0	\$230.0	\$0.0	\$0.0	\$0.0	\$276.4

* Represents values less than \$50,000

NYCT AGENCY SUMMARY

Commitments
(\$ in millions)

AGENCY	2008	2009	2010	2011	2012	2013	Total All Years
TOTAL NYCT PROGRAM	\$1,762.1	\$3,338.5	\$3,380.7	\$2,611.3	\$1,915.8	\$980.1	\$13,988.5
TOTAL SIR PROGRAM	\$16.4	\$30.0	\$230.0	\$0.0	\$0.0	\$0.0	\$276.4
TOTAL	\$1,778.5	\$3,368.5	\$3,610.6	\$2,611.3	\$1,915.8	\$980.1	\$14,264.9
TOTAL MTA CAPITAL PROGRAM	\$1,778.5	\$3,368.5	\$3,610.6	\$2,611.3	\$1,915.8	\$980.1	\$14,264.9

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 REVENUE EQUIPMENT								
M4 Work Locomotives - Specs	NR	.0	2.8	.0	.0	.0	.0	2.8
M5 Work Locomotives - Purchase	NR	.0	.0	.0	.0	23.0	.0	23.0
M6 Protect Locomotives - Specs	NR	.0	2.8	.0	.0	.0	.0	2.8
M8 Protect Locomotives - Purchase	NR	.0	.0	.0	.0	9.0	.0	9.0
MA M9 Procurement - 68 Cars	SI	.0	.0	204.6	.0	.0	.0	204.6
Element Total 01		\$0.0	\$5.6	\$204.6	\$0.0	\$32.0	\$0.0	\$242.2
Category Total 601		\$0.0	\$5.6	\$204.6	\$0.0	\$32.0	\$0.0	\$242.2

* Represents values less than \$50,000

Long Island Rail Road

STATIONS

L - 602

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
04 STATION AND BUILDINGS								
27 Escalator Replacement Program	NR	.0	3.4	1.3	.0	.0	.0	4.7
28 Elevator Replacement Program	NR	.0	4.5	.0	7.6	.0	.0	12.1
2D Repl Babylon Station Platform	NR	.0	3.0	.0	35.6	.0	.0	38.6
2E Rehab Hunterspoint Platform	NR	.0	2.5	.0	.0	.0	.0	2.5
2K Replace Railings -10 Stations	NR	.0	.7	7.3	.0	.0	.0	8.0
2L Design Future Republic Station	SI	.0	.0	.0	3.5	.0	.0	3.5
Element Total 04		\$0	\$14.1	\$8.6	\$46.7	\$0	\$0.0	\$69.4
05 PARKING								
2V Parking Rehabilitation	NR	.0	1.0	1.0	1.0	1.0	1.0	5.0
2X Parking Expansion	SI	.0	1.0	1.0	1.0	1.0	1.0	5.0
2Y Intermodal Facility Developmen	SI	.0	2.0	.0	37.9	9.0	.0	48.9
Element Total 05		\$0	\$4.0	\$2.0	\$39.9	\$11.0	\$2.0	\$58.9
06 PENN STATION								
VL Penn-Tracks, Tunnels, Struct.	NR	.0	2.5	2.6	.0	.0	.0	5.1
VM Penn-Replace Air Conditioning	NR	.0	1.0	10.0	.0	.0	.0	11.0
VN Penn-Tunnel Track Replacement	NR	.0	.0	5.0	5.0	.0	.0	10.0
Element Total 06		\$0	\$3.5	\$17.6	\$5.0	\$0	\$0.0	\$26.1
Category Total 602		\$0	\$21.6	\$28.2	\$91.6	\$11.0	\$2.0	\$154.4

* Represents values less than \$50,000

Long Island Rail Road

TRACK L - 603

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 ANNUAL TRACK REHAB PROGRAM								
TA 2009 Annual Track Program	NR	.0	70.8	.0	.0	.0	.0	70.8
TB 2010 Annual Track Program	NR	.0	.0	73.3	.0	.0	.0	73.3
TC 2011 Annual Track Program	NR	.0	.0	.0	76.4	.0	.0	76.4
TD 2012 Annual Track Program	NR	.0	.0	.0	.0	77.8	.0	77.8
TE 2013 Annual Track Program	NR	.0	.0	.0	.0	.0	80.3	80.3
TF Construction Equipment	NR	.0	2.0	2.0	2.0	2.0	2.0	10.0
TG ROW - Culverts	NR	.0	1.0	1.0	1.0	1.0	1.0	5.0
TH ROW - Drainage Control	NR	.0	1.0	1.0	1.0	1.0	1.0	5.0
TJ ROW - Fencing	SI	.0	2.5	2.5	2.5	2.8	3.0	13.3
TK ROW - Demolitions	NR	.0	.6	.6	.6	.6	.6	3.0
TL ROW - Track Stability	NR	.0	1.0	1.0	1.0	1.0	1.0	5.0
Element Total 01		\$0	\$78.9	\$81.4	\$84.5	\$86.2	\$88.9	\$419.9
04 OTHER TRACK IMPROVEMENTS								
TP Atlantic Branch 1/2 Ties	NR	.0	1.0	13.5	13.5	13.5	13.5	55.0
TQ Double Track Farm to KO Ph 1	SI	.0	.0	.0	.0	40.0	.0	40.0
TR Main Line Corridor Improvement	SI	.0	.0	.0	.0	150.0	.0	150.0
TS M/B/MP Direct Fixation	NR	.0	1.0	.0	22.0	.0	.0	23.0
TT Massapequa Pocket Track	SI	.0	1.7	.0	16.5	.0	.0	18.2
TU Extend Great Neck Pocket Track	SI	.0	2.8	.0	21.4	.0	.0	24.2
Element Total 04		\$0	\$6.5	\$13.5	\$73.4	\$203.5	\$13.5	\$310.4
Category Total 603		\$0	\$85.4	\$94.9	\$157.9	\$289.7	\$102.4	\$730.3

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 BRIDGES								
BA 7 Highway Bridge Replacements	SGR	.0	4.2	.0	12.6	12.6	12.6	42.0
BH Rehab/Replace RR Bridges	SGR	.0	11.2	.0	33.6	33.6	33.6	112.0
BP Atlantic Ave Viaduct Phase II	SGR	.0	2.0	136.0	.0	.0	.0	138.0
BQ Bridge Painting	SGR	.0	1.5	4.5	4.5	4.5	.0	15.0
Element Total 01		\$0	\$18.9	\$140.5	\$50.7	\$50.7	\$46.2	\$307.0
02 TUNNELS								
V1 ERT Fire and Life Safety	NR	5.8	.0	.0	.0	.0	.0	5.8
V2 ERT Vent Plant Phase II	NR	.0	11.0	.0	.0	.0	.0	11.0
V3 Emergency Evacuation Surface	NR	.0	1.0	7.0	.0	.0	.0	8.0
V4 East River Tunnel Rehab	NR	.0	44.0	.0	.0	.0	.0	44.0
V5 ERT Waterproofing	NR	14.1	.0	.0	.0	.0	.0	14.1
Element Total 02		\$19.9	\$56.0	\$7.0	\$0	\$0	\$0.0	\$82.9
Category Total 604		\$19.9	\$74.9	\$147.5	\$50.7	\$50.7	\$46.2	\$389.9

* Represents values less than \$50,000

Long Island Rail Road

COMMUNICATIONS AND SIGNALS

L - 605

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 COMMUNICATIONS IMPROVEMENTS								
43 Fiber Optic Network	NR	.0	.7	8.0	8.0	8.0	8.0	32.7
44 Replace PBX - Wayside Phone	NR	.0	1.0	6.8	6.8	6.8	6.8	28.0
45 Replace Comm. Pole/Copper Plnt	NR	.0	.0	1.8	1.8	1.8	1.8	7.0
46 Project 25 Compliance/Radios	SI	.0	2.0	1.0	2.4	2.4	2.4	10.3
47 Penn Station Radio Retrofit	NR	.0	.0	1.6	1.6	1.6	1.6	6.5
48 Atlantic Ave. Tunnel Cable Rep	NR	.0	1.0	1.4	1.4	1.4	.0	5.1
49 Penta Radio Head-end Replacemt	NR	.0	1.0	1.1	1.1	1.1	.0	4.3
4A Passenger Station Security	SI	.0	.5	4.0	5.5	5.0	5.0	20.0
Element Total 01		\$0	\$6.2	\$25.6	\$28.5	\$28.0	\$25.6	\$113.9
02 SIGNAL IMPROVEMENTS								
51 Signal Normal Replacement Prog	NR	.0	2.0	2.0	2.0	2.0	2.0	10.0
52 Jay/Hall/Dunton Interlocking	NR	.0	.0	3.0	8.5	8.5	.0	20.0
53 Babylon Interlocking Renewal	NR	.0	10.6	16.5	16.5	16.5	16.5	76.5
54 Supervisory Control & RTU	NR	.0	.6	2.2	2.2	2.2	2.2	9.3
55 Centralized Train Control	SI	.0	6.0	.0	29.0	.0	.0	35.0
56 Babylon to Patchogue	SI	.0	9.2	9.1	9.1	9.1	9.1	45.5
58 Jamaica Interlocking - Design	NR	.0	15.3	.0	.0	.0	.0	15.3
Element Total 02		\$0	\$43.7	\$32.7	\$67.2	\$38.2	\$29.7	\$211.6
Category Total 605		\$0	\$49.9	\$58.3	\$95.8	\$66.3	\$55.3	\$325.5

* Represents values less than \$50,000

Long Island Rail Road

SHOPS AND YARDS

L - 606

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 SHOPS AND YARDS								
Y1 LCM-Shop Reconfiguration	NR	.0	12.0	.0	.0	.0	.0	12.0
Y2 Diesel Locomotive Shop Upgrade	NR	3.9	61.9	.0	.0	.0	.0	65.8
YA RSSE/Port Jeff Fuel Capacity	SI	.0	.7	8.9	12.0	.0	.0	21.6
YB LIC Yard - Ph 3 (Tracks 9-11)	NR	.0	18.0	.0	.0	.0	.0	18.0
YC Johnson Ave -Sewer Connection	NR	.0	1.1	.0	.0	.0	.0	1.1
YD Advance Yard East End Reconfig	SI	.0	.2	5.2	.0	.0	.0	5.4
YE Morris Park Wye Track	NR	.0	1.1	6.5	.0	.0	.0	7.6
YF Hillside Facility Roof Rehab	NR	.0	3.0	3.0	.0	.0	.0	6.0
YG Montauk Yard Improvements	SI	.0	1.1	6.7	.0	.0	.0	7.8
YH Speonk Sound Wall	SI	.0	3.3	.0	.0	.0	.0	3.3
YJ Port Washington Yard Reconfig	SI	.0	.8	11.3	.0	.0	.0	12.1
YK HMC Car Shop Coil Door Upgrade	NR	.0	.0	.0	2.5	.0	.0	2.5
YL Hillside Maintenance Facility	NR	.0	4.0	3.0	3.0	3.0	3.0	16.0
YM Babylon Yard Facilities	NR	.0	.6	.0	10.3	.0	.0	10.9
YN Mid Suffolk Yard	SI	.0	4.2	.0	3.5	.0	71.5	79.2
YP New Yard - Huntington/Pt Jeff	SI	.0	.0	.0	3.5	.0	91.5	95.0
YQ Employee Facility Rehab	NR	.0	4.0	4.0	4.0	4.0	4.0	20.0
Element Total 01		\$3.9	\$116.0	\$48.6	\$38.8	\$7.0	\$170.0	\$384.3
Category Total 606		\$3.9	\$116.0	\$48.6	\$38.8	\$7.0	\$170.0	\$384.3

* Represents values less than \$50,000

Long Island Rail Road

POWER L - 607

Commitments (\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 POWER								
3A Substation Replacements	NR	.0	1.0	5.0	20.0	50.0	75.1	151.1
3B Substation Pilot Wire & Relay	NR	.0	.4	.6	.6	.6	.8	3.0
3C 3rd Rail - 2000 MCM Cable	NR	.0	.8	.8	.8	1.0	1.1	4.5
3D 3rd Rail - Disconnect Switches	NR	.0	.2	.2	.2	.2	.2	1.0
3E 3rd Rail - Protection Board	NR	.0	1.6	1.6	1.6	1.6	1.6	8.0
3F 3rd Rail - Composite Rail	NR	.0	2.0	2.0	2.0	2.3	3.0	11.3
3H Atlantic Ave. Tunnel Lighting	NR	.0	.0	.6	6.4	.0	.0	7.0
3K Station Platform Lighting	NR	.0	.0	.2	2.0	.0	.0	2.2
3L Station & Building Electrical	NR	.0	.0	.1	2.1	.0	.0	2.2
3M Signal Power Line Replacement	NR	.0	.8	.8	.8	.8	.8	3.8
3N Power Pole Line Replacement	NR	.0	.6	.6	.6	.6	.6	2.8
3P 4,160 Volt Feeders	NR	.0	.9	.9	.9	.9	.9	4.3
3Q New Substation Construction	SI	.0	.0	2.0	31.8	.0	.0	33.8
3R 3rd Rail Cable Feeder Upgrade	NR	.0	.4	.4	.4	.4	.4	2.0
3S Negative Reactor Upgrades	NR	.0	.4	.4	.4	.4	.4	2.0
Element Total 01		\$.0	\$9.0	\$16.1	\$70.5	\$58.7	\$84.8	\$239.0
Category Total 607		\$.0	\$9.0	\$16.1	\$70.5	\$58.7	\$84.8	\$239.0

* Represents values less than \$50,000

Long Island Rail Road

MISCELLANEOUS

L - 609

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
04 MISCELLANEOUS								
81 Substation-Chlordane Remed Ph1	NR	1.9	.0	6.0	.0	.0	.0	7.9
82 Smithtown Viaduct Remediation	NR	.0	.0	.7	2.3	.0	.0	3.0
83 Port Jeff Yard Environmental	NR	.0	.0	.3	1.9	.0	.0	2.2
84 Capital Environmental Support	NR	.0	2.4	2.4	2.4	2.4	2.4	12.0
85 Yaphank Landfill Environmental	NR	.0	.0	1.5	7.3	.0	.0	8.8
92 Program Development		.0	2.0	2.0	2.0	2.0	2.0	10.0
9J Independent Engineer		.0	.9	.9	.9	.9	.9	4.3
9K Program Administration		.0	21.0	21.5	21.9	22.5	22.9	109.8
9L APPL Insurance		.0	.6	.6	.6	.6	.6	3.0
9M Property Liability		.0	.6	.6	.6	.6	.6	3.0
Element Total 04		\$1.9	\$27.5	\$36.5	\$39.9	\$29.0	\$29.4	\$164.0
Category Total 609		\$1.9	\$27.5	\$36.5	\$39.9	\$29.0	\$29.4	\$164.0
TOTAL PROGRAM		\$25.7	\$389.8	\$634.7	\$545.2	\$544.3	\$490.0	\$2,629.6

* Represents values less than \$50,000

**Commitments
(\$ in millions)**

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 REVENUE EQUIPMENT								
01 M-4 Critical Systems Repl.	NR	.0	10.4	10.0	.0	.0	.0	20.4
02 M-6 Critical Systems Repl.	NR	.0	.6	19.5	.0	.0	.0	20.1
03 EMU Replacement - 30 cars	NR	.0	.0	100.0	.0	.0	.0	100.0
04 M-8 NHL Purchase - 300/42	NR	.0	220.7	.0	.0	.0	.0	220.7
Element Total 01		\$0	\$231.7	\$129.5	\$0	\$0	\$0.0	\$361.2
02 MISCELLANEOUS								
01 Shuttle/Switcher Locomotives	NR	12.1	.0	.0	.0	.0	.0	12.1
Element Total 02		\$12.1	\$0	\$0	\$0	\$0	\$0.0	\$12.1
Category Total 601		\$12.1	\$231.7	\$129.5	\$0	\$0	\$0.0	\$373.3

* Represents values less than \$50,000

Metro-North Railroad

STATIONS M- 602

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 GRAND CENTRAL TERMINAL								
01 GCT Trainshed/Tunnel Structure	NR	.0	5.0	1.0	20.5	.0	15.0	41.5
02 GCT/Park Avenue Exp. Joints	NR	.0	.0	.0	.0	2.0	.0	2.0
03 GCT Trainshed Track Structure	NR	.0	.0	.0	.0	3.0	.0	3.0
04 GCT Leaks Remediation - D/C	SGR	.0	.0	.0	9.6	.0	.0	9.6
05 GCT Elevator Rehab. Ph. 3 & 4	NR	4.5	.0	2.0	5.0	.0	.0	11.5
06 GCT Platform Improvements	NR	.0	.0	2.9	.2	.0	.0	3.0
07 GCT Water Conveyance Systems	NR	.0	1.4	.0	16.7	.0	.0	18.1
08 Customer Communications - GCT	NR	.0	.0	5.9	.0	.0	.0	5.9
Element Total 01		\$4.5	\$6.4	\$11.7	\$52.0	\$5.0	\$15.0	\$94.5
02 OUTLYING STATIONS								
01 Tarrytown Station Improvement	SGR	33.5	3.0	.0	.0	.0	.0	36.5
02 Poughkeepsie Station Building	NR	.0	.0	10.0	.0	.0	.0	10.0
03 Fordham Station Improvements	NR	.0	4.0	.0	.0	.0	.0	4.0
04 Harlem Line Station Rehab.	NR	.0	.0	3.0	37.5	.0	.0	40.5
05 Station Bldg Rehab./Net Lease	NR	.0	.0	14.0	10.0	.0	.0	24.0
06 Ticket Selling Replacement	NR	.0	.0	.0	18.3	.0	.0	18.3
07 Customer Communications	SI	.0	.0	6.2	.0	.0	.0	6.2
Element Total 02		\$33.5	\$7.0	\$33.2	\$65.8	\$0.0	\$0.0	\$139.5
03 PARKING								
01 Parking Rehabilitation	SGR	.0	.5	4.0	.0	.0	.0	4.6
02 Strategic Facilities	SI	.0	.0	20.0	20.0	15.0	15.0	70.0
Element Total 03		\$0.0	\$0.5	\$24.0	\$20.0	\$15.0	\$15.0	\$74.6
Category Total 602		\$38.0	\$13.9	\$69.0	\$137.7	\$20.0	\$30.0	\$308.6

* Represents values less than \$50,000

Metro-North Railroad

TRACK AND STRUCTURES

M- 603

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 TRACK								
01 Cyclical Track Program	NR	.0	11.3	13.0	13.0	13.0	13.6	63.9
02 Turnouts: Mainline/High Speed	NR	2.0	11.1	12.0	13.9	13.1	10.0	62.1
03 GCT T.O./Switch Renewal	NR	.0	2.0	2.8	2.7	2.5	2.8	12.7
04 Turnouts: Yards/Sidings	NR	.0	.0	2.2	.8	.8	.8	4.6
05 M of W Equipment/Rolling Stock	NR	.0	.9	1.7	1.5	1.5	1.5	7.1
06 Cyclical Repl. Insulated Joint	NR	.0	.0	1.0	1.0	1.0	1.0	4.0
07 Rock Slope Remediation	SGR	.0	.0	9.5	.0	.0	.0	9.5
08 Drainage and Undercutting	NR	.8	4.0	.0	.0	3.0	.0	7.8
09 Rebuild Retaining Walls	NR	.0	.0	4.2	1.8	.0	.0	6.0
Element Total 01		\$2.7	\$29.3	\$46.3	\$34.8	\$34.9	\$29.6	\$177.6
02 STRUCTURES								
01 Replace Timbers Undergrade Br.	NR	.0	.3	.9	.8	.7	.7	3.3
02 Rehab Culverts/Railtop Culvert	NR	.0	.0	1.2	.6	.6	.6	3.0
03 Right-of-Way Fencing	NR	.0	.5	.5	.5	.5	.5	2.5
04 DC Substation/Signal House	NR	.0	.4	.5	.5	.5	.5	2.4
05 Bridge Walkways Installation	NR	.0	.0	.7	.4	.4	.5	2.0
06 Remove Obsolete Facilities	NR	.0	.8	1.0	.8	.8	.8	4.1
07 Specialized Structures Equip.	NR	.0	.0	.9	.0	.0	.0	.9
08 Replace Sidewalk Canopies	NR	.0	.0	.2	.1	.1	.1	.5
09 Employee Welfare & Storage Fac	NR	.0	10.0	.0	.0	.0	2.0	12.0
10 Replace/Repair Undergrade Br.	SGR	.0	11.8	10.8	5.0	6.4	7.3	41.3
11 Harlem River Lift Bridge Cable	NR	.0	.0	7.5	.0	.0	.0	7.5
12 Overhead Bridge Program-E of H	SGR	2.0	3.6	4.0	3.0	3.0	2.0	17.6
13 Catenary Painting/Rehab Cat St	NR	.0	.0	3.2	.0	.0	.0	3.2
14 Park Ave Via. Direct Fixation	NR	.0	1.8	.0	.0	.0	.0	1.8
15 Beacon Line Undergrade Bridge	NR	.0	2.8	.0	.0	.0	.0	2.8
Element Total 02		\$2.0	\$32.0	\$31.4	\$11.6	\$13.0	\$14.9	\$105.0
03 WEST OF HUDSON INFRASTRUCTURE								
01 West of Hudson Track Program	NR	.0	10.0	4.2	4.2	9.3	9.0	36.7
02 West of Hudson Improvements	NR	.0	.0	.8	.8	.8	.8	3.0
03 Moodna/Woodbury Viaduct	SGR	.0	.0	10.0	.0	.0	.0	10.0
04 Otisville Tunnel Rehab.	SGR	.0	.0	4.0	.0	.0	.0	4.0
05 WoH Replace/Rehab Undergr. Br.	SGR	1.0	1.4	3.2	1.3	3.9	1.3	12.0
Element Total 03		\$1.0	\$11.4	\$22.1	\$6.2	\$14.0	\$11.0	\$65.8
Category Total 603		\$5.7	\$72.8	\$99.8	\$52.6	\$61.8	\$55.6	\$348.3

* Represents values less than \$50,000

Metro-North Railroad

COMMUNICATIONS AND SIGNALS

M- 604

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 COMMUNICATIONS AND SIGNALS								
01 Replace Signal System NWP-Brew	NR	.0	.0	.7	19.7	19.7	10.0	50.0
02 Replace Fiber/C&S Cables	NR	.0	.0	1.0	3.9	3.9	.0	8.8
03 Replace Field Code System - MO	NR	.0	.0	.4	.5	.5	.4	1.8
04 Install Wheel Impact Detector	NR	.0	.0	.3	.7	.0	.0	1.0
05 Crossing Upgrades - Phase 2	NR	.0	.0	1.0	1.0	.0	.0	2.0
06 CTC/SCADA Intrusion Testing	NR	.0	.0	.4	.0	.4	.0	.7
07 Refurb/Replace Elec. Sw Machin	NR	.0	.0	.3	.3	.3	.3	1.0
08 Design/Replace Track Relay H&H	NR	.0	.0	.4	.2	.2	.2	1.0
09 Replace High Cycle Relays	NR	.0	.0	.3	.3	.3	.3	1.0
10 Replace Public Address Infrast	NR	.0	.0	.8	.8	.0	.0	1.5
11 C&S Maint. Management System	NR	.0	.0	.4	.5	.0	.0	.9
12 PBX Replace/Upgrade	NR	.0	.0	.4	1.1	1.5	.0	2.9
13 Mobile/Portable Radios	NR	.0	.0	.2	.2	.2	.2	.7
14 Rolling Stock Radios & PA's	NR	.0	.0	.3	.3	.3	.3	1.0
15 Radio Base Station Replacement	NR	.0	.0	.5	1.0	.0	.0	1.5
16 Network Infr.-Station Connect	SI	.0	.0	10.0	.0	.0	.0	10.0
Element Total 01		\$.0	\$.0	\$17.0	\$30.3	\$27.0	\$11.5	\$85.8
Category Total 604		\$.0	\$.0	\$17.0	\$30.3	\$27.0	\$11.5	\$85.8

* Represents values less than \$50,000

Metro-North Railroad

POWER M- 605

Commitments (\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 POWER								
01 Substation Bridge 23 - Constr.	NR	.0	9.6	17.0	.0	.0	.0	26.6
02 Rehab H&H Substations - Constr	NR	.0	.0	2.5	2.5	2.5	2.5	10.0
03 H & H Lines Power Impr.	SGR	.0	.0	22.0	.0	.4	.0	22.4
04 Replace Motor Alternators	NR	4.7	.0	1.5	.0	.0	.0	6.2
05 Replace Substation Batteries	NR	.0	.0	.2	.2	.3	.3	1.0
06 Park Ave. Tunnel & Via Alarm	NR	.0	.0	2.5	2.5	2.5	2.5	10.0
07 Repl. HRLB Breaker Houses/MA	NR	.0	3.4	2.0	.0	.0	.0	5.4
08 Replace H&H Substation Reactor	NR	.0	.0	.3	.3	.3	.3	1.0
09 Replace 3rd Rail Sec Switches	NR	.0	.0	1.2	1.2	1.2	1.2	4.8
10 Replace 3rd Rail Brackets- PAT	NR	.0	.0	.3	.3	.3	.3	1.0
11 Replace 2200v Signal Transform	NR	.0	.0	.3	.3	.3	.3	1.0
Element Total 01		\$4.7	\$13.0	\$49.6	\$7.2	\$7.6	\$7.3	\$89.3
Category Total 605		\$4.7	\$13.0	\$49.6	\$7.2	\$7.6	\$7.3	\$89.3

* Represents values less than \$50,000

**Commitments
(\$ in millions)**

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 SHOPS AND YARDS								
01 Harmon Shop - Phase IV Const.	SGR	.0	.0	.0	.0	425.0	.0	425.0
02 Wassaic Yard Expansion - D/C	SI	.0	.0	.0	3.0	.0	.0	3.0
03 Other Shops/Yards Rehab.	NR	.0	.0	10.0	23.2	.0	.0	33.2
04 Port Jervis Yard Expansion	SI	8.2	.0	.0	.0	.0	.0	8.2
Element Total 01		\$8.2	\$0	\$10.0	\$26.2	\$425.0	\$0.0	\$469.4
Category Total 606		\$8.2	\$0	\$10.0	\$26.2	\$425.0	\$0.0	\$469.4

* Represents values less than \$50,000

Metro-North Railroad

MISCELLANEOUS

M- 608

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 MISCELLANEOUS								
01 Systemwide Lead/Asbestos Abate	SGR	1.1	1.1	1.1	1.1	1.1	1.1	6.6
02 Environmental Remediation	SGR	.4	.4	.4	.4	.4	.4	2.6
03 Railroad Protective Liability		.0	.1	.8	.8	.8	.8	3.4
04 Independent Engineer		.0	1.7	1.5	1.5	1.5	1.5	7.9
05 Program Administration		.0	7.9	8.0	8.5	9.0	9.5	42.9
06 Program Scope Development		.0	.7	.0	7.2	.0	.0	7.9
07 OCIP		.0	.0	.0	.0	16.1	.0	16.1
08 Systemwide Security Initiatives	SI	.0	.0	.0	5.0	.0	.0	5.0
09 Kronos System Expansion	SI	.0	1.3	1.2	.0	.0	.0	2.5
Element Total 01		\$1.5	\$13.3	\$13.1	\$24.6	\$29.0	\$13.4	\$94.9
Category Total 608		\$1.5	\$13.3	\$13.1	\$24.6	\$29.0	\$13.4	\$94.9
TOTAL PROGRAM		\$70.3	\$344.6	\$388.0	\$278.5	\$570.5	\$117.7	\$1,769.7

* Represents values less than \$50,000

CRR AGENCY SUMMARY

Commitments
(\$ in millions)

AGENCY	2008	2009	2010	2011	2012	2013	Total All Years
TOTAL LIRR PROGRAM	\$25.7	\$389.8	\$634.7	\$545.2	\$544.3	\$490.0	\$2,629.6
TOTAL MNR PROGRAM	\$70.3	\$344.6	\$388.0	\$278.5	\$570.5	\$117.7	\$1,769.7
TOTAL	\$96.0	\$734.4	\$1,022.7	\$823.7	\$1,114.7	\$607.7	\$4,399.3
TOTAL MTA COMMUTER RAIL CAPITAL PROGRAM	\$96.0	\$734.4	\$1,022.7	\$823.7	\$1,114.7	\$607.7	\$4,399.3

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
02 BUS COMPANY PROJECTS								
01 College Point Building Annex	SI	.0	10.0	.0	.0	.0	.0	10.0
02 Roof & Ventilation JFK	SGR	.0	8.0	.0	.0	.0	.0	8.0
03 Fueling Area & Bus Washes ECH	SGR	.0	10.0	.0	.0	.0	.0	10.0
04 Fueling Lane & Bus Wash LG	SGR	.0	8.0	.0	.0	.0	.0	8.0
05 Facility & Fleet Assessment		.0	2.5	.0	.0	.0	.0	2.5
06 Fire Protection JFK LG BP ECH	SGR	.0	15.0	.0	.0	.0	.0	15.0
07 Bus Wash & Reclamation BP JFK	SGR	.0	8.0	.0	.0	.0	.0	8.0
08 Addtnl Fuel Capacity BP JFK LG	SGR	.0	3.0	.0	.0	.0	.0	3.0
09 Service Vehicles	SGR	.0	5.4	.0	.0	.0	.0	5.4
10 Depot Equipment	SGR	.0	.8	.0	.0	.0	.0	.8
11 71 H/E Standard Buses 2008	NR	41.0	.0	.0	.0	.0	.0	41.0
12 12 Articulated Buses 2008	NR	8.9	.0	.0	.0	.0	.0	8.9
13 40 Express Buses 2008	SI	21.8	.0	.0	.0	.0	.0	21.8
14 88 H/E Standard Buses 2009	NR	.0	52.3	.0	.0	.0	.0	52.3
15 139 Express Buses 2009	NR	.0	77.9	.0	.0	.0	.0	77.9
16 54 H/E Standard Buses 2010	NR	.0	.0	33.1	.0	.0	.0	33.1
17 50 Articulated Buses 2010	NR	.0	.0	39.3	.0	.0	.0	39.3
18 20 H/E Standard Buses 2011	SI	.0	.0	.0	12.6	.0	.0	12.6
19 10 Express Buses 2011	SI	.0	.0	.0	5.9	.0	.0	5.9
Element Total 02		\$71.7	\$200.9	\$72.4	\$18.5	\$0.0	\$0.0	\$363.5
Category Total 603		\$71.7	\$200.9	\$72.4	\$18.5	\$0.0	\$0.0	\$363.5
TOTAL PROGRAM		\$71.7	\$200.9	\$72.4	\$18.5	\$0.0	\$0.0	\$363.5

* Represents values less than \$50,000

CORE AGENCY SUMMARY

Commitments
(\$ in millions)

AGENCY	2008	2009	2010	2011	2012	2013	Total All Years
TOTAL NYCT PROGRAM	\$1,762.1	\$3,338.5	\$3,380.7	\$2,611.3	\$1,915.8	\$980.1	\$13,988.5
TOTAL SIR PROGRAM	\$16.4	\$30.0	\$230.0	\$0.0	\$0.0	\$0.0	\$276.4
TOTAL	\$1,778.5	\$3,368.5	\$3,610.6	\$2,611.3	\$1,915.8	\$980.1	\$14,264.9
TOTAL LIRR PROGRAM	\$25.7	\$389.8	\$634.7	\$545.2	\$544.3	\$490.0	\$2,629.6
TOTAL MNR PROGRAM	\$70.3	\$344.6	\$388.0	\$278.5	\$570.5	\$117.7	\$1,769.7
TOTAL	\$96.0	\$734.4	\$1,022.7	\$823.7	\$1,114.7	\$607.7	\$4,399.3
TOTAL BUS PROGRAM	\$71.7	\$200.9	\$72.4	\$18.5	\$0.0	\$0.0	\$363.5
TOTAL	\$71.7	\$200.9	\$72.4	\$18.5	\$0.0	\$0.0	\$363.5
TOTAL MTA CAPITAL PROGRAM	\$1,946.2	\$4,303.7	\$4,705.8	\$3,453.5	\$3,030.5	\$1,587.8	\$19,027.5

* Represents values less than \$50,000

Security

SECURITY E - 601

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 SECURITY								
01 Security Reserve	SI	.0	118.0	118.0	118.0	118.0	118.0	590.0
Element Total 01		\$0	\$118.0	\$118.0	\$118.0	\$118.0	\$118.0	\$590.0
Category Total 601		\$0	\$118.0	\$118.0	\$118.0	\$118.0	\$118.0	\$590.0
TOTAL PROGRAM		\$0	\$118.0	\$118.0	\$118.0	\$118.0	\$118.0	\$590.0

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 MTA PD PROJECTS								
01 Nassau County District Office	NR	.0	.0	6.1	.0	.0	.0	6.1
02 Staten Island District Office	NR	.0	7.0	.0	.0	.0	.0	7.0
03 Public Safety Radio-SWN	SI	.0	.0	.0	76.4	.0	.0	76.4
Element Total 01		\$0	\$7.0	\$6.1	\$76.4	\$0	\$0.0	\$89.5
Category Total 610		\$0	\$7.0	\$6.1	\$76.4	\$0	\$0.0	\$89.5

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 MTA FACILITIES REHABILITATION								
01 Facilities Rehabilitation	NR	.0	150.0	.0	.0	.0	.0	150.0
Element Total 01		\$0	\$150.0	\$0	\$0	\$0	\$0.0	\$150.0
Category Total	611	\$0	\$150.0	\$0	\$0	\$0	\$0.0	\$150.0

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 MTA PLANNING INITIATIVES								
01 MTA Planning Initiatives	SI	.0	8.0	.0	.0	.0	.0	8.0
Element Total 01		\$0	\$8.0	\$0	\$0	\$0	\$0.0	\$8.0
Category Total 612		\$0	\$8.0	\$0	\$0	\$0	\$0.0	\$8.0

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 CONSTRUCTION FUND								
01 Construction Fund	NR	.0	920.0	.0	.0	.0	.0	920.0
Element Total 01		\$0	\$920.0	\$0	\$0	\$0	\$0.0	\$920.0
Category Total 614		\$0	\$920.0	\$0	\$0	\$0	\$0.0	\$920.0
TOTAL PROGRAM		\$0	\$1,085.0	\$6.1	\$76.4	\$0	\$0.0	\$1,167.5

* Represents values less than \$50,000

Capital Construction Company

EAST SIDE ACCESS

G- 609

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 EAST SIDE ACCESS								
01 Program Management	NE	.0	10.5	15.9	.0	17.4	.0	43.8
02 General Conditions	NE	.0	6.7	6.7	6.7	6.7	.0	26.8
03 MTA Management	NE	.0	.0	.0	8.5	.0	16.5	25.0
04 EIS & Engineering	NE	.0	3.7	20.0	.0	24.0	.0	47.7
05 Plaza Vent Structure	NE	.0	.0	126.9	.0	.0	.0	126.9
06 Systemwide Trackwork	NE	.0	.0	169.9	.0	.0	.0	169.9
07 Signals & SCADA Cntrl Sys	NE	.0	.0	154.1	.0	.0	.0	154.1
08 Facility Power & Tunnel Vent	NE	.0	.0	227.0	.0	.0	.0	227.0
09 Rolling Stock Procurement	NE	.0	.0	531.2	.0	.0	.0	531.2
10 Mid-day Storage Yard Fac	NE	.0	.0	.0	215.2	.0	.0	215.2
11 OCIP	NE	.0	.0	22.9	12.6	27.3	.0	62.8
12 55th Street Vent Plant	NE	.0	78.5	.0	.0	.0	.0	78.5
13 GCT Cavern & Tunnel & 63rd St	NE	.0	.0	.0	347.8	.0	.0	347.8
14 GCT Concourse & Finishes	NE	.0	.0	.0	443.4	.0	.0	443.4
15 GCT Cncrse Civil & Struct	NE	.0	.0	262.6	.0	.0	.0	262.6
16 Systemwide Security & Comm	NE	.0	.0	.0	144.7	.0	.0	144.7
17 Harold Structures Part 4	NE	.0	.0	.0	.0	.0	83.5	83.5
18 Harold Interlocking F/A	NE	.0	4.4	15.2	30.4	11.9	25.4	87.2
19 Construction Management	NE	.0	1.8	20.0	12.3	13.5	11.8	59.3
Element Total 01		\$.0	\$105.5	\$1,572.4	\$1,221.5	\$100.7	\$137.3	\$3,137.3
Category Total 609		\$.0	\$105.5	\$1,572.4	1,221.5	\$100.7	\$137.3	\$3,137.3

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 FULL LENGTH SECOND AVE SUBWAY								
01 Cntract 2B 96 St Stn Finishes	NE	.0	.0	327.7	.0	.0	.0	327.7
02 Cntract 3 63rd St Station	NE	.0	.0	153.0	.0	.0	.0	153.0
03 Cntract 4B 72 St Stn Finishes	NE	.0	.0	363.6	.0	.0	.0	363.6
04 Cntract 5B 86 St Stn Finishes	NE	.0	.0	.0	163.5	.0	.0	163.5
05 SAS Rolling Stock	NE	.0	.0	157.0	.0	.0	.0	157.0
97 SAS Owner Controlled Insurance	NE	.0	.0	16.0	.0	.0	.0	16.0
98 SAS Real Estate	NE	.0	.0	68.0	.0	.0	.0	68.0
99 SAS Project Reserve	NE	.0	.0	124.4	10.0	.0	.0	134.4
Element Total 01		\$0	\$0	\$1,209.6	\$173.5	\$0	\$0.0	\$1,383.1
Category Total 610		\$0	\$0	\$1,209.6	\$173.5	\$0	\$0.0	\$1,383.1

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 FULTON STREET TRANSIT CENTER								
01 Fulton Street Transit Center	NE	295.0	.0	.0	.0	.0	.0	295.0
Element Total 01		\$295.0	\$0	\$0	\$0	\$0	\$0.0	\$295.0
02 SOUTH FERRY TERMINAL								
01 South Ferry Wrap-up	NE	27.0	.0	.0	.0	.0	.0	27.0
Element Total 02		\$27.0	\$0	\$0	\$0	\$0	\$0.0	\$27.0
Category Total	612	\$322.0	\$0	\$0	\$0	\$0	\$0.0	\$322.0

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 REGIONAL INVESTMENTS								
01 W. Bnd By-Pass/E. Bnd Re-Rte	NE	.0	.0	.0	252.4	.0	.0	252.4
02 WBBP / EBRR F/A Connections	NE	.0	.0	55.9	.0	.0	.0	55.9
03 Loop Interlocking	NE	.0	.0	5.3	26.9	.0	.0	32.3
04 Amtrak Buildings	NE	.0	10.5	.0	.0	.0	.0	10.5
05 Amtrak Washer	NE	.0	.0	.0	.0	.0	18.7	18.7
06 Sunnyside Station	NE	.0	.0	.0	62.8	.0	.0	62.8
07 Rolling Stock Procurement	NE	.0	.0	43.8	.0	.0	.0	43.8
Element Total 01		\$.0	\$10.5	\$105.0	\$342.1	\$.0	\$18.7	\$476.3
Category Total 615		\$.0	\$10.5	\$105.0	\$342.1	\$.0	\$18.7	\$476.3

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
01 MTA CC ADMINISTRATION								
01 MTA Capital Const. Admin.	NE	.0	40.0	40.0	40.0	40.0	40.0	200.0
Element Total 01		\$0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$200.0
Category Total 616		\$0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$200.0
TOTAL PROGRAM		\$322.0	\$156.0	\$2,927.1	\$1,777.0	\$140.7	\$196.0	\$5,518.7

* Represents values less than \$50,000

MTA BRIDGES AND TUNNELS



MTA BRIDGES AND TUNNELS

2008-2013 CAPITAL PROGRAM

OVERVIEW

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 2007, the nine crossings carried approximately 304 million vehicle trips and generated more than \$1.2 billion in toll revenue. With approximately 60 percent of this toll revenue dedicated to mass transit operations, Bridges and Tunnels performs a unique and vital function in support of regional transportation. The proposed 2008-2013 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. It is built around the following themes:

Investments in Mobility

B&T serves more than a million people daily in the New York metropolitan area. Its bridges and tunnels serve as critical highway links for passenger vehicles and local and interstate trucking operations making them crucial to the economic viability of the region. These facilities must be maintained in a state of good repair to allow for optimum mobility within the region for the traveling public and to ensure that B&T is able to successfully carry out its critical fiduciary responsibilities in support of mass transit.

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 Delaware, Maryland, Massachusetts, West Virginia, New Hampshire, Maine, Illinois, Indiana, Virginia and the Peace Bridge between Buffalo and Fort Erie, Ontario. 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.

The E-ZPass system was first introduced by B&T at the Verrazano-Narrows Bridge in October 1995 and expanded to all facilities by December 1996. By October 1997, E-ZPass market share had crossed the 50 percent mark and more than one million tags were issued by the end of 1997. In August 2002 the one billionth E-ZPass transaction was recorded and by the end of 2007 almost 74 percent of B&T's traffic (and 87 percent of commercial vehicles) were using E-ZPass. Approximately three million tags are in active use today and weekday market share often reaches more than 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.

B&T has also made significant investments in Intelligent Transportation Systems (ITS). For instance, B&T has installed TRANSMIT readers at both the Triborough Bridge and the Verrazano-Narrows Bridge. These readers anonymously detect E-ZPass tags in passing vehicles in order to measure general vehicular speeds on particular segments of roadway. TRANSMIT readers will soon be installed at nearly every B&T facility. Similarly, at the Marine Parkway and Henry Hudson Bridges, real-time roadway weather conditions can be obtained

and shared with other agencies due to recently installed Roadway Weather Information Systems (RWIS) at these facilities. B&T customers can also now access videos which monitor traffic conditions at all of B&T's facilities via the Webcam on the MTA's website. The ability to share real-time traffic and roadway conditions throughout the region enhances regional mobility and ensures the most efficient use of the regional network.

The E-ZPass system is over 10 years old and the existing power and communications cables that were part of the original E-ZPass installation must be replaced. To continue building on the success of the E-ZPass systems, it is necessary to upgrade the communication cable and increase the data capacity of the entire system, allowing B&T to add new ITS features.

Investments in Customer Satisfaction

Capital construction projects are planned and designed to minimize the impact on motorists and the surrounding communities. B&T is committed to maintaining the highest quality of service for its customers even while major construction work is ongoing. While many of these projects impose potentially significant burdens and constraints in maintaining efficient operations during construction, the end result of much of this work establishes facility improvements that ultimately enhance the system and provide better ways for customers to gain access and travel through B&T facilities. B&T's ongoing construction program also helps ensure that emergency repairs are minimized, and traffic flows as smoothly as possible over the long term. In addition to its construction program, B&T is also carrying out several system improvement projects that build on the success of E-ZPass by utilizing new ITS technologies that provide better information to motorists and improve investments in Customer Satisfaction.

Over the previous capital programs, B&T has made significant investments in projects that improved customer satisfaction. For example, at the Marine Parkway Bridge, the rehabilitation of the roadway deck replaced the entire roadway, widened the traffic lanes and installed a permanent center median. The project included a new steel roadway grating on the lift span and two truss spans that improved the ride for customers. The electrical upgrades to the bridge included improvements to the bridge's lighting and electrical systems and at the suggestion of the community, decorative tower flood lighting.

Rehabilitation work at the Queens Midtown and Brooklyn-Battery Tunnels have increased the reliability and visibility of tunnel traffic control systems and improved overall visibility for B&T customers by installing new lighting systems, including transition zone lighting, and by replacing and cleaning the wall tiles, which restored the tunnels' aesthetic appearance and enhanced reflectivity. Increased vertical clearance and improved overheight detection and traffic signs and signals at the Queens Midtown Tunnel have assisted in reducing the overheight vehicle incidents and the resulting disruption and safety impacts.

At the Triborough Bridge, the Ward's Island/Randall's Island Viaduct roadway deck was replaced and widened and a new entrance ramp from the Bronx to Wards' Island is in the process of being completed, which will alleviate traffic congestion at the toll plaza. A new pedestrian ramp from Queens to Wards' Island was completed which allows the surrounding community to access Wards' and Randall's islands by foot or bicycle.

The new and rehabilitated roadway decks of the Bronx-Whitestone Bridge have resulted in an improved ride for customers. The installation of variable speed limit signs at the Throgs Neck Bridge allows the Authority to quickly change speed limits based on changing road conditions or traffic which in turn will reduce accidents. In addition, the installation of rotating prism signs on the toll booth canopies of the Triborough Bridge – Bronx plaza, Queens Midtown and Brooklyn-

Battery Tunnels identifies if the lane is closed or an E-ZPass or cash lane, which has improved traffic safety and flow at the plazas.

B&T is carrying out several system improvement projects that will provide better information to motorists and improve customer satisfaction. For example, as part of its ITS program, B&T will install Variable Speed Limit Signs (VSLS) and Variable Message Signs (VMS) that will allow B&T to post real-time traffic and incident information at B&T facilities as part of a region-wide VMS network. These signs will have communications links to both the new Randall's Island Operations Command and Control Center and their adjacent facilities. The VSLS will allow B&T staff to quickly change speed limits on B&T facilities to reflect changes in weather or traffic conditions. The VMS will allow B&T to directly inform motorists of future construction, improving both traffic control and traffic flow in the plazas to provide better service to B&T customers. Traffic flow also has been improved for customers at several B&T toll plazas by grouping toll lanes by payment method and widening lanes. This effort will continue in the proposed 2008-2013 Capital Program as part of the replacement of the Henry Hudson Bridge upper level toll plaza and the design for new toll plazas at the Bronx-Whitestone Bridge and Verrazano-Narrows.

Investments in Safety and Security

Safety of the facilities is addressed through regular maintenance of capital assets and specific projects that improve the characteristics of roadway surfaces and physical elements such as lane widths, median barriers, lighting and toll plaza configurations. Other investments have been or will be made to improve the reliability and flexibility of systems and services at the facilities, enabling facility staff to respond to major events or crises more quickly and effectively.

Among the key investments are a new fire standpipe system that has been installed on the suspended span of the Bronx-Whitestone Bridge, with similar work to be carried out as part of the deck replacement project planned on the approach roadways under the proposed 2008-2013 Capital Program; new fire safety systems are being installed at the Cross Bay Bridge and Henry Hudson Bridge lower level roadway as part of the current program while the Throgs Neck Bridge fire standpipe system will be replaced in the 2008-2013 program.

In other safety initiatives, the existing Throgs Neck Bridge catwalk under the deck will be extended into the lower garage at the Bronx Abutment and rehabilitated to meet current safety standards. This effort to replace the catwalk, begun in the 2005-2009 Capital Program, will continue in the 2008-2013 program. Under deck access platforms will be installed at several bridges to improve access and enhance the safety of bridge inspectors and maintenance staff. At Bronx-Whitestone Bridge, motorized bridge traveler units have been installed under the 2005-2009 program to enhance accessibility, inspection and maintenance of the bridge's suspended spans.

Investments to Maintain the Core Infrastructure

The replacement of aging facility components constitutes by far the bulk of the capital program, ensuring that the facilities stay in a state of good repair. To determine its 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. A recent Peer Review of B&T's Bridge and Tunnel Inspection

processes through the MTA's Independent Engineer contract commended B&T on the thoroughness of these inspection protocols.

In preparing the proposed 2008-2013 Capital Program, B&T utilized the inspection results to develop a State of the System 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 proposed capital program.

THE PROPOSED 2008-2013 CAPITAL PROGRAM

Bridges and Tunnels' capital program totals \$2.508 billion over the next five and a half years (Table 1). Significant investment needs have been identified in the category of Roadways and Decks. Major deck replacement/rehabilitation programs at six facilities are scheduled to begin or continue during this period.

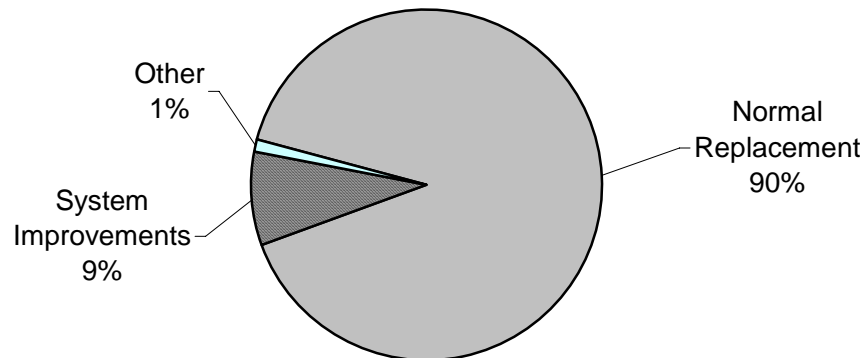
Table 1
MTA Bridges and Tunnels
2008-2013 Capital Program by Investment Category
(\$ in millions)

Category	Proposed 2008-2013	Percent
Structures	\$228	9%
Roadways & Decks	1,698	68%
Toll Plazas & ITS	97	4%
Utilities	282	11%
Buildings & Sites	176	7%
Miscellaneous	26	1%
Total	\$2,508	100%

Numbers may not total due to rounding

Approximately 90 percent of B&T's proposed 2008-2013 Capital Program is allocated for the normal replacement of assets that have reached or exceeded their expected useful life (Figure 1). An additional nine percent is for system improvement work. Normal replacement work will ensure that the facilities remain a safe and reliable means of transportation for Bridges and Tunnels customers. The system improvement projects are intended to enhance customer safety, enable customers to proceed through the toll plaza more efficiently and/or continue improvement of the workplace for Bridges and Tunnels employees.

Figure 1
MTA Bridges and Tunnels 2008-2013 Capital Program
Investments by Needs Category



The highlights of the program include the following (more detailed summaries of the projects are discussed in later sections).

Triborough Bridge Reconstruction of the Bronx Toll Plaza Deck, Superstructure and Substructure Rehabilitation, New Tollbooths and Ramp

This work is part of the overall Triborough Bridge Rehabilitation program that began in 1997. The design for the Bronx Toll Plaza Reconstruction along with Underground Utility Relocation work 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, toll booths and canopies, as well as the construction of a new ramp to and from Randall's/Wards' Island.

Verrazano-Narrows Bridge Rehabilitation of Decks on Suspended Spans, Upper Level

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. The second construction phase will be carried out in the 2008-2013 program and will involve the removal and replacement of the existing concrete deck in the upper level suspended span and replacement of the median and outside parapet walls with new concrete barriers and replacement of roadway joints.

Bronx-Whitestone Bridge Replacement of the Elevated and On-grade approaches in Queens

The design for this project was carried out in the 2000-2004 Capital Program. Construction work on the Bronx approach is in progress under the 2005-2009 Capital Program. Work proposed in the 2008-2013 program is for the construction phase that will replace the elevated approaches and reconstruct the on-grade roadway and end ramp concrete decks on the Queens approach of the bridge. This project also includes new roadway lighting and expansion of the fire standpipe system.

Throgs Neck Bridge Replacement of the Concrete Fill Steel Grid Suspended Span Deck

Design and Construction for the deck replacement on the anchorage, tower and suspended spans will be performed under this project. The deck replacement area is approximately 30% of the total deck area of the bridge. The replacement will also include superstructure structural

reinforcement and seismic retrofits, replacement of utilities, installation of a new lighting system, under-deck traveler system, fire standpipe system, and new sign gantries. The decks will be designed to meet the higher load criteria for current and anticipated commercial traffic volumes crossing the TNB on the I-295 corridor.

Verrazano-Narrows Bridge Rehabilitation of Toll Plaza East and West Bound Ramps and Toll Booth Replacement

Under this project, the eastbound and westbound ramps and the eastbound mainline will be rehabilitated, and the eastbound toll booths will be removed. The eastbound roadway will be constructed to meet current AASHTO standards with proper horizontal and vertical curve alignments, as well as correct super elevation cross slopes. 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. Design for the new westbound toll plaza will also be carried out as part of this project.

Triborough Bridge Construction of the New Combined Service Building, Shops and Warehouse

To advance the reconstruction of the toll plazas, it is necessary to relocate several facilities from their current locations under the Manhattan Toll Plaza. Before reconstruction of the toll plaza, a new service building will be constructed to combine the two existing service buildings, shops and warehouse.

Brooklyn Battery Tunnel Rehabilitation of Tunnel Ventilation and Electrical Systems

One of the major goals for the Brooklyn Battery Tunnel is to ensure that the electrical and ventilation systems meet current standards and expectations relating to emergency operations and improved systems monitoring and control. This project will fire harden the Manhattan Underground Exhaust Building's fan chambers and system components subject to high temperature (i.e. motors, belt drives, power and control wiring). The rehabilitation of supply fans, supply fan housings, and related components is also included in this project. 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 insuring that tunnel power can be maintained, per tunnel safety standards, and eliminating power downtime in the event of a power failure requiring the need for emergency power.

Queens Midtown Tunnel Rehabilitation of Controls/Communication System Room and Related Work

This project will expand the existing Supervisory Control System in the Facility Control Centers to incorporate all of the necessary functions such as ventilation and power system control and monitoring. The expanded Signal 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.

SYSTEM CONDITION AND ACCOMPLISHMENTS

MTA Bridges and Tunnels developed its first multi-year capital program in 1989. More than half of its facilities are currently over 65 years old. Even with regular maintenance, the structures and mechanical components of the bridges and tunnels eventually need replacement from the

combined effects of traffic loads and environmental exposure. As the components reach the end of their useful lives, they require a higher level of capital investment just to keep them structurally sound. Anticipating this need, Bridges and Tunnels has increased capital spending from \$10-\$15 million per year prior to 1989, to approximately \$250 million annually (inflated to year of commitment) in the most recent five-year program. Over the 2008-2013 plan period, the average annual commitments will increase to approximately \$456 million (inflated to year of commitment).

Accomplishments of the 2005-2009 Capital Program

In the 2005-2009 Capital Program, Bridges and Tunnels continued to rehabilitate and replace aging equipment and facility components. Major projects undertaken during this time period included the following:

Brooklyn-Battery Tunnel Rehabilitation

Modernization work at the Manhattan, Brooklyn and Governor's Island ventilation buildings began in the 2000-2004 program and included complete elevator replacement and related mechanical and electrical work. Under the 2005-2009 program, the work in these areas addressed priority architectural and structural repairs on the Manhattan, Brooklyn and Governor's Island ventilation buildings' façade and interior including floor slabs and walls.

Bronx-Whitestone Bridge Rehabilitation

The design for the replacement of the elevated and on-grade approaches in the Bronx and Queens began in the 2000-2004 Capital Program. The construction phase for work on the Bronx approach is currently in progress under the 2005-2009 program and is scheduled for completion in 2012.

Cross Bay Bridge Rehabilitation

Work underway in the 2005-2009 period will rehabilitate deficient elements of the concrete deck slab and replace other elements such as the bridge drainage system, lighting and electrical feeder systems as well as adding a fire standpipe system.

Henry Hudson Bridge Rehabilitation

The replacement of the lower level deck is underway in the 2005-2009 program and includes a complete replacement of the northern approach structure, lower level deck and sidewalk, and other bridge elements such as the drainage system, roadway lighting, etc.

Marine Parkway Bridge Rehabilitation

The deck and most of the structural members of the Marine Parkway Bridge were rehabilitated under project MP-01 in the 1992-1999 Capital Program. However, several areas that still require repairs are being addressed in the 2005-2009 Capital Program, including structural steel repairs under the deck, the overhead transverse steel bracing members of the through and lift span trusses and structural members of the north and south towers.

Queens Midtown Tunnel Rehabilitation

The rehabilitation of the Queens Service Building and the Facility Engineer Office Building is currently in progress under the 2005-2009 Capital Program. Work includes the replacement of the building adjacent to the Service Building. This new building annex is being designed to achieve a silver level of LEED Certification and will address structural, architectural, electrical and mechanical needs.

Triborough Bridge Deck Rehabilitation

Three projects in the 2000-2004 capital plan continued the rehabilitation program (begun in 1997) to overhaul the Triborough Bridge. The goal of this rehabilitation program is to rebuild the entire 30 lane miles of the bridge's roadway deck. One project replaced the roadway deck and median barrier from the Bronx toll plaza to the Bronx approach structure, including the Queens to Manhattan ramp, the East River suspended span and the Queens viaduct. Another project designed the rehabilitation/replacement of the bridge decks at the Manhattan Plaza, the Manhattan to Queens ramps, a portion of the Queens to Manhattan ramp, the on and off ramps at the FDR Highway, the Harlem River Drive ramp and the 124th and 125th St. ramps. A multi-construction staged project involving removal of the roadway deck, replacement of the Harlem River lift span from abutment to abutment with steel orthotropic decks, and removal of the center median and side barrier was completed in 2005. In the 2005-2009 Capital Program, portions of the roadway deck and median barrier on the Randall's and Wards Island viaduct were replaced and the construction of an entrance ramp to Ward's island is currently in progress.

Throgs Neck Bridge Rehabilitation

Rehabilitation work at the Throgs Neck Bridge began with the construction of prototype retrofits to the existing orthotropic deck and supporting steel members under the 2000-2004 Capital Program. Various deck rehabilitation work has also been carried out in previous programs, including replacement of decks on the Cross Island Parkway ramps. In the 2005-2009 Capital Program, the replacement of the concrete deck of the Queens approach is in progress. The Queens abutment and wing walls are being rehabilitated and the existing catwalk and access ladders under these spans are being replaced. The roadway lighting and drainage system are being replaced and a fire standpipe system is being installed.

Verrazano-Narrows Bridge Rehabilitation

Under the 2005-2009 program, construction work continued for the replacement of the lower level approach decks in Brooklyn and Staten Island and the Lily Pond Ave. Bridge. The rehabilitation of decks on the suspended spans of the upper level of the bridge is being carried out in two phases with the first phase in the 2005-2009 Capital Program and the second phase in the 2008-2013 program. The first phase is for the relocation of utilities on the upper level deck in preparation for Phase II, the removal and replacement of the existing concrete deck and replacement of the median and outside parapet walls with new concrete barriers.

Intelligent Transportation Systems

The utilization of Intelligent Transportation Systems began over a decade ago as part of a comprehensive program to improve transportation systems and services in the nation. Since then significant progress has been made in the use of ITS at B&T and in the region. Bridges and Tunnels has been at the forefront in the use of ITS to improve the efficiency of facility operations. B&T's first major ITS project, E-ZPass was and continues to be a great success. B&T customers enjoy added convenience and significant time savings on their trips. These time savings have been achieved despite a significant increase in traffic (about 14 percent) from 1995 (prior to E-ZPass) to 2007.

Building on the success of the E-ZPass initiative, B&T embarked on an ITS program to further improve transportation services at its facilities. Several ITS projects were introduced to further improve customer service, traffic flow, safety and security; increase efficiency in facility management and operations; maintain the integrity of our revenue streams; and reduce costs. These initiatives included construction of the Operation Center at Randall's Island, installation of CCTV coverage at various facilities, installation of variable message signs and variable speed limit signs on approach roads or approach spans at some facility plazas, expansion of Transmit readers; enhancements to current Toll Registry Systems and additions to various components of the electronic toll collection system.

PLANNING THE PROPOSED 2008-2013 CAPITAL PROGRAM

B&T's proposed 2008-2013 Capital Program is primarily based on the condition ratings of the various bridge and tunnel elements. These condition assessments are derived from comprehensive biennial inspections of the seven bridge facilities, regular tunnel inspections and other regular and routine maintenance inspections. While the overall condition of Bridges and Tunnels facilities was found to be acceptable at this time, a number of components are in need of rehabilitation or replacement. The areas in need of rehabilitation and replacement were most heavily concentrated on the roadways and decks and on structural rehabilitation of the various ancillary elements of each bridge and tunnel.

The completed inspections help to establish a baseline for each facility's condition and are complemented by the long-term planning efforts at each facility. The Bridges and Tunnels Engineering and Construction Department has recently implemented several enhancements to its planning process, particularly in the areas of scope development, master planning and estimating. Most of the projects proposed in the 2008-2013 time period have already been designed or subjected to some level of scope development, ranging from preliminary engineering scopes to design briefs. Facility Master Plans that have been developed in recent years also played a major role in the coordination of construction schedules for the various projects in the proposed program. These facility master plans span a 20-year period to ensure better continuity with projects in future capital programs and identify standard life-cycle criteria for bridge and tunnel systems. They also address future capacity related issues at the facilities. In addition, state-of-the-art estimating and scheduling computer systems implemented several years ago will continue to be used and upgraded. This will allow critical management functions to be performed with speed and accuracy on a real-time basis, thus providing essential ingredients to managing a large capital program.

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MTA BRIDGES AND TUNNELS PROGRAM PLAN

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MTA BRIDGES AND TUNNELS STRUCTURES CATEGORY D-601

Generally, the structural improvements on Bridges and Tunnels bridges address either the components of the superstructure, i.e., that part of the bridge above the foundation such as the suspension system and roadway deck supporting system, or the substructure, i.e., 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 and reach the end of their useful lives, investments must be made or the bridge will lapse into a state of disrepair requiring much larger capital investments in the future.

The 2008-2013 Capital Program

Projects planned in the proposed 2008-2013 Capital Program under the category of structures total \$228 million and comprise nine percent of the total 5-year program. Major projects include:

Throgs Neck Bridge: Suspended Span Deck Repairs, Cable Re-wrapping and Cable Protective System

Recent Biennial Inspections revealed deterioration in various structural steel members. The scope of work planned includes necessary repairs to structural steel members of the suspended spans including gusset plates, deteriorated stringers and floor truss elements. In addition, design for ongoing monitoring and inspection of the Throgs Neck's main cables as well as design and construction of a dry air protective system prototype will also be carried out under this project. The total cost proposed in the 2008-2013 Capital Program is \$41 million.

Triborough Bridge: Miscellaneous Steel & Concrete Rehabilitation of the Manhattan Approach and Ramps

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 2006 Biennial Inspection and current interim inspection findings, the condition of some of the approach ramp elements needs to be addressed at this time. This project will complete the necessary interim steel repairs and concrete rehabilitation work until the Manhattan approach and ramps can be replaced under future capital programs. Total cost proposed in the 2008-2013 Capital Program is \$31 million.

Verrazano-Narrows Bridge: Main Cable Testing

The monitoring of the main cables is routinely included in every capital program as part of an on-going effort to ensure the structural integrity of the main cables. This project will un-wrap critical panels of the cable to allow for inspection, oiling, repair and then rewrapping of the two main cables at four predetermined locations. Total cost proposed in the 2008-2013 Capital Program is \$25 million.

Cross Bay Bridge: Substructure and Underwater Rehabilitation Work

The scope for this project includes rehabilitation of delaminated spalled and unsound concrete on the all substructure elements such as the piles, pile caps, abutments, pier columns, pier caps and beams, and other substructure members. This project will also provide scour protection to the substructure, as necessary, and other substructure

elements such as the north abutment, left wing wall and right embankment of the main line. Total cost proposed in the 2008-2013 Capital Program is \$23 million.

Bronx-Whitestone Bridge: Miscellaneous Structural Rehabilitation and Concrete Anchorage Repairs

Under these projects, miscellaneous structural rehabilitation and repairs to the concrete anchorages will be performed. Based on results of on-going biennial inspections, structural repairs and rehabilitation is needed. This project will consist of various steel repairs located throughout the facility including the main suspended spans, the approach spans and the anchorages. Necessary concrete repairs to the outside of the concrete anchorages will be performed to keep them structurally sound and water-tight, as well improve their appearance. Total cost proposed in the 2008-2013 Capital Program is \$28 million.

Henry Hudson: Replacement of Lower Level South Approach Roadway and Facility Maintenance Garage (Design)

This project will design the replacement of the Lower Level approach and maintenance garage. The scope of work includes the complete replacement of the deck, walls, columns, electrical room, maintenance work shops and bays and utilities. The structure will also be seismically retrofitted. A bicycle path spanning the full length of the lower level roadway will also be designed as part of this project. Total cost proposed in the 2008-2013 Capital Program is \$9 million.

Queens-Midtown Tunnel: Tunnel Walls and Ceiling Repairs including Leak Control (Design)

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 and deteriorate with some portions of the elements approaching the need for rehabilitation. This project will address deterioration and damage of 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. Total cost proposed in the 2008-2013 Capital Program is \$11 million.

MTA BRIDGES AND TUNNELS

ROADWAYS AND DECKS

CATEGORY D-602

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. Investments in roadways and decks that are reaching the end of their useful lives 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 closings and greatly reduce throughput on the facilities.

The 2008-2013 Capital Program

Deck replacement/rehabilitation work represents the highest level of investments planned in the 2008-2013 program (\$1,698 million or 68 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:

Triborough Bridge: Reconstruction of the Bronx Toll Plaza Deck, Superstructure and Substructure Rehabilitation, New Tollbooths and Ramp and the design for the Manhattan Toll Plaza Deck

This work is part of the overall Triborough 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, toll booths and canopies, as well as the construction of a new ramp to and from Randall's/Wards' Island. The scope also includes complete reconfiguration and construction of 26 new Toll Plaza Booths and associated infrastructure. As this project moves forward, B&T will be assessing the possibility of implementing video tolls in some of its lanes. The plaza will be built with the flexibility to accommodate such a system. Similar work planned for the Manhattan Toll Plaza area will be designed as part of this project, with the construction phase to be carried out in the 2014-2018 time period. Total cost proposed in the 2008-2013 Capital Program is \$526 million.

Verrazano-Narrows Bridge: Rehabilitation of Upper Level Decks on Suspended Spans

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 2008-2013 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, replacement of the median and outside parapet walls with new concrete barriers, replacement of roadway joints, suspended span drainage system and sign structures. The upper level and lower level lighting system, including the tower floodlights will also be replaced, as well as 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. Total cost proposed in the 2008-2013 Capital Program is \$375 million.

Bronx-Whitestone Bridge: Elevated and On-Grade Queens Approach Structure Replacement

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. This project in the 2008-2013 program is for similar work on the Queens approach that will replace the elevated approaches and reconstruct the on-grade roadway and end ramp concrete decks. Full replacement of the approach structures will include replacement of the fire standpipe main and installing risers, replacement of the power and communication systems and installation of new roadway lighting. Total cost proposed in the 2008-2013 Capital Program is \$289 million.

Throgs Neck Bridge: Replacement of the Concrete Fill Steel Grid Suspended Span Deck

Design and Construction for the deck replacement on the anchorage, tower and suspended spans will be performed under this project. The deck replacement area is approximately 30% of the total deck area of the bridge. The project will also include superstructure structural reinforcement and seismic retrofits, replacement of utilities, installation of a new lighting system, under-deck traveler system, fire standpipe system, and new sign gantries. The decks will be designed to meet the higher load criteria for current and anticipated commercial traffic volumes crossing the TNB on the I-295 corridor. Total cost proposed in the 2008-2013 Capital Program is \$227 million.

Verrazano-Narrows Bridge: Rehabilitation of Toll Plaza East and West Bound Ramps and Toll Booth Replacement

Under this project, the eastbound and westbound ramps and the eastbound mainline will be rehabilitated, 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. Design for the new westbound toll plaza will also be carried out as part of this project. As discussed above in regard to the Triborough Bridge, B&T plans to assess the possibility of implementing video tolls in some of its lanes and the plaza will be designed with the flexibility to accommodate such a system. Total cost proposed in the 2008-2013 Capital Program is \$135 million.

MTA BRIDGES AND TUNNELS

TOLL PLAZAS & TRAFFIC MGMT/SAFETY SYSTEMS

CATEGORY D-603

Bridges and Tunnels is undertaking projects to expand and improve the condition of the toll plazas at Bronx-Whitestone and Henry Hudson bridges. This needs category encompasses 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 a system improvement, which will enhance safety and enable customers to proceed through the toll plazas more quickly.

Most of the Traffic Management and Safety Systems (TMSS) 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 2008-2013 Capital Program

Toll Plaza Improvements and Traffic Management/Safety Systems comprise \$97 million. As projects in this category move forward, B&T will be assessing the possibility of implementing video tolls in some of its lanes and the plazas will be designed and built with the flexibility to accommodate such systems. Project highlights in this category of work include:

Bronx-Whitestone Bridge: Toll Plaza Reconstruction (Design)

This project is for a design that will lead to reconstruction of the toll plaza and will involve widening and standardizing widths of the toll lanes, and reconfiguring the toll plaza so that the different types of service options are grouped in a way that best serves the customer. The design will also include a separated walkway to allow personnel to access the toll booths without crossing lanes of traffic. Total cost proposed in the 2008-2013 Capital Program is \$13 million.

Henry Hudson Bridge: Upper Level Toll Plaza Deck

This project will replace the existing upper level toll plaza. 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. Total cost proposed in the 2008-2013 Capital Program is \$38 million.

Traffic Management and Safety Systems

B&T plans to continue to implement various initiatives in the ITS area during the 2008-2013 time frame. They include 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; 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.

One of the goals in the 2008-2013 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 continue, leading to the realization of a truly national ITS architecture. 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. Total cost proposed in the 2008-2013 Capital Program is \$47 million.

MTA BRIDGES AND TUNNELS

UTILITIES

CATEGORY D-604

Investments in utilities include the replacement, rehabilitation or upgrade of the mechanical, electrical and lighting systems, as well as tunnel ventilation equipment. The long-term objective of investments in these areas is to improve operational efficiency by replacing worn out parts and equipment and/or enhance customer safety.

The 2008-2013 Capital Program

Work in this category constitutes mostly normal replacement work totaling \$282 million or 11 percent of the total program and include the following projects:

Brooklyn Battery Tunnel: Rehabilitation of Tunnel Ventilation and Electrical Systems

One of the major goals for the Brooklyn Battery Tunnel is to ensure that the electrical and ventilation systems meet current standards and expectations relating to emergency operations and improved systems monitoring and control. This project will fire harden the Manhattan Underground Exhaust Building's fan chambers and system components subject to high temperature (i.e. motors, belt drives, power and control wiring). The rehabilitation of supply fans, supply fan housings, and related components is also included in this project. 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 insuring that tunnel power can be maintained, per tunnel safety standards, and eliminating power downtime in the event of power failure requiring the need for emergency power. A similar replacement of obsolete electrical switchgear will be implemented at the Queens Midtown Tunnel. Total cost proposed in the 2008-2013 Capital Program is \$70 million.

Brooklyn Battery Tunnel: Expand/Upgrade Control Center II

This project is the continuation of the replacement and upgrades of the control and communication systems which began under the 1995-1999 Capital Program. This phase will replace power cabling to tunnel "E-Boxes," install additional tunnel CCTVs, replace tunnel phones, upgrade the carbon monoxide monitors in the ventilation buildings, This project also involves the replacement of any motor control needed to tie together other vital tunnel systems. Additionally, the Supervisory Control System will be further expanded to incorporate additional functions, including the installation of an overall tunnel and video management system. Total cost proposed in the 2008-2013 Capital Program is \$19 million.

Queens Midtown Tunnel: Tunnel Ventilation Building Electrical Upgrade (Construction)

This project will replace the existing electrical switchgear and the fan motor control equipment for the tunnel ventilation fans at both ventilation buildings. In addition to replacing the switchgear, two other 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. Total cost proposed in the 2008-2013 Capital Program is \$62 million.

Queens Midtown Tunnel: Controls/Communication System Room and Related Work

The existing Supervisory Control Systems in the Facility Control Centers will be expanded to incorporate all of the necessary functions such as ventilation and power system control and monitoring. The expanded Signal 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. Total cost proposed in the 2008-2013 Capital Program is \$52 million.

Verrazano-Narrows Bridge: Rehabilitation of Substation #1

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. Total cost proposed in the 2008-2013 Capital Program is \$16 million.

Agency-Wide: Weigh-In-Motion (WIM) Systems

The project will install system equipment to monitor, detect, and collect data on all vehicles. The system will determine and store overall vehicle weight, individual axle loading, vehicle length, speed, read license plates, and compile related data, including event time & date, vehicle photos, etc. Ideally the system and the facility geography will permit overweight vehicles to be detected and stopped before they cross the bridge structure(s). Under this project it is intended to design and install facility WIM systems in 26 lanes throughout four facilities: Bronx-Whitestone, Triborough, Throgs Neck and Verrazano Narrows Bridges. Total cost proposed in the 2008-2013 Capital Program is \$16 million.

Marine Parkway Bridge: Programmable Logic Controller, Electrical & Mechanical Rehabilitation

One of the critical elements of the lift span is the Programmable Logic Controller. The operation of the lift span is dependent on the proper function of the electrical and mechanical machinery of the bridge. This project will design and carry out the rehabilitation and repairs necessary to the controller, electrical and mechanical machinery. Total cost proposed in the 2008-2013 Capital Program is \$10 million.

Agency-Wide: Variable Message Signs (VMS) & Gantry Installations Phase III

This project is the third phase of installations of variable message signs across B&T facilities. This project plans to replace approximately 20 older VMS signs and install new VMS within Authority jurisdiction. The work will include a study for new VMS locations, necessary support gantries, electrical, communication links, maintenance and protection of traffic, foundation work, structural steel, approval from local authorities. Total cost proposed in the 2008-2013 Capital Program is \$29 million.

MTA BRIDGES AND TUNNELS

BUILDINGS AND SITES

CATEGORY D-605

Related assets include service buildings, ventilation buildings and garages. 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.

The 2008-2013 Capital Program

Work in this category comprises \$176 million or seven percent of the total program. Included in this category are the construction of new buildings and shops to accommodate tenants that need to be relocated as a result of the deck replacement projects at the Triborough Bridge. The major projects are:

Brooklyn Battery Tunnel: Rehabilitation of Ventilation Buildings Phase III

This project will continue the structural and architectural repairs to the ventilation buildings' façade and interior not addressed in previous capital programs. The general scope of this project will be to perform architectural and structural repairs on the ventilation buildings' façade and interior including floor slabs and walls, where structural defects have been identified in recent tunnel inspections. Specific work is planned at each of the four ventilation buildings: Manhattan Blower Building, Manhattan Underground Exhaust Building, Governors Island Ventilation Building, and Brooklyn Ventilation Building. Total cost proposed in the 2008-2013 Capital Program is \$26 million.

Triborough Bridge: Construction of the New Combined Service Building, Shops and Warehouse

To advance the reconstruction of the toll plazas, it is necessary to relocate several facilities from their current locations under the Manhattan Toll Plaza. A new service building will be constructed to combine the two existing service buildings, shops and warehouse. B&T has entered into an agreement with New York City Department of Parks and Recreation to utilize the area next to the bridge to build the new combined service building. Total cost proposed in the 2008-2013 Capital Program is \$126 million.

Triborough Bridge: Robert Moses Administration Building Rehabilitation

This project will design and restore the metal roof above the northern extension of the Robert Moses Administration Building. In addition, this project will provide design documents to reconfigure the interior spaces, rehabilitate and upgrade the existing electrical, plumbing and HVAC systems, as well as upgrade the electrical capacity of the building. Total cost proposed in the 2008-2013 Capital Program is \$10 million.

MTA BRIDGES AND TUNNELS MISCELLANEOUS CATEGORY D-606

Projects in this area provide for costs associated with the support and management of the capital program. The proposed 2008-2013 Capital Program contains \$26 million for projects with program-wide applicability such as protective liability coverage, independent engineer services, value engineering services, scope development and NYC traffic enforcement agent support.

PROGRAM PROJECT LISTINGS

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Bridges and Tunnels

Structures D - 601

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
BW Bronx-Whitestone Bridge								
07 Pier Protection: BW & TN	NR	.0	10.2	.0	.0	.0	.0	10.2
14 Miscellaneous Structural Rehab	NR	.0	.0	2.2	.0	13.3	.0	15.5
84 Cable Investigation/Monitoring	NR	.0	.0	10.0	.0	.0	.0	10.0
97 Concrete Anchorage Repairs	NR	.0	.0	7.3	.0	5.4	.0	12.7
Element Total BW		\$0.0	\$10.2	\$19.5	\$0.0	\$18.7	\$0.0	\$48.4
CB Cross-Bay Bridge								
09 Substructure/Underwater Work	NR	.0	.3	23.2	.0	.0	.0	23.4
Element Total CB		\$0.0	\$0.3	\$23.2	\$0.0	\$0.0	\$0.0	\$23.4
HH								
81 Replace Lower Level South Appr	NR	.0	.0	8.8	.0	.0	.0	8.8
Element Total HH		\$0.0	\$0.0	\$8.8	\$0.0	\$0.0	\$0.0	\$8.8
MP Marine Parkway Bridge								
06 Substructure/Underwater Work	NR	.0	.0	3.8	.0	13.3	.0	17.1
Element Total MP		\$0.0	\$0.0	\$3.8	\$0.0	\$13.3	\$0.0	\$17.1
QM Queens Midtown Tunnel								
40 Tunnel Walls/Ceiling Repairs	NR	.0	.0	.0	.0	.0	11.4	11.4
Element Total QM		\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$11.4	\$11.4
TB Triborough Bridge								
23 Misc Steel and Concrete Rehab	NR	.0	5.3	.0	25.4	.0	.0	30.6
Element Total TB		\$0.0	\$5.3	\$0.0	\$25.4	\$0.0	\$0.0	\$30.6
TN Throgs Neck Bridge								
52 Miscellaneous Structural Rehab	NR	.0	.0	.0	5.3	.0	.0	5.3
85 Suspended Span Cable Rewrappin	NR	.0	35.5	.0	.8	4.2	.0	40.5
87 Anchorage and Tower Protection	NR	.0	10.4	.0	.0	.0	.0	10.4
Element Total TN		\$0.0	\$45.9	\$0.0	\$6.2	\$4.2	\$0.0	\$56.2
VN Verrazano-Narrows Bridge								
34 Main Cable Testing	NR	.0	.0	.0	5.2	.0	19.3	24.5
35 Steel Repair & Concrete Rehab	NR	.0	.0	.0	.0	2.9	.0	2.9
36 Tower/Suspended Span Seismic	NR	.0	.0	5.0	.0	.0	.0	5.0
Element Total VN		\$0.0	\$0.0	\$5.0	\$5.2	\$2.9	\$19.3	\$32.5
Category Total 601		\$0.0	\$61.6	\$60.2	\$36.7	\$39.1	\$30.7	\$228.4

* Represents values less than \$50,000

Bridges and Tunnels

Roadways & Decks

D - 602

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
BB								
28 Rehabilitation of Tunnel Walls	NR	.0	5.3	.0	.0	.0	.0	5.3
Element Total BB		\$0.0	\$5.3	\$0.0	\$0.0	\$0.0	\$0.0	\$5.3
BW Bronx-Whitestone Bridge								
89 Deck Replmnt Queens Appr	NR	.0	.0	22.8	266.4	.0	.0	289.2
Element Total BW		\$0.0	\$0.0	\$22.8	\$266.4	\$0.0	\$0.0	\$289.2
CB								
19 Bicycle Path Improvements	SI	.0	.4	3.8	.0	.0	.0	4.2
Element Total CB		\$0.0	\$0.4	\$3.8	\$0.0	\$0.0	\$0.0	\$4.2
HH Henry Hudson Bridge								
10 Repl Curbs/Stringers Upper Lvl	NR	.0	1.2	37.3	.0	.0	.0	38.5
Element Total HH		\$0.0	\$1.2	\$37.3	\$0.0	\$0.0	\$0.0	\$38.5
MP								
21 Rehab Rockaway Pt Overpass	NR	.0	.0	2.2	4.8	.0	.0	7.0
Element Total MP		\$0.0	\$0.0	\$2.2	\$4.8	\$0.0	\$0.0	\$7.0
QM								
21 Restoration of Tunnel Roadway	NR	.0	.0	.0	.0	4.9	.0	4.9
Element Total QM		\$0.0	\$0.0	\$0.0	\$0.0	\$4.9	\$0.0	\$4.9
TB Triborough Bridge								
65 Deck Repl. Bronx Toll Plaza	NR	.0	18.3	24.0	.0	483.6	.0	525.9
74 Replace T-48 Wearing Surface	NR	.0	.0	3.4	.0	32.6	.0	36.0
Element Total TB		\$0.0	\$18.3	\$27.4	\$0.0	\$516.1	\$0.0	\$561.9
TN Throgs Neck Bridge								
49 Replace Decks on the Susp Span	NR	.0	1.9	10.1	215.3	.0	.0	227.3
55 Rehab/Replace Bx/Qns Approach	NR	.0	.0	.0	3.8	22.1	.0	25.8
82 Rehab Orthotropic Deck	NR	.0	11.8	.0	.0	.0	.0	11.8
Element Total TN		\$0.0	\$13.7	\$10.1	\$219.1	\$22.1	\$0.0	\$264.9
VN Verazzano Bridge								
03 Toll Plaza E & W Bound Ramps	NR	.0	.0	102.3	24.5	8.2	.0	135.1
80 Rehab. Upper Lvl Suspended Spn	NR	.0	.0	375.0	.0	.0	.0	375.0
84 Widening of Belt Parkway Ramps	NR	.0	12.0	.0	.0	.0	.0	12.0
Element Total VN		\$0.0	\$12.0	\$477.3	\$24.5	\$8.2	\$0.0	\$522.0
Category Total 602		\$0.0	\$50.9	\$580.9	\$514.8	\$551.3	\$0.0	\$1,697.9

* Represents values less than \$50,000

Bridges and Tunnels

Toll Plazas & Traffic Mgmt

D - 603

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
AW Agency-Wide								
35 Weather Information Systems	SI	.0	.6	.0	.0	.0	.0	.6
36 Installation of CCTV/Fiber Opt	NR	.0	1.9	.0	.0	.0	.0	1.9
46 Violations Enforcement System	SI	8.1	.4	.0	.0	.0	.0	8.6
47 Digital Video Surveillance Sys	NR	2.1	.0	.0	.0	.0	.0	2.1
48 E-Zpass Systems Modernization	SI	.4	7.0	.0	.0	.0	.0	7.4
49 E-Zpass Systems Infrastructure	NR	.5	1.5	.0	.0	.0	.0	2.0
52 Adv. Automated Traffic Detectn	SI	2.5	4.9	.0	.0	.0	.0	7.4
53 Commercial Vehicle Operations	SI	.0	.0	.0	.0	.0	2.4	2.4
54 Sub-Regional Integration Syste	SI	.0	.0	.0	.0	2.3	.0	2.3
57 Advanced Transportation Mgmt.	SI	.0	.0	2.7	.0	.0	.0	2.7
58 Advanced Incident Detection Sy	SI	.0	.0	2.7	.0	.0	.0	2.7
59 Integration of Transportation	SI	.0	.0	2.9	.0	.0	.0	2.9
60 Vehicle Infrastructure Initiat	SI	.0	.0	4.3	.0	.0	.0	4.3
Element Total AW		\$13.6	\$16.3	\$12.5	\$0	\$2.3	\$2.4	\$47.0
BW Bronx-Whitestone Bridge								
12 New Toll Plaza (Design)	SI	.0	.0	12.5	.0	.0	.0	12.5
Element Total BW		\$0	\$0	\$12.5	\$0	\$0	\$0.0	\$12.5
HH Henry Hudson Bridge								
85 Replace Upper Lvl Deck/Toll Pl	NR	.0	37.7	.0	.0	.0	.0	37.7
Element Total HH		\$0	\$37.7	\$0	\$0	\$0	\$0.0	\$37.7
Category Total 603		\$13.6	\$54.0	\$25.0	\$0	\$2.3	\$2.4	\$97.2

* Represents values less than \$50,000

Bridges and Tunnels

Utilities D - 604

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
AW Agency-Wide								
80 Variable Message Signs (VMS)	SI	.0	.0	29.4	.0	.0	.0	29.4
82 Alternate Fuel Storage	SI	.0	.5	1.0	.0	.0	.0	1.5
99 Weigh-In-Motion	NR	.0	2.7	.0	13.2	.0	.0	15.9
Element Total AW		\$0	\$3.2	\$30.5	\$13.2	\$0	\$0.0	\$46.9
BB Brooklyn-Battery Tunnel								
15 Expand/Upgrade Control Center	NR	.0	.9	2.6	.0	15.1	.0	18.7
45 Rehab Tunnel Vent Building	NR	.0	70.2	.0	.0	.0	.0	70.2
Element Total BB		\$0	\$71.1	\$2.6	\$0	\$15.1	\$0.0	\$88.9
BW								
15 Necklace Lighting Replacement	NR	.0	.0	.4	1.0	.0	.1	1.5
Element Total BW		\$0	\$0	\$0.4	\$1.0	\$0	\$0.1	\$1.5
MP								
03 Rehab PLC, Elect, Mech Sys	NR	.0	.0	.0	1.5	8.5	.0	10.0
Element Total MP		\$0	\$0	\$0	\$1.5	\$8.5	\$0.0	\$10.0
QM Queens Midtown Tunnel								
30 Tunnel Vent Building Elec Upgr	NR	.0	.0	62.0	.0	.0	.0	62.0
31 Replace Supply Fan Housings	NR	.0	.0	3.1	.0	.0	.0	3.1
81 Controls/Communication System	NR	.0	.0	3.7	.0	.0	48.3	52.0
Element Total QM		\$0	\$0	\$68.8	\$0	\$0	\$48.3	\$117.1
TB								
21 Fire Standpipe Installation	NR	.0	.0	.0	.0	1.4	.0	1.4
Element Total TB		\$0	\$0	\$0	\$0	\$1.4	\$0.0	\$1.4
VN								
82 Substation #1 Rehabilitation	NR	.0	.0	.0	16.2	.0	.0	16.2
Element Total VN		\$0	\$0	\$0	\$16.2	\$0	\$0.0	\$16.2
Category Total 604		\$0	\$74.4	\$102.2	\$32.0	\$25.0	\$48.4	\$282.0

* Represents values less than \$50,000

Bridges and Tunnels

Buildings & Sites

D - 605

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
AW Agency-Wide								
12 Hazardous Material Abatement	NR	.0	.0	8.6	.0	.0	.0	8.6
Element Total AW		\$0	\$0	\$8.6	\$0	\$0	\$0.0	\$8.6
BB Brooklyn-Battery Tunnel								
80 Rehab Ventilation Building	NR	.0	3.2	.0	22.5	.0	.0	25.7
Element Total BB		\$0	\$3.2	\$0	\$22.5	\$0	\$0.0	\$25.7
TB Triborough Bridge								
34 New Shop/Wrhse/Service Bldg	SI	.0	1.9	124.4	.0	.0	.0	126.2
58 Robert Moses Building Upgrade	NR	.0	.2	.3	2.0	8.0	.0	10.4
Element Total TB		\$0	\$2.0	\$124.6	\$2.0	\$8.0	\$0.0	\$136.6
VN								
01 Rehab/Expand Service Building	NR	.0	.0	.0	.0	5.2	.0	5.2
Element Total VN		\$0	\$0	\$0	\$0	\$5.2	\$0.0	\$5.2
Category Total	605	\$0	\$5.2	\$133.2	\$24.5	\$13.2	\$0.0	\$176.2

* Represents values less than \$50,000

Bridges and Tunnels

Miscellaneous D - 606

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	Needs Code	2008	2009	2010	2011	2012	2013	Total All Years
AW Agency-Wide								
15	MTA Independent Engineer	.0	3.1	.0	.0	.0	.0	3.1
18	Protective Liability Insurance	.0	.0	3.9	.0	.0	.0	3.9
21	Program Administration	.0	.0	7.8	.0	.0	.0	7.8
22	Miscellaneous	.0	.0	3.1	.0	.0	.0	3.1
28	Scope Development	.0	.0	4.7	.0	.0	.0	4.7
85	NYC Traffic Enforcement Agents	.0	.0	3.4	.0	.0	.0	3.4
Element Total AW		\$0.0	\$3.1	\$22.8	\$0.0	\$0.0	\$0.0	\$26.0
Category Total 606		\$0.0	\$3.1	\$22.8	\$0.0	\$0.0	\$0.0	\$26.0
TOTAL PROGRAM		\$13.6	\$249.3	\$924.4	\$608.1	\$630.8	\$81.5	\$2,507.8

* Represents values less than \$50,000