



Metropolitan Transportation Authority

State of New York

July 29, 2004

MTA Board Members:

The Preliminary Capital Program for 2005-2009 presented today represents the combined efforts of each of our operating agencies to define the core program needs for the system over the next five years (state of good repair, normal replacement and system improvement); to continue to invest in security projects identified after 9/11 to harden the system from terrorist attacks; and to advance system expansion projects, (East Side Access, SAS, #7 Line and LIRR/JFK connection) into the implementation phase.



The MTA Board set the course for today's submission over twenty years ago with the implementation of the first capital program. By the end of 2004, the MTA will have committed more than \$48 billion in capital funds to reclaim and improve the core system—and the results have been remarkable. Since the early 1980's, on-time performance has increased from 85% to 93.1% for LIRR, and from 80.5% to 97.5% for Metro-North. The mean distance between failures (MDBF) for the subway system has increased continuously, doubling every five to seven

years and increasing overall from 6,988 miles in 1981 to nearly 140,000 miles in 2003. And at MTA Bridges and Tunnels, average peak-hour queue time has dropped from 3 minutes in 1996 to only 20 seconds, despite a 13% increase in traffic over the same period.

The agencies of the MTA, Peter S. Kalikow, Chairman

MTA New York City Transit
MTA Long Island Rail Road

MTA Long Island Bus
MTA Metro-North Railroad

MTA Bridges and Tunnels
MTA Capital Construction

The job of restoring and maintaining the core system is an ongoing process to ensure that the gains of the past are maintained and enhanced. The growth of the region's economy depends on this investment. The program presented today proposes \$17.2 billion to maintain and improve the reliability of the tens of thousands of components that make up our system. Some highlights of the program include:

- New York City Transit (\$12.13B): 960 new subway cars, 1300 new buses, expansion of the bus locator system to the entire fleet, 55 station rehabilitations, a passenger transfer between the Jay Street and Lawrence Street Stations in Brooklyn, and further investments in Automated Train Supervision and Communications Based Train Control.
- Long Island Rail Road (\$2.43 B): Phase 1 of the mainline third track between Bellerose and Hicksville, a new yard to serve the Port Jefferson branch, and 170 new M-7 cars to complete the replacement of the M-1 fleet.
- Metro-North Railroad (\$1.41B): 100 new M-8 cars to begin replacement and growth for the New Haven M-2 fleet (MNR share), 25 station rehabilitations, and Phase 2 and 3 of the replacement of the 100 year old Croton-Harmon Shop and Yard.
- Bridges and Tunnels (\$1.25 B): Heavy deck, structural and cable rehabilitation work with emphasis on the Whitestone, Triborough and Verrazano Bridges.

These core investments will continue to provide customers with the high quality, reliable system they depend on every day.

The proposed program includes \$500 million to continue the capital security investments approved by the Board shortly after 9/11. Security projects at all Agencies will harden vulnerable assets and implement the systems necessary to conduct targeted surveillance, control access, stop intrusion and provide command and control systems to support incident response. MTA will pursue all or part of the funding for these projects from the Federal government.

With a commitment to the core and to security, the system is poised for expansion. The system has not grown in any significant respect for the last sixty years, despite the massive changes that have occurred in the region. It is significant to note that of the fourteen tunnels currently utilized by the City's subway system, thirteen were built between the years 1905 and 1936; the tunnels utilized by MNR and LIRR were built between 1906 and 1913; and B&T's two vehicular tunnels (Queens Midtown Tunnel and Brooklyn Battery) were built between 1940 and 1950.

This program proposes to advance East Side Access and Phase I of the Second Avenue Subway into active implementation and to progress the extension of the 7 line and the Jamaica/JFK to lower-Manhattan link. The MTA will need at least \$4.2 billion in new funding to fulfill its commitment to these projects with the balance of the funds expected to be committed by the Federal government and other project stakeholders.

By statute, the MTA's five year Capital Program is required to be submitted to the State's Capital Program Review Board (CPRB) by October 1 for approval. As such, the MTA Board is requested to review the proposed program and approve it for CPRB submission at its September meeting.

In addition to debating the content of the proposed plan (e.g., core program elements, security and expansion projects), the discussions and analysis in the next several months concerning the plan will also focus on the funding sources necessary to support it. Federal, State and local funding support, along with MTA bonds and other contributions such as asset sales, will be necessary for the program--the exact mix of those funding streams will need to be determined. One issue is clear, however: the progress that MTA has made in the last twenty years to restore and maintain the core system must not, and cannot, be eroded.

Sincerely,

A handwritten signature in black ink, appearing to read "Anthony M. Muto". The signature is fluid and cursive, with the first name "Anthony" being more prominent and the last name "Muto" following in a similar style.

TABLE OF CONTENTS *

	<u>Page</u>
List of Tables	ii
List of Exhibits	iii
INTRODUCTION	
Introduction	1
CORE CAPITAL PROGRAM	
MTA 2005-2009 Core Capital Program	10
Introduction	11
MTA NYC Transit 2005-2009 Capital Program	16
Overview	17
Program Plan	28
MTA Long Island Rail Road 2005-2009 Capital Program	45
Overview	46
Program Plan	56
MTA Metro-North Railroad 2005-2009 Capital Program	73
Overview	74
Program Plan	83
MTA Bridges and Tunnels 2005-2009 Capital Program	97
Overview	98
Program Plan	107
Core Capital Program Project Listing	118
SECURITY PROGRAM	
Overview	162
Program Plan	163
Security Program Project Listing	164
NETWORK EXPANSION	
MTA Capital Construction Company Overview	168
MTA Capital Construction Company Program Plan	170
East Side Access	171
Second Avenue Subway	173
7 West Extension	175
Rail Link to Lower Manhattan	176
Miscellaneous	177
Network Expansion Program Project Listing	178
MTA INTERAGENCY PROGRAM	
MTA Interagency Overview	185
MTA Police Department	186
MTA Integrated Systems Initiative	189
Interagency Program Project Listing	190

** NOTE: The page numbers listed in this table of contents differ from the July 29th 2004 printed version of this document.*

LIST OF TABLES

	<u>Page</u>
Table 1 MTA 2005-2009 Core Capital Program - All Agency Summary	11
Table 2 MTA 2005-2009 Core Capital Program - Investments by Needs Classification	13
Table 3 MTA 2005-2009 Core Capital Program - Funding Sources	14
Table 4 MTA New York City Transit - 2005-2009 Capital Program by Investment Category	20
Table 5 MTA Long Island Rail Road - 2005-2009 Capital Program by Category of Investment	50
Table 6 MTA Metro-North Railroad - 2005-2009 Capital Program by Category of Investment	76
Table 7 MTA Bridges and Tunnels - 2005-2009 Capital Program by Category of Investment	101
Table 8 MTA Security - 2005-2009 Capital Program	162
Table 9 MTA Capital Construction Company - 2005-2009 Capital Program	169
Table 10 MTA Interagency - 2005-2009 Capital Program	185
Table 11 MTA Police Department - 2005-2009 Capital Program by Investment Category	186

LIST OF EXHIBITS

Figure 1	<u>Page</u> 24
NYC Transit 2005-2009 Capital Program - Investments by Needs Category	
Chart 1	25
NYC Transit - Progress to State of Good Repair	
Chart 2	53
Long Island Rail Road - Progress Toward State of Good Repair	
Figure 2	53
Long Island Rail Road 2005-2009 Capital Program - Investments by Needs Category	
Chart 3	79
Metro-North Railroad Investment Categories - Progress Toward State of Good Repair	
Figure 3	80
Metro-North Railroad 2005-2009 Capital Program - Investments by Needs Category	
Figure 4	102
MTA Bridges and Tunnels 2005-2009 Capital Program - Investments by Needs Category	
Figure 5	169
MTA Capital Construction Company Projects	

INTRODUCTION

INTRODUCTION

Setting the Context for the Capital Program

Preserving Mobility

The MTA submits the 2005-2009 Capital Program at a time of enormous challenges as well as opportunities—including tight fiscal constraints and interests in expanding the system. It is a daunting time to be planning the next five years of transportation investments. However, a reliable, high quality transportation network plays a vital role in the region's economy, promoting mobility and contributing to the region's quality of life. And investing in the reliability and quality of the vast MTA network is as critical as ever.

The Scope of the MTA System

The MTA public transportation network comprises 45 rail and subway lines and 298 bus routes, with:

- 3,012 bus route miles
- 1,931 track miles
- 490 subway stations
- 243 commuter rail stations
- 8,453 rail and subway cars
- 4,930 buses

The MTA bridge and tunnel network comprises:

- 7 bridges
- 2 tunnels
- 10 toll plazas
- 197 toll lanes



Many New Yorkers can remember when the system was near collapse as a result of the fiscal crisis and chronic disinvestment. The subway suffered derailments every 18 days, 325 train runs were abandoned on a typical day, Manhattan and Bronx buses broke down every six days, and graffiti covered virtually every inch of trains, buses, and stations. The system seemed out of control and people had no confidence in its reliability. Transit ridership plummeted.

Facing the threat of systemic collapse, in 1982 the region developed a consensus to save the transportation network through a series of capital and financial plans—a commitment unprecedented in any other state in the nation. The first capital programs focused largely on reclaiming the long-neglected network. Over the last 10 years, while the restoration work continued, the programs also increased investment in normal replacement, new technologies, and capacity enhancements, all with the goal of improving the quality and reliability of the system. Some investments have been visible to the public, such as fleet replacements, station improvements, MetroCard and fare discounts, and E-ZPass. Just as critical, however, have

been the investments in invisible infrastructure such as fan plants; deep wells and pump rooms; shops, yards, and depots; track; signals; and power systems.



By the end of 2004, the MTA will have invested \$48 billion in capital funds to reclaim and improve the system—and the results have been remarkable. Since the early 1980's, on-time performance has increased from 85% to 93.1% for Long Island Rail Road, and from 80.5% to 97.5% for Metro-North Railroad. The mean distance between failures (MDBF) for the subway system has increased continuously, doubling every five to seven years and increasing overall from 6,988 miles in 1981 to nearly 140,000 miles in 2003. 356 rehabilitated subway and railroad stations welcome customers. Crime on the transit system has fallen dramatically. At MTA Bridges and Tunnels, average peak-hour queue time has dropped from 3 minutes in 1996 to only 20 seconds, despite a 13% increase in traffic.

People have responded by returning to the system, proving that reliability and quality attract customers.

Today, the MTA—the largest regional transit provider in the Western Hemisphere—faces a new challenge, one that could erode the gains of the past 20 years. The improved system makes us vulnerable to complacency. That would be a serious mistake. Failing to invest in the core MTA system would ignore the lessons of the past 20 years and prevent the MTA from meeting the region's future needs. New York's economic boom of the mid to late 1990's and its recent historic population growth were supported by an increasingly dependable transit system. The MTA's ability to absorb a 46% rise in annual trips since 1992 was made possible by the rebuilding programs that increased reliability and quality. Similarly, the robust population and employment growth forecasts for the next 20 years—reaching 8.4 million NYC residents by 2025 and supporting a 1% per year increase in regional work trips—require a transit system that can be relied upon to access jobs, respond to business opportunities, and empower all our citizens to move anywhere in the region. Fulfilling this role requires continued improvement in the MTA system through ongoing investment.

Investments in Reliability and Quality Service

The \$17.2 billion core capital program, along with complementary services provided by the operating budget, focuses on improving reliability and quality—both keys to mobility. Reliability

gives riders the confidence that they will get where they are going on time, a critical factor in customer satisfaction, while also increasing the effective capacity of the system by reducing disruptions. Quality signifies a system in control, one that is inviting, safe and secure, increasing customers' willingness to use the system. A high quality, reliable system encourages people to come to New York in ever growing numbers to live, work and play.

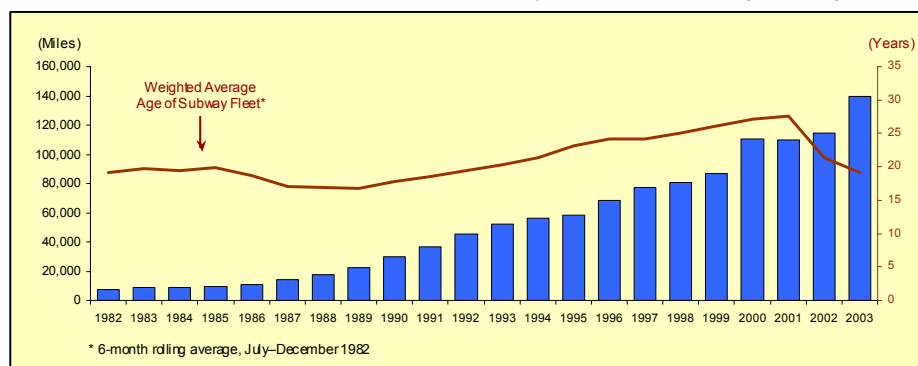
Invisible Infrastructure is Critical to the MTA Network	
<i>Track Length:</i>	<i>1,960 miles—enough to reach from New York to Santa Fe, NM</i>
<i>Mainline Switches:</i>	<i>3,259—supporting the complex network of rail service branches and express and local transit service</i>
<i>Signal Blocks:</i>	<i>14,850—controlling 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, containing 181,900 miles of wire—enough to circle the Earth over 3½ times</i>

Delivering reliable service depends on constant investment in the core system to ensure that every component of that system works. This depends not only on trains and buses that run well, but also on the invisible infrastructure such as track, which must be well-maintained and free of debris; pump rooms, which keep the system free of water; and signals, which manage train movements. All of these components must work well together in order for customers to experience good service. A failure in any one of these thousands of assets can mean delays for hundreds of thousands of customers.

The 2005-2009 Capital Program provides a range of investments to address all components of the infrastructure. Investments of \$6.7 billion in the visible infrastructure include \$750 million for roadway and deck rehabilitation to keep traffic moving smoothly at the bridges and tunnels; \$2.5 billion in station rehabilitations to

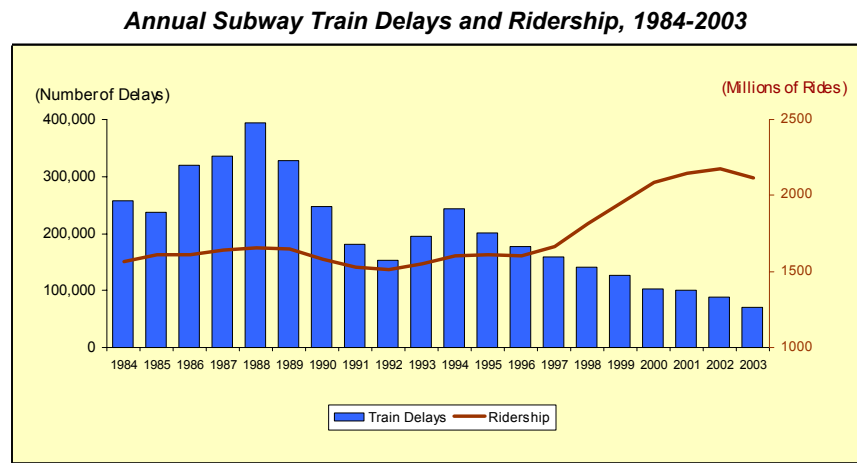
improve the customer environment; and \$3.4 billion for ongoing fleet replacement, which will continue to provide transit customers with both enhanced comfort and a ride that is far less prone to breakdown.

Mean Distance Between Failures—Subway (12-Month Rolling Average)



The MTA's continuing capital investments of \$10.5 billion in the invisible infrastructure will ensure even further improvements in reliability. The program invests in: replacing track, to allow the new trains to run smoothly and at maximum speeds; rehabilitating pump rooms to remove water from the system; replacing fan plants and rehabilitating tunnel ventilation buildings to maximize response to smoke conditions; modernizing signals to effectively manage train movements and safely increase capacity; overhauling the extensive power system to ensure uninterrupted electricity to move trains and operate these support systems; and replacing or rehabilitating underwater bridge structures. Investments to expand or reconfigure maintenance shops, rail yards and bus depots accommodate the growing, more diverse fleets.

These investments, coupled with ongoing inspections and maintenance, virtually eliminate failures and derailments. And this means the MTA network can carry more people quickly and safely.

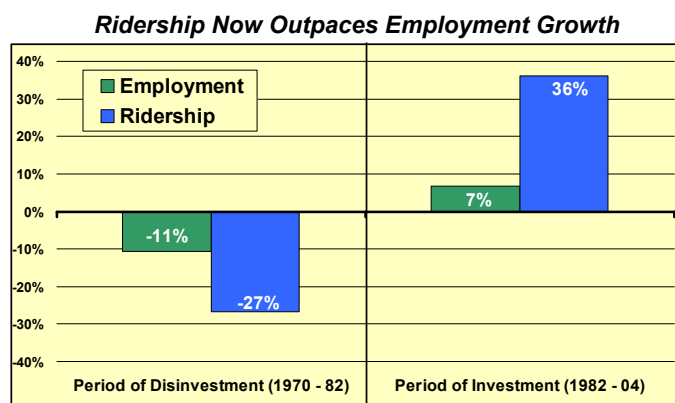


In addition to continuing to upgrade the aging components of the existing infrastructure, the 2005-2009 Capital Program also enhances reliability by investing in improvements that were unavailable when these systems were first built. This program invests in: railroad command centers and automatic train control technologies to more effectively control train movement; installation of a third track and other improvements on LIRR's Main Line to increase overall flexibility and capacity for both peak direction service and the reverse commute; eliminating transfers to offer more direct services; and electronic information systems to let customers know when the next train or bus is coming. The program also invests in smart card technology to speed and ease fare payment, and in an evaluation of bus rapid transit, which employs streetscape, traffic signal, and vehicle enhancements to make bus travel easier and faster.

Demand to travel by automobile also continues to rise, so B&T must invest in the maintenance of the E-ZPass system, rehabilitation of roadways, reconfigurations of toll plazas, and better customer information about roadway conditions. These investments, in tandem with operating investments in facility maintenance, will help to maximize throughput and traffic flow.

Investments in B&T's infrastructure indirectly benefit the MTA public transportation network, because B&T contributes a substantial portion of its revenues to support mass transit—a total of approximately \$13 billion since B&T joined the MTA in 1968.

Delivering a high quality system depends on continuing the transformation of the customer's experience, encouraging people to use transit services that are welcoming, safe and secure. Creating a welcoming system depends on capital investments in reliability, which contribute to a smoother and quieter ride; cars, buses, and stations that are inviting and comfortable; and information that is meaningful. Investments in parking facilities at the commuter railroads increase and ease customer access to services. Fare discounts, which have reduced the average New York City Transit fare to \$1.26 (lower than in 1996), have sparked greater use of the system. Still further gains can be made with new MetroCard-based options, such as a bi-weekly card under consideration for 2005. Ongoing investments in intelligent transportation systems, in tandem with additional variable message signs installed at B&T toll plaza approaches, will improve the real-time information available to bridge and tunnel customers for route planning.



Source: MTA Division of Budget

These investments in reliability and quality give choices to the region's travelers. Customers no longer use transit only when they have to; it is now transportation of choice, well beyond the traditional five-day-per-week, peak-hour commute. And the next program promises to continue that trend.

Ensuring Systemwide Security

Willingness to ride also depends on confidence in the safety and security of the system, now more than ever. The events of September 11, 2001, changed forever the MTA's approach to securing its network and preparing for emergencies. Working with experts in system security, the MTA identified over \$1 billion in new needs to eliminate vulnerabilities and harden the system against a terrorist attack. As a result, \$591 million was added to the 2000-2004 Capital Program for priority investments, with \$143 million of that amount coming from the Federal Emergency Management Agency. For 2005-2009, an additional \$500 million supports further investments to harden the system and create redundancies to meet customers' needs in times of emergency.

Other investments in the 2005-2009 Capital Program will support security goals as well. Capital investments in tunnel lighting, ventilation, emergency power, and communications systems are important for emergency response for both road and transit facilities. Station rehabilitations improve lighting, sight lines, and customer information systems. And on a daily basis, the NYPD Transit Bureau and MTA Police Department provide a police presence to support system security.

Expanding the Network

Investment in the quality and reliability of the MTA network maximizes existing capacity. In addition, the success of the core capital program has made it possible to address longstanding system bottlenecks that have complicated travel for thousands of residents and that cannot accommodate future ridership demands. These major system expansion projects—the first since the 1940's—are designed to improve mobility in these areas.

East Side Access will near completion during the 2005-2009 Capital Program, bringing 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 potential Metro-North service to Penn Station in future years. The first segment of the Second Avenue Subway will provide service from 96th Street to 63rd Street, 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.

Other projects support growth in critical areas of New York City. To support development of Manhattan's Far West Side, New York City will be funding an extension of the 7 subway line to 11th Avenue and 34th Street, to support a massive rezoning, expansion of the Javits Convention Center, and construction of a multi-use sports and entertainment facility. In addition, the Lower Manhattan Tunnel project to JFK Airport will support the ongoing redevelopment of Lower Manhattan.

The 2005-2009 plan moves these projects aggressively into the implementation phase, but it cannot finish the job. These are projects of massive proportions, demanding a multi-billion dollar fiscal commitment. In this plan alone, the MTA will need at least \$4.2 billion in new funding to fulfill its commitment to these projects, with the balance of the funds expected to be committed by the federal government and other project stakeholders. Beyond 2005-2009, this need will extend into future five-year plans through 2020. Maintaining this commitment will drive a level of rail construction activity not seen in the New York region since the original subway system was built in the early 1900's.

Results: Wide-Ranging Benefits

The MTA's role in regional mobility is both critical and massive. The MTA serves a population of 14.6 million in a 5,000-square-mile service area, carrying about one in three of the nation's mass transit users and two-thirds of the nation's rail riders. Over 7 million passengers use MTA services on an average weekday, for a total of 2.3 billion trips in 2003. During the peak period, New York City Transit carries 83% of city residents traveling into Manhattan; Metro-North carries 78% of commuters in its area, and LIRR carries 76%. B&T handles about 300 million vehicles per year—more than any other bridge and tunnel authority in the nation. Moving this many people safely and efficiently has been possible only with substantial ongoing capital and operating investment in the reliability and quality of the system.

The benefits in quality and reliability promised by the 2005-2009 Capital Program will address these mobility needs—and much more. It will protect the transit system's ability to keep an estimated 2.6 million additional cars from choking the region's roadways, and encourage even more residents to leave their cars at home. This will further reduce the region's dependence on oil, providing a competitive edge as petroleum supplies diminish. And by offering a viable

alternative to the automobile, transit relieves congestion. According to the Texas Transportation Institute, the New York region's public transportation network saves individual travelers more time from roadway delays than does any other large urban public transportation system. Despite its enormous traffic volume, New York ranks only 21st among large urban areas in *per capita* congestion costs.

Less congestion, in turn, means less pollution. Add to that an MTA bus fleet that is the cleanest in the nation, and that means better air for everyone to breathe.

The MTA Network Prevents Pollution

Every year, public transportation in this region reduces pollution by:

- 22 million pounds of hydrocarbons
- 900,000 pounds of soot and particulate matter
- 19 million pounds of nitrogen oxides
- 310 million pounds of carbon monoxide

Further, the E-ZPass system saves an estimated 12 million gallons of fuel each year by reducing toll plaza waiting time.

Transportation is also a prime consideration for businesses that are assessing potential locations. A high quality, reliable transportation system helps to retain employers by facilitating access to a robust labor pool and enabling delivery of goods and services. It also spurs development and contributes to growth in real estate values. Indeed, numerous developments in the region probably would not have been built without restoration of the transit system. For example, the Citicorp Tower in Long Island City is located near a major transit hub, including the 63rd Street Connector. Companies in cities throughout Metro-North's service area, including New Rochelle, Bronxville, White Plains, and Yonkers, have chosen to locate near stations to provide convenient access for their employees, as well as a quick connection to Midtown Manhattan. The Main Line Corridor project for LIRR promises similar benefits to Long Island by enhancing capacity for service into Manhattan and increasing opportunities for reverse commuting.

Capital investments in transportation infrastructure have also been shown to yield direct economic benefits in New York and elsewhere. The \$16 billion that the MTA invested in its capital program between 1982 and 1991 generated an estimated \$27 billion in short-term economic activity, wages, and state and city taxes. The 1992-1996 MTA Capital Program generated an estimated short-term economic benefit of \$18 billion on an investment of \$12 billion and created an estimated 148,000 jobs. Nationally, each \$10 million in capital investment has been found to yield a \$30 million gain in business sales.

Ongoing Investment in the Future

The experience of the last 20 years has demonstrated that the 2005-2009 Capital Program investments to enhance the reliability and quality of the MTA network will boost the economic vitality of the region. Only sustained investment at sufficient levels can prevent disrepair from

reversing these gains and once again hobbling the transportation system. It is not enough to rehabilitate a system once; maintaining a reliable and safe network requires an ongoing cycle of capital and operating investments. The architect of the first capital program, Richard Ravitch, projected in 1982 that beyond investments in system restoration, \$1.1 billion per year in capital investments alone would be needed just to maintain the system from that point forward. In today's dollars, this figure translates to \$2.5 to \$3 billion per year—close to the budget for the 2005-2009 Capital Program, which does so much more than just maintain the system.

It is reasonable to expect the MTA to assume its share of cutbacks in these fiscally demanding times. But the capital and operating programs presented here have already been drastically cut—deferring important investments to focus on the most pressing needs. Further cuts to the investments in the core system would have an unacceptable impact on reliability and quality.

If the MTA is to continue to meet its obligation to support the region's economic vitality and quality of life, then we must fund, at a minimum, the proposed level of capital and operating investment. Failure to do so would jeopardize the progress we have already made and gravely compromise the system's future.

THE MTA CORE 2005-2009 CAPITAL PROGRAM

THE MTA 2005-2009 CORE CAPITAL PROGRAM

INTRODUCTION

The proposed MTA 2005-2009 Capital Program to sustain and enhance the existing core network totals \$17.221 billion (Table 1). This level of investment is consistent with the almost \$15 billion invested by the core 2000-2004 Capital Program, adjusted for inflation. 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 1
MTA 2005-2009 Core Capital Program
All Agency Summary
(\$ in millions)

Asset Category	New York City Transit	Long Island Rail Road	Metro- North Railroad	Bridges and Tunnels	Total
Rolling Stock	\$2,675	\$386	\$364	\$0	\$3,425
Infrastructure and Facilities	9,456	2,040	1,045	1,255	13,796
Total	\$12,131	\$2,426	\$1,409	\$1,255	\$17,222*

Numbers may not total due to rounding

*Total need is \$17.4 billion; proposed 2005-2009 program reduced to reflect the addition of \$209 million to the 2000-2004 program to fund the accelerated purchase of 120 Metro-North cars originally planned for 2005.

HIGHLIGHTS

New York City Transit - \$12.131 billion

The largest investment areas for New York City Transit continue to be rolling stock, stations, track, and signals. Nearly 960 new subway cars will be purchased - mostly for the B division - and over 1,300 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 bus service management and information system - piloted in the 2000-2004 Capital Program - will be expanded to the entire fleet in 2005-2009. The program budgets 55 station rehabilitations including the key complex at Columbus Circle, the last phase of NYCT's flagship station at Times Square and the rehabilitation at the Jay Street-Lawrence Street stations in Brooklyn including a new passenger transfer between these stations. NYCT will continue with its program to modernize its signal systems, expand the territory that will be managed from the new rail control center (RCC) and expand the number of stations that will receive new real time customer information from the RCC. Significant investments are slated for tunnel lighting and fan plants enhancing the safety of the system.

Long Island Rail Road - \$2.426 billion

A significant portion of Long Island Rail Road's program for 2005-2009 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 2012. The core investment of this package will be Phase I of the mainline corridor improvements between Bellerose and Hicksville, including grade separation. In addition, a new yard will be built to serve the Port Jefferson branch for additional fleet storage and investments will be made to ensure that the power grid can support additional electric cars. The purchase of 170 more M-7 cars will complete the replacement of the M-1 fleet, fully modernizing the LIRR's electric fleet.

Metro-North Railroad - \$1.409 billion

Metro-North focuses the largest share of its program on rolling stock, stations, track, and shops. Metro-North's M-7 purchases supporting the Hudson and Harlem lines will be completed in the proposed program and the agency will turn its attention to purchasing 100 new M-8 cars (MNR's share) to begin replacement of the M-2 fleet and provide for growth on the New Haven Line. Twenty-five station rehabilitations on the Hudson, Harlem, and New Haven Lines will be progressed in the next program. This will complete all the lower Hudson Line stations up to Croton-Harmon. And, phases 2 and 3 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.

Bridges and Tunnels - \$1.255 billion

The seven toll bridges and two tunnels originally built by the Triborough Bridge and Tunnel Authority between 40 and 70 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 and with particular emphasis on rehabilitation of the Bronx-Whitestone, Triborough, and Verrazano Narrows Bridges.

INVESTMENT EMPHASIS 2005-2009

The focus of capital investments included in the proposed MTA 2005-2009 Capital Program shows the progress that has been made over the last 22 years. Table 2 shows that overall, 56 percent of the proposed core program is dedicated to the ongoing cyclical replacement of restored assets. During the 1980's, 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 the 2000-2004 Capital Program, 50 percent 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 railcars, buses and track. The level of reliable service the MTA system delivers to its customers each day is testimony to this accomplishment.

As Table 2 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 as well as for the MTA's bridges and tunnels are largely on normal replacement cycles

At \$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. Interestingly, a study presented in 1981 with the first MTA five year plan – and updated in the mid-1980s – predicted that an outgoing commitment between \$2.3 billion and \$2.6 billion per year (in today's dollars) would be needed once the entire system reaches a

state of good repair.

While 83 percent of the proposed program is focused on basic restoration and replacement of existing assets, funds are included for enhancements to the system (system improvements). These investments – 14 percent of the plan – are targeted to expanding the carrying capacity of the system and improving the quality of service for our customers. Investments in fleet growth, additional track capacity, centralized train control, real time customer information, and toll plaza reconfigurations improve the MTA's ability to meet the needs of its customers.

Table 2
MTA 2005-2009 Core Capital Program
Investments by Needs Classification
(\$ in millions)

Agency	State of Good Repair	Normal Replacement	System Improvement	Other	Total
NYCT	\$4,482	\$5,953	\$1,475	\$222	\$12,131
LIRR	86	1,360	758	221	2,426
MNR	51	1,200	87	71	1,409
B&T	0	1,112	69	74	1,255
Total	\$4,620	\$9,625	\$2,389	\$588	\$17,222*
Percent of Total	27%	56%	14%	3%	100%

Numbers may not total due to rounding

*Total need is \$17.4 billion; proposed 2005-2009 program reduced to reflect the addition of \$209 million to the 2000-2004 program to fund the accelerated purchase of 120 Metro-North cars originally planned for 2005.

AVAILABILITY OF FUNDING

Table 3
MTA 2005-2009 Core Capital Program
Funding Sources
(\$ in billions)

Source of Funds	Amount
Federal Formula Capital Assistance	\$4.500
MTA Non-Bond Contributions from Potential Asset Sales and Surplus Funds from Prior Programs	\$1.400
Total Predicted Funding	\$5.900
Total Funding Need	\$17.200
Funding Gap – to be filled by other sources such as new MTA debt, new revenues, State and City subsidies	\$11.300

Federal Title I and III

The reauthorization of the Transportation Efficiency Act for the six-year period covering 2004 through 2009 is currently under deliberation in congress. While both houses and the administration have put a number of versions forth, it is our expectation that approximately \$900 million per year will be the MTA's share of the national authorization.

MTA Non-Bond Contributions

The MTA will aggressively seek to generate up to \$1 billion in sales of its diverse real estate holdings to support the capital plan. In addition, approximately \$400 million is expected to be available from surplus funds freed up from prior programs as well as a small amount of investment income generated from cash deposits being held for the benefit of the capital program.

Funding Gap

The MTA will work with its funding partners to develop proposals to fill the capital funding gap. Options for closing this gap include new MTA debt; new dedicated revenue sources; or, additional appropriations from our state and local governmental funding partners.

PLANNING THE 2005-2009 CAPITAL PROGRAM

The primary planning vehicle for all the MTA capital programs is an assessment that establishes the long-term context for selecting the projects that are included in the five-year program. The assessment is grounded in asset inventories and condition ratings to determine the replacement cycles for all the system assets (rolling stock, infrastructure, stations and facilities). It also considers the rollout of the key investment strategies that set program area objectives and configurations through the years. The agencies' 2005-2009 investments are integral to multi-year strategies and support subsequent investments in order to reach long-term objectives.

Each program category discussion included in the agency sections that follow begins with the long-term investment perspective for that category and sets the context for the specific 2005-2009 program proposals.

Projects included in the program must pass certain threshold tests to qualify for the capital plan. The first is whether a project is appropriately supported by a long-term investment strategy. In addition, it must have sufficient definition of its scope and budget to ensure confidence about the product and costs. A clear rationale and appropriate cost justification against reasonable alternatives must also be made. The scoping effort for the 2005-2009 plan is the most extensive of any of the five-year plans to date.

While the capital program is sized to keep pace with replacement cycles and continue modernizing substandard elements, the ability of the agencies to manage large volumes of work is also taken into consideration and serves to factor in how aggressively investment strategies are implemented.

PLAN ORGANIZATION

Following this introduction are detailed discussions of the agencies' proposed capital programs for 2005-2009. The project listings for these programs are found at the back of the agency narratives.

MTA NEW YORK CITY TRANSIT

MTA NEW YORK CITY TRANSIT

2005-2009 CAPITAL PROGRAM

OVERVIEW

New York City Transit operates the largest public transportation system in the United States, serving the core of the MTA's regional network. NYCT carries nearly two-thirds of all heavy rail transit riders in the U.S. On an average weekday, 2.4 million people ride on NYCT buses, twice that of Los Angeles, the second largest bus fleet in the U.S. NYCT operates more than 6,000 subway passenger rail cars, approximately 4,500 buses, 660 miles of mainline track, and 468 passenger stations. Serving a city with eight million people, 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, many factors - notably New York City's financial crisis in the 1970s - caused years of severe underinvestment in NYCT's infrastructure. By the 1980s, NYC's public transit system neared total collapse. Service was hampered severely by derailments, bus and subway car mechanical failures, crime, and deteriorated stations. The customer environment was famously horrendous, viewed by many as a symbol of urban decay. Rallying public support, the MTA launched the first five-year capital program in 1982 to begin restoring the system. Now completing the fifth capital program, NYCT has brought a large portion of its capital assets into a state of good repair, most noticeably rail and bus fleets and track, while making considerable strides in rehabilitating other assets. Because of the achievements of preceding capital programs in rehabilitating core assets, it has been possible in subsequent plans for NYCT to make investments that enhance the system and improve customer service. The most familiar example is a new fare collection system, featuring MetroCard, which eliminated the token and enabled NYCT to offer for the first time new incentives such as free bus-to-subway transfers and discounted multi-ride passes.

Determined never to repeat the disinvestment and resulting crises of the past, the capital program funds the investments necessary to restore and replenish the system's capital stock. In the proposed 2005-2009 Capital 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 introduced to enhance operational capabilities and / or improve customer service. Many investments in the 2005-2009 Capital Program recognize a new security paradigm, and thus include measures to strengthen the system from threats and to provide for greater customer and employee safety.

Four themes are visible in the proposed 2005-2009 Capital Program:

- **Mobility** – NYCT carries over 2.2 billion riders annually. According to the U.S. Census Bureau, New York is the only city where the majority of workers – 55 percent, or 1.9 million people – commute from home to work via public transportation. Public mass transportation is indispensable to meeting the demands of New York's growing population, dynamic job market, and diverse cultural centers. New York's businesses compete globally. Its cultural institutions are world class. The region's residential and commercial real estate is among the most desirable on the planet. The quality and reliability of mobility within this region's core, overwhelmingly provided by NYCT, influence land values, the cost of business, tourism, and regional economic growth and

competitiveness.

The transit system plays a critical role in the economy of New York City and the entire region. Its operation and reconstruction generates thousands of jobs, producing multiplier effects throughout the regional economy. Moreover, capital program investments strengthen local communities and improve property values, helping to ensure that New York City neighborhoods remain strong and attractive for real estate investment.

Continued and sustained investment in restoration (state of good repair, or SGR) and normal replacement (NR) of the fleets and infrastructure and system improvements (SI) are key to maintaining and strengthening the mobility and economic vitality of the region.

A large component of improving mobility is maintaining and improving the reliability of service. In this vein, investments in NYC Transit's primary service delivery assets – trains and the tracks they run on as well as buses – represent a third (31 percent) of the proposed program, comparable to levels in past programs. 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 140,000 miles today. Likewise, bus fleet reliability has improved from below 1,000 miles between breakdowns to 3,600 miles today. This increased reliability is translating into increased ridership, especially weekend ridership, which has grown almost 60 percent over the last seven years. This growth is particularly notable because weekend customers are typically "choice riders" engaging in non-work trips for which there are many alternatives to NYCT.

Besides improving fleet reliability, introducing advanced signal systems (communications based train control, or CBTC) to replace 70-year old fixed block signals is an example of how investments in transit meet New York's large and growing mobility needs. CBTC provides NYCT with centralized train monitoring and control, increases the safety of the system and provides passengers with real-time travel information, increased throughput, and reduced travel times.

- **Customer satisfaction** – Once a symbol of urban decay, graffiti-laden subway cars are a thing of the past. Many stations have been restored to their original glory or better. The introduction of MetroCard puts modern technology into the customer's hands and allows subway-bus transfers and time-based passes. Positive public perceptions about the quality of service are formed slowly, but can be broken quickly if trains or buses are delayed and customers are late for work. Capital programs featuring investments in fleets, stations, and modern fare collection systems have been effective in improving customers' opinion of NYCT's services as shown by NYC Transit's annual customer surveys. During the first capital program in 1986, only 25 percent of survey respondents rated subway service as "good" or "excellent"; today the level is 62 percent.

Like earlier capital programs, the proposed 2005-2009 Capital Program will improve the riders' experience and satisfaction. NYCT will purchase 959 state-of-the-art subway cars that in addition to being more reliable offer more customer amenities such as automated announcements in both audio and visual formats and improved lighting and climate control. Also, NYCT will buy 1,323 low-emission buses and rehabilitate another 55 passenger stations. Information will be more available as a bus locator and customer

information system is deployed throughout the system. Likewise, a high-tech public address system will be installed to inform passengers of real-time train arrivals and service changes. Steady capital investment is the foundation for maintaining and improving service reliability, reducing travel times, and enhancing station aesthetics. Further, healthy public transit improves our environment by providing attractive alternatives to automobiles, thereby reducing emissions significantly.

- ***Safety and security*** – While crime against persons and property has always been a major concern in every aspect of NYCT's capital programs and operations, the attack on the World Trade Center and events abroad have prompted new focus on safety and security in the transit system. Dedicated funding in the 2000-2004 Capital Program was established to address security needs across all MTA agencies. Such events and concerns have shaped the ongoing planning, design, and construction of NYCT's existing capital reinvestment priorities to reflect the MTA-wide commitment to the safety and security of riders and employees. Station rehabilitation projects, for example, improve access, sightlines, and lighting to eliminate potentially unsafe conditions. Improving tunnel lighting, rebuilding fan plants, and strengthening security at facilities provide better protection in emergency conditions. Such systems as centralized train control, wireless radio, and subway antenna cable improve response capabilities in situations ranging from minor service disruptions to major emergencies and are high priorities in the proposed program. NYCT is committed to providing a safe environment for the riding public and for employees.

NYCT's previous capital programs contained a specific investment category for Security (budget category #14) that generally featured investments to rehabilitate police district offices located within stations. The proposed 2005-2009 Capital Program does not include such investments because police district office needs are minimal over the period.

- ***Investments to maintain the core infrastructure*** – The positive effects of past capital investments are difficult to overstate. With improvements in reliability, customer satisfaction, and crime prevention, NYC Transit has been able to attract new customers and even maintain ridership levels during the recent economic downturn. Nevertheless, the need for normal replacement reinvestment in assets already brought to a state of good repair is present and growing over the horizon.

Clearly, failure to replace assets at the end of their economic useful life increases operating costs and threatens system reliability. This is a certainty for service delivery assets like the subway cars and buses. Ensuring that assets perform optimally throughout their useful life requires regular maintenance. Today's older subway car classes, now approaching 40 years old, reached a state of good repair not through replacement with new cars but with comprehensive overhauls. NYCT is committed to maintaining all its assets, especially those restored to good repair in previous capital programs.

In all, the horrid conditions of the transit system of two decades ago are mostly a distant memory for many and only exist in period movies. Adequate reinvestment in the system will assure that it remains only a chapter in the past.

THE 2005-2009 CAPITAL PROGRAM

The proposed 2005-2009 Capital Program totaling \$12.131 billion provides the resources needed to restore, replace, rebuild, and modernize significant portions of NYC Transit's infrastructure. Planned system improvements will enhance access to the system and strengthen NYCT's abilities to provide and maintain service. Table 4 below identifies these investments by asset category.

Table 4
MTA New York City Transit
2005-2009 Capital Program by Investment Category
(\$ in millions)

Category	Plan	Percent
Subway Cars	\$1,867	15%
Buses	809	7%
Passenger Stations	2,110	17%
Track	1,137	9%
Line Equipment	1,000	8%
Line Structures	605	5%
Signals and Communications	1,876	15%
Power	565	5%
Shops	461	4%
Yards	378	3%
Depots	636	5%
Service Vehicles	93	1%
Miscellaneous	507	4%
Staten Island Railway	86	1%
Total	\$12,131	100%

Numbers may not total due to rounding

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 infrastructure, fleets and support facilities, stations and in-station assets, and miscellaneous.

Right-of-Way Infrastructure

Less visible assets such as the traction power system, the signal system, and the communication system are crucial for enabling safe, fast, and reliable service. Tunnel lighting and fan plants are critical in an emergency and thus receive elevated priority. Investments in right-of-way infrastructure account for 43 percent of the proposed 2005-2009 Capital Program.

- **Track** – The plan continues the normal replacement of mainline switches and track. Also planned is the replacement of bolted rail with continuous-welded rail to reduce the

occurrence of broken rails and improve performance. A total of \$1.137 billion is budgeted.

- **Tunnel lighting** – NYCT proposes \$311 million to install new compact fluorescent lighting is planned for seven lines and two under-river tunnels. The majority of the lighting being replaced is original equipment based on design standards from the 1930s or earlier. This work reflects SGR priorities coupled with opportunities to reduce the costs of right-of-way access. After 2009, approximately 137 of the 418 track miles of tunnel lighting will still need to be brought to a state of good repair.
- **Pump rooms and fan plants** – The subway has 289 pumping facilities and 201 fan plants. The plan provides \$689 million to restore 20 pump rooms, replace 21 deep wells, and renew 13 and add four new fan plants. These will bring NYCT's pump rooms to a state of good repair. Modernized fans are expensive, as much as \$40 million each, and dominate line equipment investments in the proposed program. Some fans must be enlarged to increase airflow and some tunnels were built without fans and need new units. After 2009, 61 fan plants will still require state of good repair investment.
- **Line structures** – Major work focuses on rehabilitation of subway structures as well as continued work on elevated structures. Also, painting of steel elevated structures is becoming a major investment component. The proposed plan includes \$605 million for repairs along nine lines and painting of 11 elevated line structure segments.
- **Signals** – NYCT continues the deployment of advanced signals and train control systems, and proposes \$1.371 billion for them. Communications based train control (CBTC), installed on the Canarsie line in a pilot project now nearing completion, will be installed on the Flushing and Culver lines in this plan. Also, automatic train supervision (ATS), which permits centralized train monitoring and supervision, is being extended to the B Division. Coupled with required communications investments, these systems promise more efficient train operations and real-time information for customers at stations.
- **Communications** – To reduce reliance on third-party carriers, improve the reliability and effectiveness of the communications network, and enable high-speed / high-capacity data transmission, NYCT is upgrading its backbone telecommunications data network to a synchronous optical network (SONET) with connectivity at every station. The final phase of the upgrade is included in the proposed program. The upgraded network will enable NYCT to improve train control, customer support, and communications through related investments in the ATS system, public address / customer information screens (PA/CIS), and CCTV. At the same time, NYCT is replacing and upgrading the subway and station agent radio systems to meet new requirements, maintain service reliability, and provide new flexibility for station personnel. A total of \$505 million is proposed for communications work.
- **Traction power** – NYCT's traction power system is vast, including over 200 substations, 300 circuit breaker houses (CBHs), hundreds of miles of traction power cables, and an extensive monitoring and control system. Though most of the power system has achieved a state of good repair, much of it now needs to be addressed through normal replacement investments. With an allocation of \$565 million, the proposed 2005-2009 Capital Program includes full modernization of substations, addresses much of the power distribution system, and upgrades the control system.

Fleets and 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 34 percent of the proposed plan.

- ***Subway cars*** – Since the subway fleet was restored to good repair in the 1982-1991 Capital Program, NYCT has steadily 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 2004, NYCT operates a fleet of 6,206 rail cars, seven percent larger than in 1999. The proposed 2005-2009 Capital Program allocates \$1.867 billion to purchase of 959 new rail cars, 912 to replace B Division subway cars scheduled for retirement and 47 for A Division 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 841 standard buses, 244 articulated buses, and 238 high-capacity express buses. The new bus purchases represent a fleet growth of approximately two percent in “standard bus equivalents” (SBEs) over the fleet as of 2004. The proposed program includes \$809 million for this category.

In mid-2004, the MTA and the City of New York agreed to transfer to NYCT the management and operation of seven City-funded but privately operated bus services, but have not yet implemented the transfer. Until that time, the proposed 2005-2009 Capital Program does not include NYCT's assumption of the private bus services.

- ***Rail car shops and yards*** – Overhaul and maintenance shops need significant investments, not only to improve facility condition, but also to adapt them to the needs of a high technology fleet. Key projects in the proposed plan include rehabilitation of the 207th St. Overhaul Shop to improve its ability to support the fleet's Scheduled Maintenance System, and reconstruction of the Livonia Maintenance Shop to accommodate the new technology fleet to be assigned there. Proposed yard investments will address subway fleet growth, security needs, and track and switch replacement. Notable are the expansion of the Jamaica Yard to add 24 more tracks and signal work at Corona Yard to coordinate with the ongoing shop replacement and signal upgrade on the Flushing line. A total of \$839 million is allocated for shop and yard work.
- ***Depots*** – The proposed 2005-2009 Capital Program includes \$636 million for depot investments. Comprehensive facility investments are planned at the East New York Depot and Base Shop, Clara Hale Depot, and Flatbush Depot, as well as partial rehabilitation of three other depots. In addition, a new depot is funded to replace the Jamaica Depot. These projects are critical to address the long-standing service and storage deficiencies of the Brooklyn and Queens bus fleets. Initial funding for a new Charleston Depot on Staten Island is also included. Bus service improvements are planned with a new central radio system, system-wide deployment of a new bus locator system, and the introduction of bus rapid transit (pending completion of a related study funded in the 2000-2004 Capital Program).

Passenger Stations

Investment in passenger stations is 17 percent (\$2.110 billion) of the proposed 2005-2009 Capital Program. These investments are predominantly station rehabilitations, but they also address accessibility, fare collection, escalators, signage, and intermodal connections. Fifty-five stations are proposed for rehabilitation, most of which are on five lines. While this pace might move SGR beyond the 2019 goal, NYCT is reviewing the stations program for potential approaches to lowering the cost to enable more stations to be done in order to maintain the pace. With work committed through 2004, nearly 50 percent of the 468 stations will be in a state of good repair. The station rehabilitations proposed in the 2005-2009 Capital Program increase the figure to 59 percent of all stations.

Miscellaneous

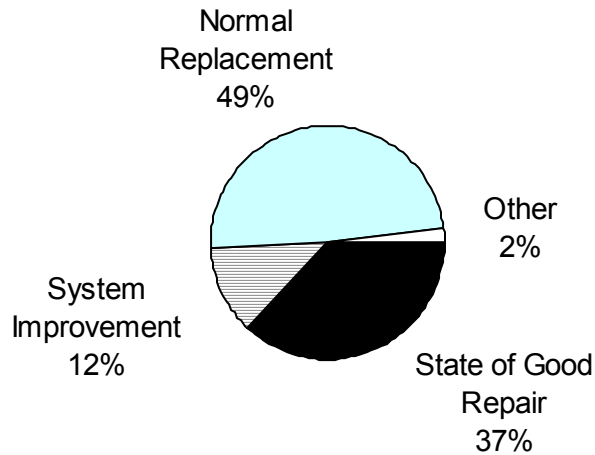
The proposed plan provides resources for service fleet replacement, program support, employee facilities, and Staten Island Railway (SIR) needs. These areas account for \$686 million (six percent) of the proposed 2005-2009 Capital Program.

- ***Service fleet*** – The support fleet includes rubber-tire vehicles and work trains. Rubber-tire vehicles have useful lives of approximately ten years, so a significant portion of the fleet needs to be replaced every capital program. As for work trains, the purchase of 19 diesel-electric locomotives, 18 flatcars, and two ballast trains are proposed for the 2005-2009 Capital Program.
- ***Employee facilities*** – Employee facility room rehabilitations at 16 locations are proposed for the 2005-2009 Capital Program. Generally, these are coordinated with station rehabilitation projects. Other highlighted employee facility projects include the bus command center and roof replacements at various locations.
- ***Staten Island Railway (SIR)*** – The self-contained SIR is largely in a state of good repair, but still requires key investments. 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, repair of six bridges / thru-spans, and rehabilitation of 11 station houses.
- ***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 2005-2009 Capital Program. The program continues NYCT's emphasis on achieving and maintaining a state of good repair by devoting 86 percent of the funding to restoring and replacing assets. Nearly 50 percent of the proposed 2005-2009 Capital Program is dedicated to the ongoing replacement of assets previously restored.

Figure 1
NYC Transit 2005-2009 Capital Program
Investments by Needs Category

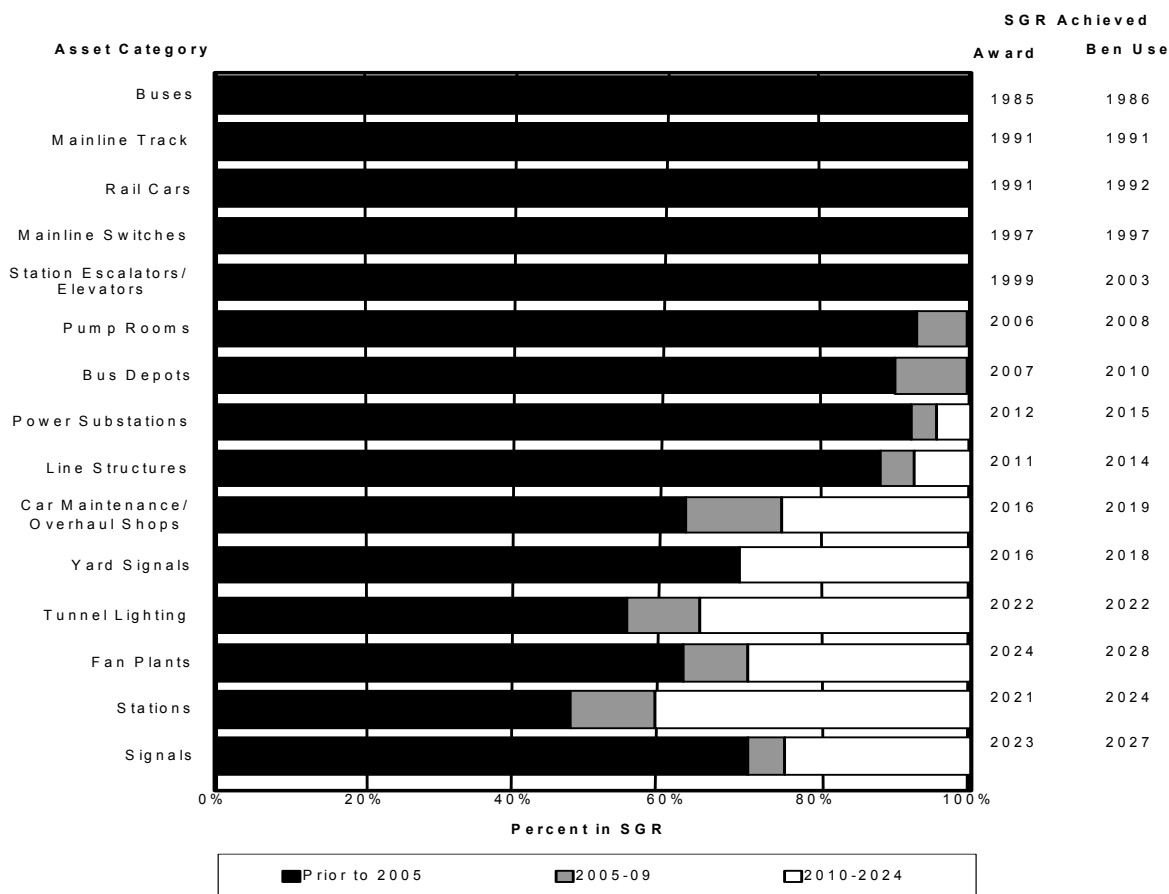


NYCT is making select strategic investments to keep pace with technology, to meet the rapidly changing demands of customers, and to improve service operations and flexibility. Notable proposed system improvement (SI) projects include: expansion of the A Division rail car fleet, full accessibility improvements in stations, a new passenger transfer between the Jay and Lawrence St. stations, extension of the ATS system to the B Division, completion of the B Division data network, and facility improvements such as expansion of the Jamaica Yard and extension of the new bus locator system to all buses.

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. Additionally, well over 80 percent of pumps, bus depots, power substations, and line structures are in good repair as of the end of 2004.

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, 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 and alternative construction approaches that would shorten project duration.

Chart 1
Progress to State-of Good Repair



A number of asset categories will have a considerable amount of work even after the 2005-2009 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 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 2000-2004 CAPITAL PROGRAM

Over the last five 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 2000-2004 Capital Program, will be completed after 2004.

\$ NYC Transit ordered 1,210 new subway cars at a cost of \$2.0 billion. These purchases

included 320 R142 and R142A cars to replace aging A Division cars (namely, the “Redbird” fleets) and 230 additional cars to expand the A Division fleet. NYC Transit also ordered 660 new R160 cars to replace aging B Division cars.

- \$ The agency was expected to purchase 1,065 new buses and continue the deployment of higher capacity buses to match appropriate bus types with service demand. Of the 1,065 total buses, more than half are for non-standard type buses, including 325 articulated buses and 290 high-capacity express buses.
- \$ NYCT followed through with its commitment to make the fleet the cleanest-running in the nation. Of the 1,065 new buses to be purchased in the 2000-2004 Capital Program, 450 are clean fuel buses (hybrid-electric or compressed natural gas). To reduce emissions on existing buses, NYCT completed repowering of nearly 700 buses with new, clean diesel engines, committed to operate the entire bus fleet with ultra-low sulfur fuel, and is nearing completion of the installation of catalyzed particulate filters on more than 3,000 buses. In addition, West Farms Depot opened as NYCT’s second clean fuel depot, serving 250 clean-fuel buses. Jackie Gleason Depot was the first depot to support clean fuel operations.
- \$ NYC Transit purchased 928 minibuses for the agency’s paratransit (Access-A-Ride) service to meet growing obligations under ADA.
- \$ NYC Transit awarded rehabilitation projects for 71 subway stations and full accessibility improvements at 23. Major station projects include the second phase of the Times Square complex project (which included the Flushing and Broadway-BMT line stations), the 74th St.-Broadway / Roosevelt Ave. complex, DeKalb Ave., Stillwell Terminal, Lexington Ave., and the Myrtle Ave. / Wyckoff Ave. complex.
- \$ The backlog of overage station escalators and elevators was eliminated, bringing these assets into a normal replacement investment cycle.
- \$ NYC Transit replaced key safety-related equipment along the right-of-way, including 50 track miles of tunnel lighting on 11 lines and 12 fan plants.
- \$ Many structures were repaired and / or painted. Two lines - the Canarsie line near Atlantic Avenue and the Nassau Loop - were significantly reconfigured to improve operational efficiency and reduce maintenance costs.
- \$ NYC Transit continues its strategic shift to communications-based signal technology to improve train tracking and centralize train control by starting design for ATS on B Division lines and CBTC on the Flushing line. Previously awarded projects for ATS on A Division lines and for CBTC on the Canarsie line are nearing completion. These will allow operations to be controlled from the recently completed Rail Control Center.
- \$ NYCT began expansion of the telecommunications data network and installation of new public address / customer information screens (PA / CIS) in stations on the A Division. In concert with the ATS system, these investments will provide real-time train information for riders in stations.
- \$ NYC Transit’s fleet maintenance abilities are being significantly improved with awards to replace the Corona Maintenance shop, to build the new Grand Ave. Depot / Central

Maintenance Facility, and to replace the 100th St. Depot. Funded in the 1995-1999 Capital Program, reconstruction of the West Farms (Coliseum) Depot was also completed in this period. These facilities enable NYCT to better maintain the new technology railcars and the diversified and growing bus fleet.

- § NYC Transit built a new consolidated revenue processing facility, which also houses MTA Bridges and Tunnels' revenue processing functions.
- § NYC Transit repaired the portions of the 1/9 line, stations, and related infrastructure destroyed or damaged in the September 11, 2001 terrorist attack on the World Trade Center. Service was restored in September 2002.
- § NYCT broadened its use of a number of innovative construction methods, such as design-build for major facilities and line-projects for multiple station rehabilitations. These approaches reduce project duration and lessen the impact on operations and customers.

PLANNING THE CAPITAL PROGRAM

The 2005-2009 Capital Program is based on a twenty-year capital needs assessment that sets the long-term context for selecting projects. The building blocks are 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 2000-2004 Capital Program to ensure a project's readiness for award in the early part of the 2005-2009 period.

The 2005-2009 period is very important for NYC Transit, particularly as more new technologies continue to be introduced and extended beyond the initial pilot implementation. 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 concluding their development and testing stages 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 the needs assessment process.

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-501

NYCT operates a fleet of 6,206 subway rail cars, which is a 7.2 percent increase over the number of cars in inventory prior to the 2000-2004 Capital Program. This includes 2,764 A Division cars and 3,442 B Division 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 amenities in the car fleet, including more reliable rooftop air conditioning, wider doors, full accessibility features, automated public address systems and signage, improved lighting, emergency customer intercoms, and electronic route maps. Timely fleet replacement and the Scheduled Maintenance System, funded under the operating budget, have improved the subway fleet's reliability, as measured by mean distance between failures (MDBF), to an all-time high of more than 140,000 miles.

The fleet strategy for the next 20 years focuses on continuing the normal lifecycle replacement of cars and strategic fleet growth to meet ridership demands. NYCT's 20-year plan projects increasing the fleet by 9.1 percent to 6,771 cars by 2024.

The 2005-2009 Capital Program

New York City Transit proposes to invest \$1.867 billion in new railcars in the 2005-2009 Capital Program. In nominal dollars, this is on par with the \$1.991 billion invested in cars in the 2000-2004 program. Nearly the entire proposed 2005-2009 rail car program is targeted for the normal replacement of 912 B Division cars. Fleet growth is proposed for the A Division in this period with \$76 million to purchase 47 cars. These will be used to make up 11-car trains on the #7 line when new technology cars are shifted to it.

The new car purchases will continue to add new and exciting technologies to improve customer amenities and service operations. For example, the new B Division cars will include a more versatile route map display called the Dynamic Route Information Display (DRID). Unlike static route maps, this will provide real-time on-board route information to passengers and allow for updated route information during service changes.

NEW YORK CITY TRANSIT

BUSES

CATEGORY T-503

NYCT's bus fleet reached a state of good repair as of 1985 award. NYCT's bus fleet is by far the largest in the U.S. and a national leader in reduced emissions. In recent years, NYCT has diversified the fleet to include special-purpose buses to meet dynamic service needs more effectively. By the end of 2004, the total fleet of 4,453 includes 3,157 standard buses, 695 articulated buses, and 601 high capacity express buses, and has grown by 170 buses (4 percent) since 1999. Factoring in the larger articulated and high-capacity express buses, the 4,453 buses have the same carrying capacity as 5,068 standard buses.

The average age of the standard bus fleet today is approximately six years and less than five years for the articulated and express bus fleets. These all coincide with a useful life target of 12 years. 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 striven to make its bus fleet the cleanest running in the world and has introduced many emission-reducing technologies. Through 2004, NYCT ordered more than 900 compressed natural gas (CNG) and hybrid electric buses. The agency was the first transit property to use ultra low sulfur fuel on all its diesel buses. Also, approximately 700 two-stroke diesel bus engines were replaced with cleaner, more fuel-efficient four-stroke engines. And, particulate filters are being installed on more than 3,000 buses in the fleet. In the future, all standard buses purchased will use clean-fuel technology.

In addition to its bus fleet, NYCT has 1,234 paratransit vehicles, which 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.

NYCT's long-term fleet strategy will continue normal replacement based on a 12-year useful life for buses and seven-year useful life for paratransit vehicles. NYCT will continue to invest in new buses and clean fuel technologies such as compressed natural gas and hybrid-electric to reduce emissions.

The 2005-2009 Capital Program

The proposed 2005-2009 Capital Program includes \$809 million in new bus purchases and related bus investments. A total of 1,323 new buses will be ordered, including 841 standard (\$435 million), 244 articulated (\$143 million), and 238 express buses (\$128 million). All 841 standard buses will use clean fuel technology. The new bus purchases represent a fleet growth of approximately two percent in "standard bus equivalents" (SBEs) over the current fleet. In addition, \$75 million is planned for 948 new paratransit vehicles to replace older units and to expand the total fleet by approximately 33 percent. Also, other bus investments are proposed, such as the replacement of ticket processing units and coin modules on all NYCT Integrated Farebox Units, and research to reduce bus emissions.

NEW YORK CITY TRANSIT PASSENGER STATIONS CATEGORY T-504

NYCT's 468 passenger stations are used by 4.5 million customers each day. At 16 million square feet, the total floor space contained in NYCT's stations is greater than the entire office space in many U.S. cities. The system has 277 underground stations, 142 on elevated structures, and 49 on viaduct, fill, or cut structures. These stations contain 833 fare control areas, 2,252 MetroCard vending and express machines, 163 passenger elevators, 175 passenger escalators, and 37 gap fillers.

Almost all the stations reached their current configuration before 1940. With capital investments made through 2004, nearly half (221) of the stations have been restored to good repair. Stations have an expected minimum reinvestment cycle of 35 years. Some stations rehabilitated in the early 1980s, however, do not meet current standards. Consequently, in the 2000-2004 Capital Program, NYCT initiated normal replacement station rehabilitations in conjunction with state of good repair station rehabilitations.

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. Further, NYCT has initiated preliminary planning to equip additional stations, where feasible, with elevators and other ADA enhancements.

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, and the addition of new passenger transfers. NYCT also plans to reduce the reliance on gap fillers.

The 2005-2009 Capital Program

NYCT proposes \$2,110 billion for station rehabilitation, ADA improvements, fare collection, station escalators / elevators, and other station investments.

Station Rehabilitation

The proposed 2005-2009 Capital Program includes \$1.539 billion to rehabilitate 55 stations. The program funds the third and final phase of the rehabilitation of the Times Square complex. Under phase three, the Shuttle portion of the complex will be reconfigured to relieve pedestrian bottlenecks, provide new station access, and improve train operations. Also, the Jay St. and Lawrence St. stations in downtown Brooklyn will be rehabilitated in conjunction with construction of a new passenger transfer to link them. A number of other notable stations and complexes are addressed as well: the 59th St./Columbus Circle complex, 47-50 Sts. / Rockefeller Center station on the 6th Ave. line, Chambers St. on the Nassau Loop, Forest Hills-71 Ave. in Queens, and Smith-9th St. in Brooklyn.

Other proposed rehabilitations will address stations along the Brighton, Sea Beach, and West End lines in Brooklyn, the Pelham line in the Bronx, and the Far Rockaway and Rockaway lines in Queens. Most rehabilitations will be implemented on a line basis, especially in the Bronx, Brooklyn, and Queens. This 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.

In addition, normal replacement work is planned at four previously rehabilitated stations. Wall St. on the Lexington line and Kings Highway on the Brighton line will receive comprehensive rehabilitations. Major components will be addressed at two other stations, 42nd St. on the Lexington line and Newkirk Ave. on the Brighton line.

Accessibility for the Disabled

NYCT is on pace to make 100 stations fully accessible in accordance with ADA standards by 2020. As of the end of 2004, full ADA accessibility at 64 Key Stations will have been completed or in progress. In the proposed 2005-2009 Capital Program, NYCT includes \$214 million in ADA investments at 17 Key stations, much of which will occur in conjunction with full station rehabilitations. Highlighted stations include the 59th St./Columbus Circle complex, 47-50 Sts. / Rockefeller, and Bowling Green in Manhattan, East 180th St. in the Bronx, Union Turnpike in Queens, and Church Ave. and Jay St. in Brooklyn. Work at these stations will meet ADA specifications for platform edges, signage, lighting, handrails, and elevators and / or ramps.

Fare Collection

The proposed program includes \$97 million for fare collection systems and equipment. Highlighting these investments is a proposed project to incorporate a proximity-based "Smart Card" technology or similar advanced fare media technologies. Smart Card would allow for easier customer flow through a control point and greater flexibility for the region's mass transit customers. Smart Card technology would be rolled out with the normal replacement of the electronic components of the existing fare collection system. These components are now reaching the end of their useful lives.

Escalators and Elevators

The proposed 2005-2009 Capital Program includes \$114 million to replace escalators and elevators. A total of 23 escalators will be replaced at three stations: Roosevelt Island (63rd St. line), Parsons Blvd. and Van Wyck (Archer Ave. line). In addition, ten elevators will be replaced at various stations.

Other Station Improvements

There are \$148 million in other station improvements proposed for the 2005-2009 Capital Program. These investments include the previously noted new passenger transfer between the Jay St. and Lawrence St. stations, system-wide station signage, platform toppings at four Brighton line stations, a new street entrance canopy at the Bowling Green (Lexington line) station, and replacement of gap fillers at 14th St. / Union Square (Lexington line).

NEW YORK CITY TRANSIT TRACK CATEGORY T-505

The NYCT rail network consists of 660 miles of mainline track and 1,784 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.

NYCT track is traversed every weekday by hundreds of trains carrying the subway's 4.5 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, employing everything from rudimentary techniques to the most sophisticated inspection technologies to measure track conditions. All mainline tracks are inspected visually by trackwalkers twice weekly; mainline track switches are inspected, tested, and maintained monthly by two-member teams; all aspects of track geometry are measured and recorded four times a year; rail wear is measured at least once per year using track geometry cars; and once or twice per year, rails are scanned for internal defects using a Sperry rail car. Every four years, all track sections are surveyed by an engineering team that estimates the number of years of useful life remaining for the section.

NYCT's long-term strategy calls for a uniform mainline track replacement pace of approximately ten miles of track and 36 mainline switches per year.

The 2005-2009 Capital Program

The proposed 2005-2009 Capital Program includes \$1.137 billion for normal replacement of approximately 49 miles of mainline track and 180 mainline switches. The largest share of work is panel track installed in prefabricated sections 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 50 track miles of welded rail (\$55 million), which has significantly lower occurrences of rail breaks and cracks.

NEW YORK CITY TRANSIT LINE EQUIPMENT CATEGORY T-506

The subway contains a diversity of electrical and mechanical equipment and support infrastructure along the right-of-way including 418 track miles of tunnel lighting, 201 ventilation (fan) plants, 289 pump rooms, and 34 deep wells. In the post-9/11 environment, the importance and priority of many of these assets have been elevated.

Lighting is incorporated into subway tunnels to enhance safety and aid rescue personnel in emergency situations. Tunnel lighting standards today are greater than what was available when the lighting was initially installed in the 1920s and 1930s. For example, when a higher level of ambient light on the trackway is required, lamps must be placed on both sides of the trackway, and circuits must be supplied from the stations at both ends of the tunnel section. Today's installations implement a design standard intended to provide adequate lighting for today's needs.

Ventilating fans in subway tunnels enhance safety and assist rescue personnel. They are designed to draw smoke and fumes away from passengers and provide a safe path for emergency rescue operations. To install appropriately sized fans in tunnel sections, designs of new plants are highly complex and must account for the length, depth, porosity, size, and rail traffic characteristics of tunnel sections. In addition to the installation of highly sensitive, multi-directional turbine-type fans, fan projects include mechanical damper systems along the right-of-way and complex control systems. The long-term goal of the fan plant program is to modernize existing fan plants, construct new plants, and extend centralized control of fans to all locations. NYCT has addressed ventilation needs of the system's highest priority line segments; overall, through 2004 approximately 62 percent of all fan plants will be in state of good repair.

Pumps remove water that collects in tunnels from seepage, storm runoff, and water main breaks. Approximately 93 percent of pump rooms are in state of good repair. A large share of the cost of pump projects is associated with discharge lines to appropriate drainage systems. In addition to pumps, NYCT has a system of wells outside of the system to lower the water table in critical areas. This system now requires normal replacement investment.

The 2005-2009 Capital Program

NYCT proposes \$1.028 billion for line equipment investments, including:

- \$311 million to replace approximately 53 track miles of tunnel lighting along portions of the Clark St., Lexington, Broadway-7th Ave., Times Square Shuttle, Smith St., 8th Ave., 6th Ave., and Houston St. lines as well as the Cranberry and Rutgers St. tubes.
- \$563 million to replace 13 and add four new fan plants along the 6th Ave., Archer Ave., 53rd St., Queens Boulevard, Astoria, and 8th Ave.
- \$126 million for state of good repair work at 20 pump rooms along six lines and deep well normal replacement work to control water tables along the Fulton, Nostrand, Crosstown, and Lenox lines. These investments will bring NYCT's pumps to a state of good repair.

NEW YORK CITY TRANSIT

LINE STRUCTURES

CATEGORY T-507

There are 228 miles of line structures in the NYCT network, which includes 137 miles of subway, 69 miles of elevated structures and viaducts, and 23 miles of at-grade alignments. While each type of structure has unique properties, they all must be maintained regularly to protect against water damage, corrosion, and daily wear-and-tear. Approximately 88 percent of the structures are considered to be in good repair as of the end of 2004.

Rehabilitation of elevated structures entails replacing elements such as longitudinal girders or stringers that run parallel to the track, cross girders and thru-spans, vertical columns, column bases, and structural connections. Only a small fraction of the total steel is replaced, but the work must be done at hundreds of places on the structure. In the subway environment, water infiltration is the root cause of most damage, such as cracking and spalling of concrete and corrosion of steel. Repairs involve waterproofing, replacing damaged structural elements, particularly the track invert, and replacing spalled or cracked concrete. Normal replacement investments are particularly important with subway structures due to the ongoing deterioration of hidden components and changing subsurface conditions.

In addition to rehabilitation, NYCT's 65 miles of elevated steel structures require periodic painting. Painting extends the life of steel structures, reduces long-term repair costs, and improves neighborhood aesthetics. Structural painting projects are either in the form of full strip and repaint or overcoat work. Strip and repaint work involves shot blasting the structure to bare metal and applying high-performance paint. Overcoating entails scraping loose paint "to refusal," protecting and disposing of any lead contaminants properly, and then applying coats of paint to the pretreated surface. While strip and repaint is preferable to overcoating because it has a longer useful life (20-25 years versus 15 years) and it removes hazardous lead-based pigment from the structure, it is several times as costly.

The 2005-2009 Capital Program

NYC Transit proposes \$605 million for line structure repairs, painting, and related work. Work includes:

- \$110 million to address 8.1 route miles of subway structures on three lines: Eastern Parkway, 8th Ave., and BMT Broadway.
- \$270 million to address 8.0 route miles of elevated structure on the West End line and the Culver, Ocean Parkway, Rockaway, and Far Rockaway and Rockaway Park viaducts.
- \$26 million to repair 3.8 route miles of retaining walls and overpasses on the at-grade Sea Beach line.
- \$167 million for painting projects (\$36 million for strip and repaint work and \$131 million for overcoat work) on the Jerome, White Plains Road, Pelham, Jamaica, Rockaway, Broadway-7th Ave., Flushing, Culver, and Astoria lines.
- \$31 million to rehabilitate 125 emergency exits throughout the subway system.

NEW YORK CITY TRANSIT

SIGNALS AND COMMUNICATIONS

CATEGORY T-508

NYCT's signals and communications systems include 721 track miles of signal systems, an automatic train supervision system on the A Division, the Rail Control Center (RCC), a carrier-grade communications network infrastructure, subway and bus radio systems, and in-station communications applications such as the public address / customer information screen system.

Signals

Signals manage the safe and efficient movement of trains. There are 241 track miles of signals on the A Division and 480 miles on the B Division. The system operates safely and effectively, but a considerable portion still operates with original equipment and is limited by the constraints of fixed-block technology. Approximately 95 percent of A Division and 59 percent of B Division signals have been modernized. The majority of these systems are conventional electro-mechanical, fixed-block signals. Block signaling protects trains against collisions by ensuring that two trains do not occupy a single section of track at one time. Each section of track, or block, is electrically isolated from neighboring blocks. The length of a block is determined by safe-braking distance, and this depends on the maximum permissible speed and the grade on that section of track.

While fixed-block signal systems have been the standard for decades (dating since 1872), more and more rail properties are moving to methods that are more technologically advanced and operationally flexible. These advanced signal systems continuously track the position and velocity of every train in the network to monitor and regulate train separation and speed. Advanced signal systems, particularly communications-based train control, enable real-time centralized train supervision and monitoring. CBTC provides information regarding the exact location of trains, which will enhance normal operations and emergency response. CBTC also permits trains to operate at higher speeds and with shorter headways under some circumstances.

NYCT's first CBTC project was awarded in 1999 on the Canarsie line and is expected to be complete in 2005. The proposed 2005-2009 Capital Program includes both fixed-block and CBTC signal investments; thereafter, NYCT may switch entirely to CBTC.

In addition to CBTC, the other primary NYCT signal assets include ATS and the Rail Control Center. The recently completed RCC is a state-of-the-art facility, and subway control functions are gradually being transferred there. 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. The ATS overlay technology provides the critical information on train movements to enable centralized control as well as provide real-time train arrival information for customers. ATS was awarded for the A Division in 1997 and soon will be operational. Adding ATS to the modernized portion of the B Division is included in the proposed 2005-2009 Capital Program. The balance of the B Division will attain centralized control capabilities via the rollout of CBTC improvements.

Communications

NYCT's communications needs are great. To meet them, NYCT has an extensive

carrier-grade communications network infrastructure and third-party leased lines, including 472 miles of fiber optic cable, an extensive network of copper cables, eight major PBX sites, wireless radio systems and support radios for both subways and bus operations, and 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 supporting day-to-day administrative needs such as accounting and payroll. These assets are considered to be in good repair.

Communication assets also include in-station communications applications such as the PA/CIS and CCTV systems. With investments through 2004, PA/CIS and CCTV will be included in 156 and 275 stations, respectively. Ultimately, these systems will be included in all 468 stations.

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.

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

The 2005-2009 Capital Program

NYC Transit proposes \$1.371 billion for signal modernization and \$505 million for communication systems, for a total of \$1.876 billion.

Signal Modernization

The proposed 2005-2009 program will address 76 track miles of signals. Highlighted projects include installation of CBTC on two lines: \$266 million for the Flushing line (which follows interlocking and related signal work conducted on the line prior to 2005), and \$350 million for the Culver line between Bergen St. and W. 8th St. Also, \$247 million is allocated to rehabilitate major interlockings on two other lines – Queens Boulevard and Crosstown -- in preparation of future CBTC installations there. The program funds the completion of fixed-block signal modernization on the White Plains Road line (\$185 million). Lastly, the rollout of automatic train supervision in the system continues with phase one of its installation on the B Division (\$135 million).

Communications Systems

Featured are improvements to the existing fiber optic network and its continued extension of the network to all passenger stations (\$183 million). Building on this enlarged network, the program allocates \$86 million to begin installing new PA/CIS at B Division stations. The plan also begins the upgrade of the existing Emergency Booth Communications System (\$57 million) to support a more flexible station agent operational concept. Also, \$163 million is planned for replacing the subway wireless radio system and making improvements to the underground antenna cable that serves the daily NYCT operations as well as New York City emergency response services.

NEW YORK CITY TRANSIT POWER CATEGORY T-509

The NYCT traction power system is vast. With 228 miles of cabling, 299 circuit breaker houses (CBHs), a central supervisory control and data acquisition (SCADA) system, 216 substations, and 2,663 emergency alarms, the system has large power demands. The peak load on the NYCT system is about 400 megawatts, while the average load is 200 megawatts. This power need is equivalent to that of all households in Boston.

The traction power system consists of equipment and components that receive high-voltage AC power from a local electric utility, convert it to DC power, and distribute it to the contact rail for train propulsion. NYCT's 216 substations convert AC to DC power through transformers, rectifiers, and switchgear. The power distribution system consists of circuit breaker houses, traction power cables, 80 control and battery cable zones, the SCADA system that monitors and controls the system from remote locations, and the Power Control Center (PCC).

The power network has received periodic reinvestment for modernization since the 1950s. Through 2004, more than 92 percent of substation structures, nearly 96 percent of substation equipment, approximately 84 percent of CBHs, and all other power distribution assets will be considered in good repair. Much of this reinvestment addressed the equipment inside substations to replace less reliable rotary power converters and mercury arc converters with solid-state silicon diode rectifiers. Since much of these investments predate the capital program, substation normal replacement is required now and in future programs. The first tier of normal replacements is targeted to enclosures on the IND system and the complex power distribution cable.

The 2005-2009 Capital Program

The proposed 2005-2009 Capital Program allocates \$565 million for traction power investments. This includes \$244 million to modernize nine substations, rehabilitate three IRT and three IND substation enclosures, and replace substation equipment at various locations. Also included is \$321 million to address power distribution needs. This includes rehabilitating CBHs at eight locations, upgrading the SCADA system on the IRT Division, replacing negative cables on the Rockaway and 4th Ave. lines, and replacing a portion of the emergency alarm system.

NEW YORK CITY TRANSIT

SHOPS

CATEGORY T-510

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 are needed; rooftop cranes must be installed for maintenance of roof-mounted railcar air-conditioners; and space for new diagnostic equipment is necessary to handle the increasingly complex computer and information systems that are included on the new cars.

The 2005-2009 Capital Program

NYCT's proposed 2005-2009 Capital Program includes \$461 million to address six facilities. Two major projects are rehabilitation of the 207th St. Overhaul shop (\$240 million) and reconstruction of the Livonia Maintenance shop (\$159 million). 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. The Coney Island Overhaul shop was addressed in previous capital programs. Rehabilitation of 207th St. Overhaul shop will yield industrial process improvements such as the ability to handle new rail car technologies and to overhaul five-car sets.

Two support shops (38th St. Yard Shop and phase 1 of Atlantic Ave. Cable Shop) will be rehabilitated. A new support shop will be built for the scheduled maintenance of the fleet's air-conditioning units. The plan also provides for the replacement of the Coney Island car washer as well as heavy shop equipment.

NEW YORK CITY TRANSIT

YARDS

CATEGORY T-511

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 117 track miles of track and 39 track miles of non-revenue track (with both figures including the distance occupied by 892 yard switches), signals at each yard, and yard lighting and hydrants at each yard. Approximately 75 percent of yard track, all of the non-revenue track, 86 percent of yard switches, 70 percent of the yard signal systems, and 43 percent of the yard lighting and hydrants are in good repair.

The 2005-2009 Capital Program

NYCT proposes \$378 million in yard investments in the 2005-2009 Capital Program. Major projects are the Jamaica Yard Expansion (\$154 million) and Corona Yard Phase 3 (\$118 million). Planned since the early years of the capital program, expansion of the Jamaica Yard will add 24 new lay-up tracks, a loop track, a new CBH, fencing, and lighting and will reduce mainline lay-ups on the Queens Boulevard line and improve subway operations. Corona Yard Phase 3 will provide a new fixed-block signal system, install a new master tower complex with a new relay room, complete a loop track for a new car washer, and reconstruct the yard's CBHs. The Corona Yard investments are needed in conjunction with the ongoing reconstruction of the Corona Maintenance shop and signal work planned for the Flushing line.

The proposed program also allocates \$59 million to replace approximately seven miles of yard and non-revenue track, replace 100 yard switches, and address other yard equipment and security needs. Another \$48 million is planned for various safety and security improvements.

NEW YORK CITY TRANSIT DEPOTS CATEGORY T-512

NYCT operates 20 depots and two major base shops located throughout New York City to support some 4,500 buses and support vehicles. 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 in a state of good repair. In addition to the shops, the bus system has 45 bus washers, 16 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 three new bus depots: a new depot to replace the existing Jamaica Depot in Queens, Charleston Depot annex on Staten Island, and a third facility at a location to be determined in the future. 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 2005-2009 Capital Program

A total of \$636 million is proposed for depot projects, including \$354 million to rehabilitate and / or build new depots. Major projects include \$125 million for a new depot to replace the existing Jamaica depot, \$82 million for the expansion of the East New York Depot utilizing the space of the former base shop, and \$63 million for reconstruction of the Clara Hale Depot. Initial funding for a new Charleston Depot on Staten Island is also included. Depot rehabilitation work also will be done at Flatbush, Castleton, Ulmer Park, and Yukon Depots (\$68 million).

In addition to depot rehabilitation and reconstruction projects, \$282 million is allocated to other depot investments including replacing bus lifts, roofs, washers, and heavy depot equipment, and securing property for parking needs. These other depot investments include very important communications and service management projects, as well as deployment of a new type of bus service. The bus wireless radio system will be replaced (\$89 million), providing greater capacity for the enlarged fleet. The bus radio system is critical to daily bus operations and addressing emergency response capabilities. NYCT proposes a new system-wide bus locator system to identify and locate buses, improve dispatching and avoid "bus-bunching," and provide real-time bus-arrival information at select bus stops. The new system will build on a demonstration project funded in the 2000-2004 Capital Program for the buses at the 126th St. Depot in Manhattan. Also, \$22 million is reserved to begin implementing bus rapid transit in New York. The scope of this work will be the product of a study funded in the 2000-2004 Capital Program.

NEW YORK CITY TRANSIT SERVICE VEHICLES CATEGORY T-513

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 1,500 rubber-tire vehicles – 685 of which are replaced through the capital program – such as armored trucks, tow trucks, mobile station washer trucks, and other miscellaneous vehicles. NYCT's 443 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 2005-2009 Capital Program

The proposed 2005-2009 Capital Program includes \$93 million to address service vehicle needs. This includes approximately \$25 million to replace 212 rubber-tire vehicles and \$68 million to replace 39 work trains such as flatcars, ballast regulators, and diesel-electric locomotives.

NEW YORK CITY TRANSIT MISCELLANEOUS/EMERGENCY CATEGORY T-516

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 Proposed 2000-2004 Capital Program

The proposed 2005-2009 Capital Program includes \$507 million for miscellaneous investments. The program support components included in this category are in scale with previous capital programs. These include \$107 million for program contingency and insurance and \$142 million for engineering services, scope-development, and the MTA independent engineer to support miscellaneous technical needs of the program. In addition, \$161 million is allocated for employee facilities. These include rehabilitation of employee facility rooms at six locations that are not covered by station rehabilitation projects, roof replacements at various locations, and improvement to the bus command center. Certain management information systems such as PBX node sites and servers will be addressed (\$29 million). Also, NYCT will address various environmental and safety needs, such as asbestos monitoring and removal, installation of fire alarms at various facilities, and environmental remediation (\$68 million).

STATEN ISLAND RAILWAY

Category SIR

Staten Island Railway (SIR) 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 11,000 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, three 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 2005-2009 Capital Program

The proposed 2005-2009 Capital Program includes \$86 million for SIR. 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 (\$9.1 million). Also planned are the modernization of track and switches at the St. George Terminal (\$36 million), repair of six bridges / thru-spans (\$14 million), and rehabilitation of 11 station houses (\$8 million).

MTA LONG ISLAND RAIL ROAD

MTA LONG ISLAND RAIL ROAD

2005-2009 CAPITAL PROGRAM

OVERVIEW

The Long Island Rail Road (LIRR) is the largest and busiest commuter railroad in the United States, carrying 80.9 million passengers annually. LIRR infrastructure includes 381 route miles of track, 296 at-grade-crossings and 124 stations on 11 branch lines. On an average weekday, the LIRR carries 288,000 passengers on 730 trains.

Continued capital investment through more than 20 years of fully funded 5 year programs has allowed the LIRR to bring all but it's bridge infrastructure into a State of Good Repair (SGR). Asset inventory databases allow for the tracking and classification of all critical components and form the basis for developing the Normal Replacement (NR) portion of the LIRR's 2005-2009 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 2005-2009 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 2005-2009 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% 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 reverse commuters, 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, 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 and development.

In order to continue contributing to the region's future growth and well-being, and remain the relevant 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 changes. Penn Station, LIRR's Manhattan terminal, is presently 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 divert a significant number of LIRR trains to Grand Central Terminal, will provide Long Island Rail Road with the ability to remain flexible to growing demand and, for the first time ever, will give Long Island residents direct service to the east side of Manhattan.

Another capacity constraint is the Main Line Corridor between Bellerose and Hicksville, which carries the trains of the Port Jefferson, Ronkonkoma 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. 41% 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 Plainview, Melville, the Route 110 corridor, and Garden City/Roosevelt Field.

While a growing demand exists for reverse peak service, these customers are currently underserved. At many points during the AM and PM peak periods, both Main Line tracks are needed for the constant flow of peak trains. As a result, gaps of more than one hour between service opportunities for reverse peak customers occur several times in each peak period.

These conditions, along with growing demand for traditional commuter and intra-Island service totaling 281 scheduled trains forecast by 2020, emphasize the critical need for additional capacity. LIRR's Main Line Corridor Improvement Project addresses these needs through a combination of track capacity and grade crossing improvements and station/structure enhancements.

Partnering closely with the communities along the Main Line, LIRR will seek out alternatives that will improve service for current – and future – customers, enhance regional mobility, provide a stimulus for regional economic and employment development, and improve the quality of life for residents along this essential transportation corridor.

Investments in Customer Satisfaction

Electric Fleet Rehabilitation and Expansion

After years of preparation, the MTA Long Island Rail Road's new M-7 electric trains are now running on all of LIRR's electric branches. This state-of-the-art fleet, which will replace and expand the 35+ year old M-1 fleet, is providing significant improvements in reliability, substantially increasing the number of miles traveled between stops for unscheduled maintenance. Twenty cars will arrive per month for the next several years. By the end of 2004, nearly 350 of the new M-7 cars will be in service and by the end of 2009 a total of 848 new cars will have been purchased.

Customer focus groups were used extensively to help design/develop the interiors of the cars, especially seating, with a special emphasis on comfort, safety, and durability. The focus groups also provided opinions on lighting, window design, audio and visual public address system and restroom improvements. Each M-7 car is equipped with an emergency intercom system allowing customers to contact conductors in the event of an emergency and meets all requirements of the Americans with Disabilities Act (ADA). Auxiliary power units and climate control units have been doubled for greater reliability and comfort.

Station and Parking Improvements

Capital investment in our station and parking infrastructure has allowed LIRR to transform its stations into “comfort zones”, greatly improving customer satisfaction. In the last 10 years, 164 such projects have been undertaken at 92 stations, including 71 station improvements, 43 station rehabilitations and 5 station restorations, representing investments exceeding \$300 million.

A newly revitalized station is rapidly taking shape in Jamaica and it will be completed in 2005. The reconstructed hub will provide customers and LIRR with a modern, comfortable, and more efficient intermodal hub. Its form will match its functionality, as the sweeping portal roofline and passenger bridges will change the skyline of Jamaica.

At the Flatbush Avenue Terminal, which serves LIRR customers going to Brooklyn and Lower Manhattan, another dramatic reconstruction is underway. When rebuilt, this terminal will include a new ticket office, waiting room, entranceways and staircases; as well as a street-level shopping mall. When complete, it will also have a new name - Atlantic Terminal.

One of the most important capital investments was the construction of high-level platforms along the Port Jefferson, Montauk and Oyster Bay Branches in order to accommodate the diesel fleet.

There are 8 newly-built station buildings on the Babylon Branch (LIRR's largest branch): Rockville Centre, Baldwin, Freeport, Wantagh, Seaford, Massapequa, Babylon, and Merrick. In addition, the station rehabilitation at Laurelton has recently been completed. 2004/2005 will see two new rehabilitations at Murray Hill and Rosedale, as well as station improvements and parking projects.

A number of parking facilities are being improved, stretching from western Nassau County all the way to the East End. Two thousand parking spaces are being upgraded and 477 new spaces being added. LIRR is in the process of designing and acquiring the property for an additional 4,330 rehabilitated spaces and 2,324 new spaces.

Since 1993, close to 5,000 new spaces have been added by the LIRR, and nearly 9,000 spaces have been rehabilitated.

Ticket Vending Machines and WebTicket

The LIRR's Ticket Machine program was completed during 2003, and these new, easy-to-use machines are helping to improve customer satisfaction and convenience in purchasing tickets at stations system-wide. In order to expand the availability of these 24 hour-a-day machines, this year some of the machines are being moved to more convenient locations at the stations throughout LIRR's system.

And in another move to improve the convenience of ticket purchasing for customers, the LIRR has recently introduced a WebTicket system. Customers can now sit down at their computers and decide what tickets they want, order them, and have the tickets delivered to their homes in just a few days. Discounts are available to customers who use this method of purchase, adding to the attractiveness of this new service.

Investment in Safety and Security

The Long Island Rail Road continues to embrace customer and employee safety as our first

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 2005-2009 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 continued investment in Fire and Life Safety projects within Penn Station and the East River Tunnels. Almost \$70 million is identified in this capital plan for this work, adding to the substantial amount allocated in previous capital programs. Together with Amtrak, design and construction have progressed on the Tunnel Ventilation work both in Long Island City and Manhattan. During this capital program, work will continue on East River Tunnel improvements including construction and installation of the Emergency Power System.

Grade crossing elimination helps prevent grade crossing accidents and enhances safety for customers and communities. In collaboration with New York State Department of Transportation, work continues for the Roslyn Road grade separation project in Mineola. Other crossings are also targeted for elimination in conjunction with the Main Line Corridor Improvement project.

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 2005-2009 Capital Program. Investments to maintain the core infrastructure account for more than 60% of the proposed 2005-2009 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 2005-2009 CAPITAL PROGRAM

The Long Island Rail Road's proposed 2005-2009 Capital Program includes investments of \$2,426.1 million over the next five years (Table 5). 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 Fire and Life Safety improvements within Penn Station and the East River Tunnels.

Table 5
MTA Long Island Rail Road
2000-2004 Capital Program by Investment Category
(\$ in millions)

Category	Plan	Percent
Rolling Stock	\$386.0	16%
Stations	135.3	6%
Track	697.2	29%
Line Structures	156.0	6%
Communications and Signals	351.4	14%
Shops and Yards	277.4	11%
Power	163.3	7%
Miscellaneous	259.4	11%
Total	\$2,426.0	100%

Numbers may not total due to rounding

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 electric fleet amounts to \$386 million in the proposed 2005-2009 Capital Program. This includes \$383.8 million to purchase 170 new M-7 electric cars, continuing the normal life cycle replacement of M-1 multiple electric cars nearing the end of their useful life.

Stations

Stations investments in the proposed 2005-2009 Capital Program total \$135.3 million. The investments include repair of platforms to maintain State of Good Repair, construction of new and rehabilitation of existing parking spaces, replacement of staircases, escalators, elevators and overpasses at locations system-wide. Also included is the purchase and installation of up to 87 TVMs for stations throughout the system, expanding the number already in service. At Penn Station, a new emergency power system will be installed and two future initiatives will begin design: Station Master's Office Rehabilitation and the installation of a Coordinated Tri-Venture Penn Station Signage with Amtrak and New Jersey Transit.

Track

The ongoing Track program consists of the Normal Replacement of track components and the installation of concrete ties in selected segments of the right-of-way. The proposed Capital Program has allocated a total of \$370.7 million for track Normal Replacement projects. Elements of the Track Program include installation of concrete ties, wood ties (mechanized), rail, wood switches, concrete switches, grade crossings, field welds, surfacing, drainage, rail profiling and Amityville, Copiague and Lindenhurst Direct Fixation (ACL) as well as new construction equipment to support track projects.

This investment category also includes \$222.6 million for the design and construction of grade crossing eliminations and track capacity improvements on the Main Line as part of LIRR's "network enhancement" initiatives. (The EIS for both the grade crossing eliminations and track capacity between Bellerose and Hicksville, approximately 10.5 miles was begun in the 2000-2004 Capital Program and is already underway.) Phase I of these Main Line Corridor improvements between Bellerose and Mineola is proposed for the 2005-2009 Capital Program. (Phase I may also include grade crossing eliminations in New Hyde Park.) Phase II, which will include construction and associated grade crossing eliminations from Mineola to Hicksville, will be funded in the 2010-2014 program. In addition, LIRR will begin the planning effort for a double track on the Main Line between Farmingdale and Ronkonkoma – to be constructed post 2009.

Finally, interlockings just east and west of the Jamaica station will be reconfigured to support the various "network enhancement" initiatives.

Line Structures

The Long Island Rail Road has allocated \$86.3 million for Line Structures in the proposed 2005-2009 Capital Program. This program consists of rehabilitation of bridges and viaducts. The investments will allow Long Island Rail Road to continue its move toward achieving a State of Good Repair for its entire bridge and viaduct inventory by 2014. Investments also improve the physical condition of the ROW to ensure safe and efficient operation of trains. Also included is \$69.7 million for Fire and Life Safety Improvements in the East River Tunnels, which rehabilitate benchwalls, tunnel lining and floodgates.

Communications and Signals

The Long Island Rail Road's 2005-2009 Capital Program includes four projects amounting to \$113.1 million to advance LIRR's long-term communications strategy and continue the changes necessary to support corporate initiatives and goals. More than one-half of the program dollars will be invested in the continued build-out of the Fiber Optic Network (\$65 M). In addition, the Communication Network Operations Center (CNOC) will be redesigned to provide state-of-the-art centralized provisioning, monitoring and asset inventory capabilities. LIRR's VHF radio system will be modernized, including the addition of radio sites required to improve coverage in key areas. The Audio/Visual Paging System (AVPS), LIRR's state-of-the-art Public Address system will be deployed at 80 additional stations.

The Long Island Rail Road's 2005-2009 Capital Program includes \$238.3 million to advance LIRR's long-term signal strategy. The signal program rehabilitates several of LIRR's busiest interlockings, invests in signals as far east as Speonk, begins work on the centralized train control system and continues the cyclical Normal Replacement program to maintain the asset in a State of Good Repair. The Central Train Control (CTC) Theater to be installed in the 2005-2009 and 2010-2014 programs will serve as the center for Long Island Rail Road operations and will have all information available on a "real time" basis for greater flexibility, faster decisions, and enhanced management of the LIRR traffic network.

Shops and Yards

Investments for Shops and Yards total \$277.4 million in the 2005 – 2009 Capital Program. Highlights include the replacement of Rolling Stock Support Equipment, infrastructure improvements system-wide to accommodate maintenance and repair of the new electric and diesel fleets, soil remediation at Long Island City Yard, and reconfiguration of Babylon Yard to increase lay-up storage capacity.

Included within the Shops and Yards category is \$190.7 million in "network enhancement"

initiatives needed to support growth and the new service into Grand Central Terminal. Included is the planning, design and construction of up to three new yards, presently in various stages of development. The EIS phase of the Port Jefferson Branch Yard project (funded in 2000-2004) is currently underway. The project will move into design and construction during the 2005-2009 program.

Power

The proposed 2005-2009 Capital Program includes \$163.3 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. The Inwood, Floral Park and Hempstead substations will be reconstructed under the Substation Reconstruction Project and major components at an additional five substations will be replaced under the Substation Components Replacement Project.

Miscellaneous

The Environmental remediation investment advances the Long Island Rail Road's long-term environmental strategy with \$24.0 million in the proposed 2005-2009 Capital Program. This includes delineation and/or remediation of twenty-three (23) electric substations, Yaphank Landfill, Long Island City Car Wash, Richmond Hill, Holban Yard, Morris Park, and at various other locations within the LIRR right-of-way.

This category also includes \$235.4 million for the various administrative costs required to support and manage the program, including the design of the Main Line Branch Yard.

Network Enhancements

Investments in this area are needed to move the LIRR to the phase beyond system improvements - delivering projects that increase capacity to meet long-term travel demand forecasts. The growth of the past decade is expected to continue, not only in the traditional commutation market of Long Island to Manhattan, but also in the reverse peak, a market that is a challenge to serve with the existing network. "Network enhancement" initiatives also position the LIRR to meet the increased service demands from new service into Grand Central Terminal. The implementation of these initiatives will span several capital programs, with the 2005-2009 program beginning this work and setting the stage for beneficial use of many of these projects in the 2010-2014 program.

Though "network enhancements" as a whole support LIRR's growth needs, their components - new Port Jefferson/Main Line Branch Yards, Main Line capacity improvements (such as Main Line Third Track and double track to Ronkonkoma) and reconfiguration of the Jamaica complex - are located in categories throughout the proposed 2005-2009 Capital Program.

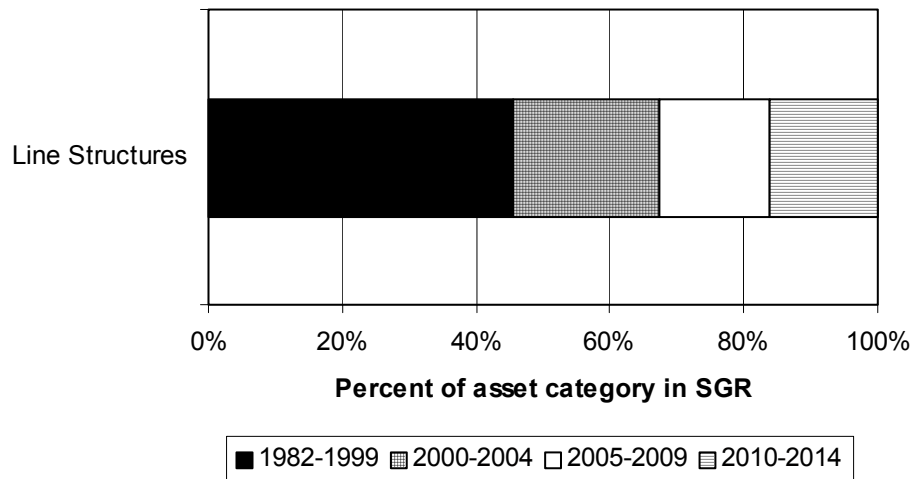
SYSTEM CONDITION AND ACCOMPLISHMENTS

Investments in its capital assets since 1982 have allowed the Long Island Rail Road to grow and meet the demands of the region. The MTA's 2005-2009 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

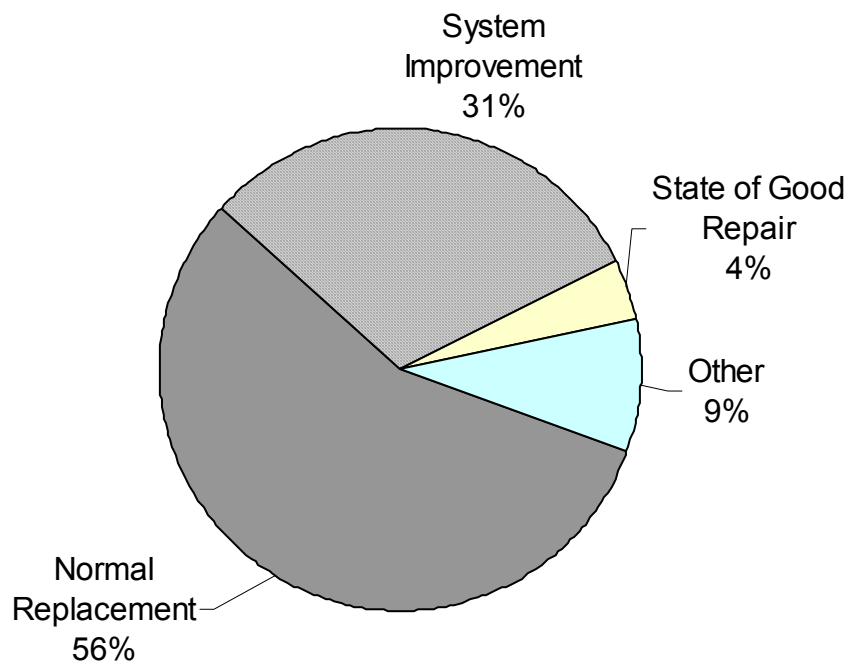
but one asset category, Bridges and Viaducts in the Line Structures category (see Chart 2). It is anticipated that this asset will achieve SGR by 2014 with continued investment in the proposed and subsequent capital program.

Chart 2
Progress Toward State of Good Repair
LIRR Investment Categories



The proposed 2005-2009 Capital Program allocates 60% of its funding to SGR and NR projects, and 31% to system improvement investments (see Figure 2).

Figure 2
Long Island Rail Road 2005-2009 Capital Program
Investments by Needs Category



Major Accomplishments of 2000-2004 Capital Program

LIRR continued its procurement of new M-7 electric rail cars with the purchase of an additional 452 cars, adding to the 192 cars purchased in the 1995-1999 program. Replacement and expansion of the aged M1 fleet will continue into the 2005-2009 Program.

Significant investments were also made in the power category to support the operation of the new fleet. Investments include substation upgrades, substation equipment replacements, and breaker house construction.

Atlantic Terminal Improvements, progressed in conjunction with New York City Transit and the overbuild developer, went into construction in this plan period. This project provides for major rehabilitation of the Terminal Complex and includes an enlarged LIRR concourse, new customer service areas and amenities, a police facility, concessions, new stairs and a grand street-level entrance pavilion. Platform enhancements include resurfacing, lighting, public address system, and ventilation.

Jamaica Station Rehabilitation in conjunction with the Port Authority's AirTrain project also progressed. This project will facilitate an intermodal connection to the four different transportation services located at Jamaica Station: LIRR, JFK AirTrain, NYCT Subway and local bus lines. LIRR station improvements include construction of a portal bridge and new mezzanine structure, station platform and canopy reconstruction, and westerly pedestrian bridge replacement. The construction of a new Jamaica Central Control Building is also part of this project.

Improvements to station buildings and parking improvements were another important component of the 2000-2004 Capital Program. Station improvements, rehabilitations and restorations as well as parking reconstruction were carried out system-wide. Also included was the purchase and installation 166 Ticket Vending Machines (TVMs). The Mineola Intermodal Center was also initiated in this plan period. This project will construct a four-level parking center as well as ADA parking, bus bays, and other site work in the vicinity of the Mineola LIRR Station. A pedestrian overpass connecting the Intermodal Facility to the station platforms will also be constructed, including new stairs and elevators.

Planning for future service and capacity enhancements included the initiation of three Environmental Impact Statements for the Port Jefferson Branch Yard, Main Line Corridor Improvements and Main Line Branch Yard. These important projects support LIRR's continued growth and new service to Grand Central Terminal.

PLANNING THE PROPOSED 2005-2009 CAPITAL PROGRAM

The 2005 – 2009 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 Long Island Rail Road has continued to utilize a participative asset task force process for the development of the 2005–2009 Capital Program. A 2005–2024 Needs Assessment was prepared throughout 2003. This process included the development of asset condition databases for all LIRR assets. These databases in addition to asset strategies formed the basis of the LIRR's forecasted needs for the 20 year period. A critical component of these needs are the

network enhancements – large-scale infrastructure changes that improve our capacity and ready us to deliver the most robust service to GCT.

The Long Island Rail Road had many key tools at its disposal for the development of both the 20 Year Needs and 2005 – 2009 capital program. In addition to asset databases and strategies the LIRR utilized: infrastructure assumptions for East Side Access; studies of Jamaica Capacity, Life Cycle Maintenance, Shop Strategy and Bridge Assessment; and existing designs/ contracts for M-7 electric cars, fiber optic network, LIC yard, Babylon Yard and select bridge designs.

The 2005 – 2009 Capital Program development was based on the first five years of the Twenty Year Needs Assessment. Forecasted Needs for this time period were developed into project proposals including scopes, estimates, justifications and summaries. This set of project proposals were presented to and scrutinized by an Executive Committee for final inclusion in the 2005 – 2009 program. The projects put forth by the LIRR in the 2005 – 2009 Capital Program represent the highest order capital needs within our system and enable the LIRR to attain and maintain 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 2005 – 2009 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-501

Rolling Stock is the key element for the provision of commuter rail service. Presently, the Long Island Rail Road rolling stock fleet consists of 962 electric cars and 134 locomotive hauled diesel coaches. Included in the diesel fleet are 23 dual-mode (DM) and 23 diesel (DE) locomotives. The DMs allow diesel train consists to operate into Penn Station from diesel branches.

Provision of service on Long Island Rail Road is contingent on the rehabilitation and modernization of the system's rolling stock to meet operational needs, upgrade performance and improve customer comfort and satisfaction. The Long Island Rail Road railcar replacements and overhauls are consistent with the long-term strategy to continue the replacement of the M-1 electric fleet, which has reached the end of its useful life, and to expand capacity for ridership growth.

Over the next 20 years, the composition and size of LIRR's electric fleet will continue to change dramatically. The procurement of new MU cars in the next two capital programs will continue the replacement of the M-1 fleet and expansion of the entire electric fleet.

2005-2009 Capital Program

The Rolling Stock investment for the Long Island Rail Road electric fleet amounts to \$386 million in the proposed 2005-2009 Capital Program. This includes \$383.8 million to purchase 170 new M-7 electric cars to continue the normal life cycle replacement and expansion of the M-1 multiple electric cars that are approaching the end of their useful lives. Also included is \$2.2 million for the funding of a specification for the replacement of M-3 electric cars post 2009.

M7 Procurement

The procurement of 170 M-7 cars in the proposed 2005-2009 Capital Program will close the gap on the Normal Replacement of the M1 fleet. (To date, 678 LIRR M-7s have been purchased in the 1995-1999/2000-2004 Capital Programs).

The primary benefits the new fleet will provide include: increased fleet reliability, availability and maintainability resulting in reduced operating and maintenance costs and a Mean Distance Between Failure (MDBF) of 100,000 miles resulting in improved on-time performance and customer satisfaction. Total cost in the proposed 2005-2009 Capital Program is \$383.8 million.

Specification for M-9 electric cars

The project funds a joint LIRR/MNR specification for cars to replace M-3 electric cars and continue the expansion of the electric fleet. Total cost in the proposed 2005-2009 Capital Program is \$2.2 million.

MTA LONG ISLAND RAIL ROAD

STATIONS

CATEGORY L-502

The Long Island Rail Road operates 11 rail branch lines and serves customers at 124 stations. The Station Rehabilitation 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% of the train service in Penn Station, will continue to utilize the station as its exclusive New York Terminal for the next 10 years. At the end of this period, LIRR's Penn Station Terminal Service will be supplemented 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 proposed Penn Station projects are broken down into seven basic components: Communications, Employee Facilities/Yards, Station, Power, Signals, and Track and Tunnels investments.

2005-2009 Capital Program

In the proposed 2005-2009 Capital Program, the LIRR includes \$135.3 million to increase customer satisfaction by providing them with a comfortable and safe environment. These projects touch all sections of a station site such as platforms, staircases, shelters, waiting rooms, railing, overpasses, escalators, elevators, station buildings and adjacent areas (i.e. walkways, curbs, ADA). Other elements such as Parking, Ticket Vending Machines and Ticket Office Machines are also included.

Hunterspoint Avenue Station Platform Replacement

Includes platform replacement consisting of the following: design, demolition of the existing platform and construction of a new platform, and construction of a new kiosk platform/ticket office, platform shelters, and staircases. Total cost in the proposed 2005-2009 Capital Program is \$13.8 million.

Atlantic Terminal and Jamaica Central Control Building Fit-Out

Includes \$13.3 million for the completion of work at Atlantic Terminal and the fit-out of the floors of the JCCB - initiated in the current capital program.

Station Improvements

The plan includes improvements at 14 stations. Rehabilitation at Seaford and Babylon stations will consist of platform surface repairs, replacement of stairs, and replacement of expansion joints. At Broadway Station, platforms and adjoining areas will be replaced. Staircases, escalators, elevators and an overpass will be replaced at Merrick, Bellmore, Massapequa, Massapequa Park, Copiague, Lindenhurst, Hicksville, Freeport, Great Neck and Cold Spring Harbor stations. Total cost in the proposed 2005-2009 Capital Program is \$52.3 million.

Fare Collection Program

Long Island Rail Road will purchase and install 87 Ticket Vending Machines (TVMs) at stations system-wide. These machines will improve customer satisfaction and provide additional service capacity by: reducing wait times (peak queuing lengths to purchase non-commutation tickets at Terminal and Line Stations), expanding venues that allow use of credit and debit cards, improving ticket collection/inspection capability, reducing onboard ticket sales, and reducing lost revenue. Total cost in the proposed 2005-2009 Capital Program is \$5.5 million.

Parking

The proposed 2005-2009 Capital Program plan 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. Total cost in the proposed 2005-2009 Capital Program is \$18.9 million.

Penn Station

Station Master's Office Design

The project includes a feasibility study (to determine the practicality of the effort, the possibility of tying together existing systems, and the new equipment that will be required to successfully complete the installation) and design development. Enhancements to the Penn Station Master's Office will result in better utilization of existing equipment and greater operational reliability. Construction is planned in the 2010-2014 capital program. Total cost in the proposed 2005-2009 Capital Program is \$1.5 million.

Coordinated Tri-Venture Penn Station Signage Design

The project includes a feasibility study and design development – to be jointly funded by LIRR, Amtrak and New Jersey Transit. The project will provide for all Penn Station's signage to be linked, providing greater flexibility for the Operating Groups to position any train on any track during service disruptions. Total cost in the proposed 2005-2009 Capital Program is \$2.9 million.

Communications, Power and Signals

Projects in this category include replacement of eleven radio base stations throughout Penn Station, 37 impedance bonds within the Penn Station to Harold system, approximately 10 miles of signal transmission lines from Penn Station and Sunnyside, 54 signal switch assemblies between Penn, Sunnyside Yard and Harold. Also being replaced is the remaining conventional 3rd rail in the East River Tunnels (ERT) with

composite rail and the conventional 3rd rail between the ERT Long Island City portals and Harold Interlocking with composite rail (including protection board, brackets and insulators). Total cost in the proposed 2005-2009 Capital Program is \$11.3 million.

Employee Facilities/Yards, Station, Buildings

Customer related projects include: replacement of the existing Solari signage throughout the station with Variable Message Signage (LED, LCD, CRT or Plasma monitors), replacement and upgrade of the customer restroom fixtures, replacement of all LIRR platform surfaces to repair structural deficiencies, adjustment of floor levels to be within ADA guidelines of all stairways and replacement of the ADA tactile edging along the platform edges as the platforms are resurfaced. Other projects in this category include: structural repairs and upgrade to the HVAC system for the West End Concourse, replacement of the pit ejector pumps in the station sub-basement and the plumbing holding tank in the sub-basement and replacement of the water meter room main valves. Also being replaced is the UPS – Standby Power system at Penn Station Central Control. The existing system consists of 1 stand-alone 50KVA UPS and 1 stand alone 150 KVA UPS. It is proposed that a 200KVA redundant system be installed at Penn Station Central Control. Total cost in the proposed 2005-2009 Capital Program is \$9.5 million.

Track, Tunnels and Structures

Within the station and tunnels, numerous switches and track components will be replaced. In the tunnels and approaches about 6 miles of tunnel compressed air piping and the equivalent of one portal approach concrete wall will be rehabilitated. Also being replaced is about 1,300' of chain link fencing on the north and south sides of West Side Yard with High Security fencing and 4 (out of 25) steel lattice high-tension towers east of the Long Island City portals. Total cost in the proposed 2005-2009 Capital Program is \$6.5 million.

MTA LONG ISLAND RAIL ROAD

TRACK

CATEGORY L-503

The Long Island Rail Road has 701 miles of track rail, 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. Ongoing investment in the system includes the replacement of component assets on a life-cycle basis. The cyclical replacement of track rail components is based on age, condition and physical inspection. The installation of concrete ties outside of the tie replacement cycle is based on track usage, condition, accessibility (interior track, station tracks) and the location of major project work in the future.

The long-term track strategy will allow the LIRR to operate with less commuter inconvenience by targeting segments of the Right of Way for comprehensive maintenance in order to reduce, and in some cases, eliminate cyclical maintenance in particular segments.

As part of the “network enhancement” strategy, a new third track and grade crossing eliminations are needed on the Main Line Corridor in Nassau County. The corridor is presently severely congested, both on the rails and also on the roadways. Main Line Corridor Improvements will improve safety, reduce congestion and provide capacity for future growth on LIRR and roadways.

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

2005-2009 Capital Program

Track investments in the proposed 2005-2009 Capital Program 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

The track program consists of the Normal Replacement of track components and the installation of concrete ties in selected segments of the right-of-way. Elements of the Track Program include \$337.9 million for installation of concrete ties, wood ties (mechanized), rail, wood switches, concrete switches, grade crossings, field wields, surfacing, drainage, rail profiling and Amityville, Copiague and Lindenhurst Direct Fixation as well as \$17.3 million for new construction equipment to support track projects. Total cost in the proposed 2005-2009 Capital Program is \$355.2 million.

Right of Way (ROW) Improvements

Drainage/Flood Control

This portion of the project addresses drainage 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 2005-2009 Capital Program is \$9.4 million.

Fencing

Approximately one mile of high security fencing per year is programmed for 2005-2009. Locations will be determined as sites are deemed dangerous or frequented by trespassers as identified by the LIRR Safety Department and the Police. Total cost in the proposed 2005-2009 Capital Program is \$4.5 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 2005-2009 Capital Program is \$1.6 million.

Main Line Corridor Improvements/Third Track

The proposed 2005-2009 Capital Program includes the design of the full-length third track from Bellerose to Hicksville. The project also includes construction for part of the first phase starting in the Bellerose vicinity and moving easterly. Construction of the new third track will proceed the full 10.5 miles (ending in Hicksville) in the next capital program. This work will be closely coordinated in all phases with associated infrastructure improvements and grade crossing eliminations. This project also includes LIRR's share of the elimination of up to five grade crossings in New Hyde Park and New Castle, Nassau County. Total cost in the proposed 2005-2009 Capital Program is \$202.6 million.

Main Line Double Track to Ronkonkoma

The proposed 2005-2009 Capital Program will study the installation of a full-length double track from Farmingdale to Ronkonkoma. With double track and other capacity improvements, the LIRR can increase train frequency to less than 30 minutes in the rush hour and add service to the reverse peak market and intra-island markets. Construction and design would follow in the 2010-2014 program. Total cost in the proposed 2005-2009 Capital Program is \$20.0 million.

Jamaica Interlocking Reconfiguration Design

Design for Jay and Hall interlocking reconfigurations will be initiated in this program to increase interlocking capacity at either side of Jamaica Station, but particularly in Jay just west of the platforms. Total cost in the proposed 2005-2009 Capital Program is \$19.3 million.

Jamaica Jay Interlocking Reconfiguration Construction

The Jamaica complex is essentially as built in 1913. Long lead items are funded in this program to expedite the full construction when design is complete and full funding is committed in the 2010-2014 program. Total cost in the proposed 2005-2009 Capital Program is \$9.7 million.

These projects at Jamaica Station and vicinity will enable the LIRR to increase

throughput at this important hub, where all train service from all branches converge. The present track configuration remains unchanged since its construction in 1913. Increasing capacity through Jamaica will help support not only service to GCT, but also accommodate future growth in travel demand system-wide.

Additional Jamaica Capacity Improvements

Further capacity improvements will be needed in Jamaica Station to support forecasted ridership growth and new service into Grand Central Terminal. The scope of these improvements will be identified and designed, and Phase I construction will be committed in the proposed 2005-2009 Capital Program. Improvements will continue in the 2010-2014 program. Total cost in the proposed 2005-2009 Capital Program is \$69.3 million.

MTA LONG ISLAND RAIL ROAD

LINE STRUCTURES

CATEGORY L-504

The Long Island Rail Road maintains 30 viaducts and 640 bridges system-wide (including pedestrian, overgrade and undergrade bridges). The long-term Bridge and Viaduct program aims to bring those structures into a State of Good Repair by 2014 and continue rehabilitation in order to reduce failures and disruptions to the smooth flow of rail traffic.

2005-2009 Capital Program

The Long Island Rail Road has allocated \$156.0 million for Line Structures in the proposed 2005-2009 Capital Program. This program consists of the rehabilitation 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 for its bridges and viaducts by 2014.

Bridges and Viaducts

The Bridge Program includes rehabilitation of a group of bridges, viaducts, tunnels and culverts identified as priority for rehabilitation in order to continue progress towards achieving a State of Good Repair in the Bridge asset category.

Repairs to these bridges range from damaged retaining walls and undermined bearings, to timber and bracing deterioration. Typical items which may be addressed include, but may 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. At this time, three bridges have been identified as needing replacement: North Highway, Powell Creek and Hog Island.

This project will also include the design for a yet to be determined number of bridges from the 28 bridges identified in the condition survey. The final selection of bridges to be included for design and construction in 2005-2009 and 2010-2014 programs will be re-evaluated at the conclusion of the Comprehensive Bridge Evaluation survey that is currently underway and will be completed in 2004. Total cost in the proposed 2005-2009 Capital Program is \$86.3 million.

East River Tunnels (ERT)

The East River Tunnels (jointly operated by LIRR, Amtrak and New Jersey Transit) are important in order to facilitate safety in the tunnels. The proposed project will improve the physical conditions, egress opportunities and ventilation in the tunnels in order to allow for the safe and rapid egress of passengers, and rapid clearing of smoke conditions to minimize passenger discomfort in the event of an accident. The East River Tunnels project consists of tunnel rehabilitation (benchwalls, standpipe repairs, etc.) as well as the construction of ventilation shafts in Manhattan and in Long Island City. Total cost in the proposed 2005-2009 Capital Program is \$69.7 million.

MTA LONG ISLAND RAIL ROAD COMMUNICATIONS AND SIGNALS CATEGORY L-505

More than one-half of LIRR's 2005-2009 Communications investment is dedicated to the build-out of the Fiber Optic Network. This network supports not only communications facilities at most stations, but also signal and substation locations, and corporate facilities. The public address system project, or Audio/Visual Paging System, completes the station installations with an additional 80 stations upgraded with the new state-of-the-art system. Proposed "project 25" compliance investments include narrowband radio system simulation and testing, as mandated by the FCC. Eventually, all LIRR radios will be narrow-band, thereby increasing available channels and allowing for interoperability of our systems. Signal investments were determined by the Signal Strategy, which considered the age, condition, reliability, and suitability of the equipment. The proposed investments were then evaluated in context with corporate initiatives such as centralized train control and the increase in service planned for East Side Access.

2005-2009 Capital Program

The proposed 2005-2009 Capital Program includes \$351.4 million for investments that follow the Communications and Signals Strategies established by LIRR in 2003. These strategies address current and future needs of Long Island Rail Road. Component replacements, as well as system improvements, are included in the investment sets.

Communications

The Long Island Rail Road's 2005-2009 Capital Program includes four projects to advance LIRR's long-term communications strategy and continue the changes necessary to support corporate initiatives and goals. More than one-half of the program dollars will be invested in the continued build-out of the Fiber Optic Network (\$65 M). This shall include the installation of additional high-quality fiber optic cable along the ROW, including dark territory, thereby providing fiber path redundancy and improving system reliability. In addition, circuit cutovers from 3rd party provided leased circuits to LIRR-owned facilities will continue, further reducing LIRR costs. The Communication Network Operations Center (CNOC) will be redesigned to provide state-of-the-art centralized provisioning, monitoring and asset inventory capabilities. This project also completes the connection between LIRR stations and the new fiber communications network.

The proposed 2005-2009 Capital Program also continues the overhaul of the LIRR Station Audio Visual Public Address System (AVPS) to allow its compatibility with digital transmission systems, consistent with the adoption of the Fiber Optic Cable network plant. The public address system at 80 stations will be replaced and signs will be installed on the station platforms, and in limited numbers at other special locations as required to meet ADA compliance, and LIRR coverage requirements. Additional signs will be added to stations with preexisting signage, as required to further improve coverage at those locations. Total cost in the proposed 2005-2009 Capital Program is \$28.1 million.

Replacement of communications poles and hardware at various locations along LIRR Right-Of-Way (ROW) 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. Total cost in the proposed 2005-2009 Capital Program is \$6.9 million.

The final initiative in the 2005-2009 communications program is improved radio coverage and Project 25 Compliance. Radio coverage will be improved throughout the system by adding wireless base stations/towers in deficient locations. The current level of funding will allow for approximately 3 modern monopole-based radio facilities (~150' high) to be constructed. Existing base stations will be upgraded with new technology and state-of-the-art equipment. Actual reprogramming/retuning of radios for P25 compliance shall be completed in the 2010 capital program. Total cost in the proposed 2005-2009 Capital Program is \$13.1 million.

Total cost for communications improvements in the proposed 2005-2009 Capital Program is \$113.1 million.

Signals

The Long Island Rail Road's 2005-2009 Capital Program includes funds to advance LIRR's long-term signal strategy. This program completes several investments initiated in the 2000-2004 Capital Program and also sets the stage for 2010-2014 capital program investments. The signal program rehabilitates several of LIRR's busiest interlockings, invests in signals as far east as Speonk, begins work on the centralized train control system and continues the cyclical Normal Replacement program to maintain a State of Good Repair in the asset.

In the Jamaica area, outdated interlocking control machines at Jay, Hall and Dunton Interlockings will be replaced with new microprocessors and associated equipment, which can be controlled from a central location in the Jamaica Central Control Building. Two of the three interlockings, Jay and Hall, will be rehabilitated in this program. All signal equipment will be replaced, and new track circuits, and electric switches will be installed. Also in the Jamaica area, the Centralized Train Control project will begin with Phase 1 of the project to begin in 2005-2009 (more detail provided below). Total cost in the proposed 2005-2009 Capital Program is \$105.8 million.

The Valley Interlocking rehabilitation project begun in the 1995-1999 Program will be completed. Signal equipment within Valley Interlocking will be replaced and the microprocessors at Valley and those controlling the crossings on the West Hempstead Branch will be cut-over. All equipment, such as huts, cables, etc. installed in the last program will be connected and put into service. Total cost in the proposed 2005-2009 Capital Program is \$11.0 million.

Heading eastward, several staged signal investments will be made between Babylon and Speonk. The approaches to 22 crossings between Babylon and Sayville will be upgraded. Six crossings and 2 cut sections will be fabricated for bi-directional speed for future utilization. Then the Babylon Interlocking will be renewed, as will the signals along the Central Branch. Finally, the control systems and equipment between Babylon and Patchogue will be renewed and upgraded. Total cost in the proposed 2005-2009 Capital Program is \$88.7 million.

A system-wide improvement to the signal system, wayside event recorders - which have

been installed in a limited number of locations, but experienced great success - will be installed in approximately 200 grade crossings and at 26 interlockings. The recorders document events when a malfunction occurs and assist in diagnosing the cause of the malfunction. The recorders reduce time and costs associated with investigating signal equipment failures and eliminate false reports. Total cost in the proposed 2005-2009 Capital Program is \$6.8 million.

As mentioned above, Phase 1 of the Centralized Train Control (CTC) project will be completed in the proposed 2005-2009 Capital Program. Phase 1 will include several key investments including the fit-out of the operating theater, relocation of the Movement Bureau to the theater, and design and installation of a new SCADA system. Phases 2 and 3 of this project will be completed in the 2010-2014 Capital Program. Total cost in the proposed 2005-2009 Capital Program is \$20.6 million.

Completing the signal asset investment set is the cyclical Normal Replacement program. In this project, signal system components will be replaced to maintain a State of Good Repair. Areas and components targeted will be those that must be addressed prior to replacement driven by the Signal Strategy. Total cost in the proposed 2005-2009 Capital Program is \$5.3 million.

Total cost for signal improvements in the proposed 2005-2009 Capital Program is \$238.3 million.

MTA LONG ISLAND RAIL ROAD

SHOPS AND YARDS

CATEGORY L-506

Currently, the Long Island Rail Road operates 25 shops and yards for fleet storage, maintenance and inspection services. Over the next 20 years, the rolling stock fleet size is expected to grow as much as 40 percent to meet projected ridership and accommodate the planned expansion into Grand Central Terminal via the East Side Access project. Anticipating this growth, the Long Island Rail Road's Long Term Operations and Maintenance Strategy has identified an optimal mix of existing yard upgrades, expansions, and new yards to support service requirements.

Over the next 20 years, there is a need to replace Rolling Stock Support Equipment and implement a 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 Failure. 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.

2005-2009 Capital Program

Proposed 2005–2009 Capital Program investments in Shops and Yards total \$277.4 million. Highlights include the replacement of Rolling Stock Support Equipment, implementation of a shop strategy to accommodate maintenance and repair of new M7 EMU's and Diesel fleets, soil remediation at Long Island City Yard, and reconfiguration of Babylon Yard to increase lay-up storage capacity.

Port Jefferson Branch Yard

This project was initiated in the 2000-2004 Program with the EIS, which will lead to site selection and will accommodate up to sixteen lay-up tracks for the electric fleet in 2011. In the proposed program, the design will be finished and construction will commence. Completion and beneficial use is planned to coincide or precede East Side Access service. Total cost in the proposed 2005-2009 Capital Program is \$190.7 million.

Rolling Stock Support Equipment

The Long Island Rail Road will rehabilitate and/or replace rolling stock support equipment (RSSE) at LIRR's major shops and yards. The components are critical to maintaining the LIRR fleet's electric cars, diesel hauled coaches, and diesel locomotives. This need becomes more critical with the continued arrival of the new M-7 fleet, the recent addition of new diesel locomotives and coaches and the implementation of a Life Cycle Maintenance and Shop Strategy. Total cost in the proposed 2005-2009 Capital Program is \$17.5 million.

Shop Reconfiguration to support the new Life Cycle Maintenance Program

The Long Island Rail Road will improve shop facilities to accommodate maintenance and repair of new M7 EMU's, M3 EMU's and Diesel fleets. The majority of the work effort will be in the support shops at the Hillside Maintenance Complex. This includes the introduction of the HVAC Shop as well as the reconfiguration of the existing Motor, Wheel, Truck, Switch Group, Compressor, A/C, Air Brake, Tin and Electronics shops. Minimal reconfiguration effort will be required in other shops such as Hillside Car Shop, West Side Shop, an Interim Locomotive Shop and Richmond Hill Shop. 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 2005-2009 Capital Program is \$39.6 million.

Long Island City Yard

With the proposed 2005-2009 Capital Program, Long Island Rail Road continues the remediation of petroleum-contaminated soil and replacement of tracks at this location. The first two phases of this effort (funded in previous programs) included the replacement of tracks 0 – 6. In the proposed program, Phase III will include the remediation and replacement of tracks 7, 9, 10, 11 and 12. Total cost in the proposed 2005-2009 Capital Program is \$11.5 million.

Babylon Yard Reconfiguration

The LIRR will reconfigure existing tracks to increase EMU lay-up storage capacity in Babylon Yard. The scope includes the reconfiguration design and construction of Babylon Yard, including functional improvements and track work to accommodate 12-car consists on tracks 9 through 17 for a total of 22 additional car spots. Daily inspection and toilet servicing of the expanded EMU fleet will continue at current levels of operation. New paved walkways and roadways will be installed for tracks that are lengthened. Total cost in the proposed 2005-2009 Capital Program is \$5.2 million.

Employee Facilities

The proposed 2005-2009 Capital Program includes a capital budget of \$3.7 million for rehabilitation and improvement of select employee facilities. Employee facilities are multi-functional, encompassing shops and material storage as well as traditional lockers, lunchroom and office space. The purpose of this project is to replace or upgrade deteriorated building components including roofs, walls, walkways PA and lighting systems, HVAC system, flooring, doors, windows and locker rooms.

M of W Repair Facility

The purpose of project is to rehabilitate and expand the severely deteriorated maintenance of way repair facility in the Upper Holban Yard, constructed in the mid 1970s. The project includes improvements to the venting and exhaust systems, machine / crane upgrades, replacement of overhead door, painting the exterior of the building, office renovation, bathroom and locker room renovation. In addition, this project will include the design and construction of a pre-fabricated steel building attached to the existing facility, which will include construction of two new tracks to access the new building, heating, ventilating, lighting of interior and exterior, and installation of an overhead crane. Total cost in the proposed 2005-2009 Capital Program is \$9.1 million.

MTA LONG ISLAND RAIL ROAD

POWER

CATEGORY L-507

The Long Island Rail Road operates and maintains 105 substations and 236 miles of traction power cable system-wide. The long-term goal of Power-related investments is to continue to schedule the component replacements necessary to maintain the system in a State of Good Repair and strengthen its reliability and safety. In addition, over the next 20 years, the Long Island Rail Road will invest substantially in the reconstruction of nine Traction Power substation buildings and the replacement of associated equipment at various locations. 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. In addition, a new traction power load study, which utilizes a computer simulation model and incorporates physical characteristics, train schedules and train power consumption, should be complete in January 2005. This study will consider the power needs (including those of the new M- 7 electric fleet) of the current system as well as requirements to support projected system growth and expansion. The results of this study will provide information required to revise the LIRR's power strategy for future investment.

2005-2009 Capital Program

The proposed 2005-2009 Capital Program will replace power system components that have reached the end of their useful lives. The Inwood, Floral Park and Hempstead substations will be reconstructed under the Substation Reconstruction Project and major components at an additional five substations will be replaced under the Substation Components Replacement Project.

The proposed 2005-2009 Capital Program also calls for the replacement and/or upgrade of sections of third rail cable, protection board, composite rail, substation batteries, power line poles, signal power motor generators, and signal power line. Deteriorated and inadequate electrical systems currently servicing signal loads will be replaced and /or upgraded, in addition to the bridge electrical system on the Wreck Lead Rail Road Bridge. During this program, the emergency generator at Ralph Ave will also be replaced. Funding has also been set aside to address the results of the 2004 Power Load Study project which is expected to re-define exact locations where additional substations, circuit breaker houses and/or aluminum third rail may be needed. Total cost in the proposed 2005-2009 Capital Program is \$163.3 million.

MTA LONG ISLAND RAIL ROAD

MISCELLANEOUS

CATEGORY L-509

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.

2005-2009 Capital Program

A total of \$259.4 million of the proposed 2005-2009 Capital Program is allocated to fund miscellaneous projects. Included are: program administration, insurance, and system-wide environmental remediation.

Environmental Remediation

The Environmental remediation includes delineation and/or remediation of 23 electric substations, Yaphank Landfill, Long Island City Car Wash, Richmond Hill, Holban Yard, Morris Park, and rail lubricator grease contamination within LIRR rights-of-way. Total cost in the proposed 2005-2009 Capital Program is \$24.0 million.

Electric Substations Remediation

The Long Island Rail Road will delineate and remediate contaminated soil at 23 LIRR electric substations. It is expected that site mitigation at each of 20 substations will entail minimal removal of contaminants and capping of the substation property to prevent the spread of any remaining contaminants. The 3 non-mercury substations will also undergo remedial design/feasibility and site remediation in the proposed 2005-2009 Capital Program. Total cost in the proposed 2005-2009 Capital Program is \$11.0 million.

Yaphank Landfill Remediation

The Long Island Rail Road will provide remedial design and remediation at the Yaphank Landfill. Contaminants will be removed and the site will be capped with an impermeable barrier and potentially used for other yet-to-be-identified LIRR activities. Long term monitoring would likely be required to ensure the integrity of the cap. Total cost in the proposed 2005-2009 Capital Program is \$4.9 million.

Long Island City Car Wash Remediation

The Long Island Rail Road will provide for delineation, design/feasibility and remediation of the Long Island City Car Wash. It is projected that remediation will involve excavating and disposing of soil, removing and disposing of ballast and soil immediately under the track bed/car wash, and replacing all excavated materials with clean-fill. Total cost in the proposed 2005-2009 Capital Program is \$0.9 million.

Richmond Hill Yard Remediation

The Long Island Rail Road will provide for delineation, remedial design and feasibility analysis at Richmond Hill. Contaminated soil was removed and disposed. The Advance and Receiving Yards need to be further investigated. The site will be fully remediated in the 2010-2014 Capital Program. Total cost in the proposed 2005-2009 Capital Program is \$0.5 million.

Right-of-Way Remediation (Rail Lubricators)

The Long Island Rail Road has allocated funds for project delineation, remediation design, and investigation of environmentally friendly lubricants (e.g., soy-bean based lubricants), installation of track blankets/drip pans and soil remediation at a total of 106 LIRR right-of-way locations in Nassau, Suffolk, Queens and Kings County. Contaminated ballast will be removed, properly disposed of, and replaced with clean ballast in the 2010-14 Capital Program. Any protective measures identified in the 2005-09 Capital Program may be installed at this time. Total cost in the proposed 2005-2009 Capital Program is \$0.4 million.

Holban Yard

The Long Island Rail Road has allocated funds for delineation of soil and groundwater contamination associated with its historic usage as a freight repair facility. Remedial actions in future capital programs will include removal of ballast and soils, proper closure of underground sumps and drywells, and completion of the needed plumbing/drainage upgrades. Total cost in the proposed 2005-2009 Capital Program is \$0.4 million.

Morris Park

The Long Island Rail Road has allocated funds to determine the extent of contamination both on and off the Morris Park facility. Based upon the type and concentration of contaminants and the overall size of the affected area, a Feasibility Study will be prepared to evaluate various remedial technologies to determine the most effective means of remediation. Based on results of the Remedial Investigation and Feasibility Study, a detailed technical scope of work will be prepared to address all levels of contamination both on and off site. Total cost in the proposed 2005-2009 Capital Program is \$5.9 million.

Main Line Yard

Main Line yard is entering the EIS phase with funding in the 2000-2004 Capital Program, followed by design in the proposed 2005-2009 program. Construction and beneficial use to follow and will be funded in the 2010-2014 program. Location and size will be determined during the EIS process, but it is anticipated to be east of Farmingdale and more likely east of Ronkonkoma, where the present electrified service terminates. Total cost in the proposed 2005-2009 Capital Program is \$14.1 million.

MTA METRO-NORTH RAILROAD

MTA METRO-NORTH RAILROAD

2005-2009 CAPITAL PROGRAM

OVERVIEW

As one of the largest commuter railroads in the country, MTA Metro-North Railroad (Metro-North) carried 73.2 million riders in 2003 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. This is a ridership increase of over 50% in the last 20 years.

During this time period, there has been a major investment in the infrastructure of the railroad under the MTA Capital Program. In addition, the number of trains Metro-North operates has increased by more than 30%, the number of revenue passenger miles is up 115% and the number of train cars has increased by over 40%. On-Time Performance has improved from 80.5% to 97.5%. The Mean Distance Between Failure (MDBF) of the fleet, the distance a rail car travels between breakdowns, has improved from 13,341 miles in 1988 to 75,911 miles in 2003. Finally, in this time frame, the railroad improved Fare to Operating Ratio from 36.9% to 57.9% by maintaining a critical focus on improving financial performance and operating efficiencies.

Metro-North market share of weekday commuter trips to Manhattan – those that choose to ride the train instead of driving their automobiles - has increased from 70% in 1991 to 78% in 2003. The increase is even more pronounced for the discretionary travelers (non-commuters). Only 39% of these travelers took the train in 1991, while in 2003 the market share is up to 50%.

These dramatic changes were made possible through large-scale capital investments to restore basic railroad infrastructure to a reliable condition. While infrastructure improvements resulting from the past 20 years of investments are impressive, significant State of Good Repair (SGR) work remains unfinished in some categories. In addition, to avoid a return to the conditions prevalent in the 1970's and early 1980's, it is critical not only to continue SGR work, but to protect Normal Replacement (NR) investments as well. At the same time, Metro-North remains focused on initiatives that provide targeted improvements resulting in increased ridership and revenue throughout the system.

The proposed 2005-2009 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:

- Continue implementation of Metro North's Rolling Stock strategy by replacing rolling stock at the end of its useful life and remanufacturing select fleets. Vital efforts include the completion of the M-7 rolling stock procurement that will replace the aging M-1 car with a more dependable and maintainable electric car and the purchase of M-8 cars for the New Haven Line to provide growth and replacement of M-2 cars.

- Continue rehabilitation of Grand Central Terminal and outlying stations.
- Expand parking and progress the development of key Strategic Intermodal Facilities to improve station access and expand commuter parking to address the thousands of parking spaces needed throughout the Metro-North system. Completing these investments will promote increased rail ridership and revenue as well as meet current and projected customer demands for parking and station access. Stations and parking investments are coordinated with local governments and promote economic development.
- Implement the first phase of the 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.
- Continue 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.
- Continue evaluating the environmental impacts of accessing Penn Station using existing regional rail rights-of-way, as LIRR East Side Access eases Penn congestion in 2010. Funding to implement Penn Access will be provided in future MTA Plans based upon the results of current planning and the implementation of East Side Access.

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:

- Continuation of the Hudson Line Stations Improvements program, completing the replacement/rehabilitation work from Hastings to Ossining.
- Installation of additional ticket selling machines predominantly on outbound platforms so that Metro-North reverse travelers will be able to purchase their tickets in advance of boarding trains by using the ticket machines. This project will continue the initiative begun under the 2000-2004 Capital Program.
- Commencement of phase one of 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 the system, and enabling compatibility with future service needs.
- Increased investment in the infrastructure of the Port Jervis Line as a result of Metro North's lease with Norfolk Southern. Track, viaducts, bridges and signal work will be advanced.

Investments in Safety and Security

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

- Continue the Undergrade Bridge Program – east and west of the Hudson River to progress the Metro-North bridges to a State of Good Repair.
- Implement the Substation Retrofit of the Hudson and Harlem Lines to comply with high voltage power line rules and regulations - a critical employee safety project.
- Replace CTC Systems – the Operating Control Center in Grand Central Terminal, which is

the office portion of the signal system, with an upgrade to equipment, software and facilities essential to keep pace with the expanded operation of the railroad.

- Metro North will also make significant complementary investments in emergency preparedness under a separate security program.

Investments to Maintain the Core Infrastructure

Protecting the Existing Investment is one of the most critical elements of the proposed 2005-2009 Capital Program. Metro-North must ensure that all the improvements resulting from the latest 20 years of Capital Program work are not lost, causing systems to slip back into a state of disrepair. Key projects include:

- Continuation of multiple infrastructure improvement programs such as Cyclical Track, Turnouts: Mainline/High Speed Turnouts, GCT Trainshed Structural Repairs.

THE PROPOSED 2005-2009 CAPITAL PROGRAM

Table 6 details the proposed 2005-2009 Capital Program by asset category and percentage of overall program. Investment highlights for each asset category are described directly following the table.

Table 6
MTA Metro-North Railroad
2000-2004 Capital Program by Investment Category
(\$ in millions)

Category	Plan	Percent
Rolling Stock	\$364.0	26%
Stations	253.4	18%
Track and Structures	264.2	19%
Communications and Signals	74.3	5%
Power	102.7	7%
Shops and Yards	262.8	19%
Miscellaneous	87.9	6%
Total	\$1,409.3	100%

Numbers may not total due to rounding

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

Rolling Stock

At the end of the 2000-2004 Capital Program, Metro-North's East of Hudson rolling stock fleet will consist of 842 electric cars, 191 diesel coaches (including Connecticut Department of Transportation [CDOT] owned equipment) and 49 locomotives. In addition, Metro-North will have 11 locomotives and 67 coaches available for service on Metro-North's West of Hudson Port Jervis and Pascack Valley Lines, operated by New Jersey Transit under agreement with Metro-North Railroad.

The goal for the proposed 2005-2009 Capital Program \$364 million investment in rolling stock is to continue the modernization of the fleet, which began with the dual-mode and coach purchases in the 1995-1999 Capital Program and continued in the 2000-2004 Capital Program with such projects as the M-7 procurement, M-2 Critical System Replacement, the purchase of a new fleet for the West of Hudson territory, and the initial purchase of M-8 cars for service on the New Haven Line. This goal will be progressed through the completion of the M-7 procurement for the Harlem and Hudson Lines, the continuation of the M-2 project and the remanufacture, and the remanufacture of the M-3s and coaches. This more modern fleet will provide high-performance electric equipment for peak period service as well as the operational flexibility to allow use of diesel coach consists to serve both the diesel and electric territories.

Stations

The proposed 2005-2009 Capital Program includes \$253.4 million for the continuing rehabilitation of the historic Grand Central Terminal complex, the rehabilitation of select stations on the Hudson, Harlem and New Haven Line (in New York State), the expansion of parking facilities and the advancement of strategic intermodal station/parking facilities.

Rehabilitation of Grand Central Terminal will continue with \$41.6 million allocated for Normal Replacement projects. Major work continuing from the previous capital program is the structural rehabilitation of the upper level trainshed area and structural repairs to and beautification of the exterior east facade of the historic terminal. Additional funding is reserved for the Normal Replacement of the terminal's infrastructure including trainshed ventilation improvements, elevator rehabilitation, platform improvements and water conveyance utility improvements.

The long-term objectives of the stations and parking program is to repair deteriorated facilities, 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. The largest single project within the Station program will be the \$94 million Hudson Line Stations Improvements project to replace various structural components (platforms, canopies, stairs, overpasses) of the stations that have reached or exceeded the end of their useful life. This project includes stations at Hastings, Dobbs Ferry, Irvington, Tarrytown, Philipse Manor, Scarborough and Ossining; this work complements the Hudson Line Stations work progressed under the 2000-2004 Capital Program. When completed, this project will increase customer satisfaction/quality of life and improve safety and convenience.

The \$53.6 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. Improved access and expanded commuter parking will be progressed at key facilities establishing strategic intermodal centers that can address the thousands of parking spaces needed throughout the Metro-North system. These investments are a prerequisite to promote increased rail ridership and revenue as well as meet current and projected customer demands for parking and station access. The facilities address the unmet needs at stations where there is a lack of available land for further expansion, water shed limitations, and other constraints. The work includes major station improvements, construction of new intermodal facilities to provide for connections with taxis and bus transfers, major interchange access improvements, right of way improvements, as well as elements of parking expansion. Potential projects to be progressed include: North White Plains, Southeast (with Brewster Yard), Cortlandt, Woodbury-Harriman, Beacon and Poughkeepsie/New Hamburg. At Southeast, the work will be fully integrated with the construction of a relocated and expanded Brewster rail yard.

Track and Structures

A total of \$264.2 million is allocated for Track and Structures projects east and west of the Hudson River.

Under the program, \$59.3 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. In addition, \$44.6 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 that interlockings do not deteriorate. The \$10.0 million Grand Central Terminal Switch Renewal project will replace in kind the switches located in the terminal along with provide rail improvements at the platform areas.

In September 2002 Metro-North finalized a long-term lease agreement for the Port Jervis Line with Norfolk Southern and in Spring 2003 assumed maintenance responsibility for the Line. Maintenance of the 65 miles of track and line structures is new to Metro-North's infrastructure needs and the increase in route miles and structures is a significant addition. Long-term investment improvements are essential to maintain the service as well as increase the capacity and to improve the service levels of the Line. Approximately 20.5% of the 2005-2009 Track and Structures funding is allocated to this new critical need, predominantly to progress the effort to bring this infrastructure to a State of Good Repair comparable to the east of Hudson infrastructure. The \$41.7million West of Hudson Track Program provides for track improvements on the Port Jervis Line.

Communications and Signals

The Communications and Signals projects total \$74.3 million. The primary 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 and expanded service levels. In addition, Metro-North looks to optimize train capacity, such as on the Upper Harlem Line, to accommodate the railroad's current needs, future service plans and future ridership projections. Over 70% of the funding is allocated to the two projects that progress the asset goal – Replace CTC Systems (\$27.1 million) and Signal System Replacement (\$28 million).

Power

The Power projects total \$102.7 million. 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. Consequently, approximately 40% of the funding under this category is for the Harlem/Hudson Power Improvements, the first phase of a multi-program project to improve traction power.

Shops and Yards

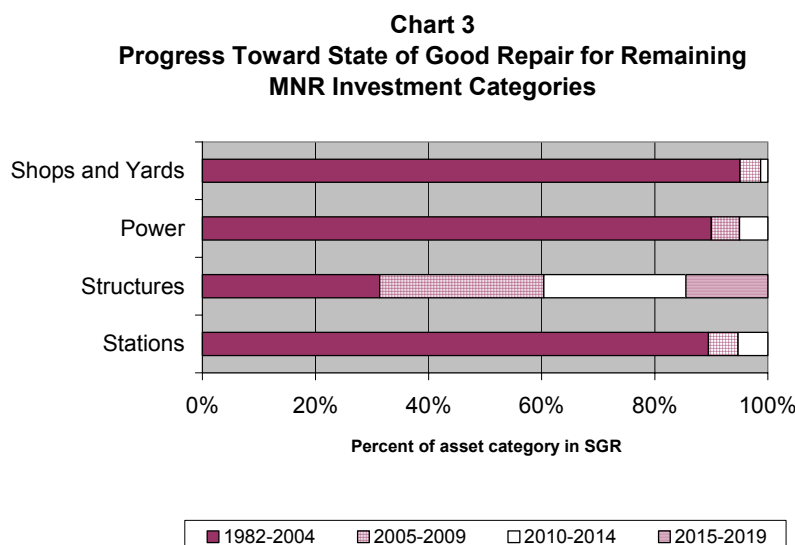
Three major projects encompass the majority of the Shops and Yards allocation of \$262.8 million in the proposed 2005-2009 Capital Program. Metro-North's long-term Shops and Yards strategy is to upgrade and adequately size these facilities to accommodate additions to the rolling stock fleet, support the Reliability Centered Maintenance (RCM) philosophy, improve overnight servicing, improve on-time performance and ensure customers the highest quality of service. In support of the long-term strategy, the 2005-2009 program continues the efforts

started under the past 2 programs (from 1995-2004). Metro-North will continue the replacement and upgrade of the Croton-Harmon Shop, including the design/build of coach/locomotive shops, modifications to the existing Main (EMU) shop to provide for M-7 fleet maintenance, and construction of priority repairs to the EMU shop to extend useful life and maintain functionality until replacement can begin in the 2010-2014 Capital Program. Additional projects include construction of a carwash at the new Highbridge Yard facility and the advancement of the Brewster Yard project (coordinated with possible station and parking improvements at the Southeast Station) to meet car storage needs as demand increases on the Harlem Line.

SYSTEM CONDITION AND ACCOMPLISHMENTS

Since 1982, when the first capital program began, Metro-North Railroad has committed a total of \$4.4 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 providing System Improvements. All obsolete track was replaced by 1986 (with the exception of that which was newly acquired for the Port Jervis Line). The work to bring the Communications and Signals category to a State of Good Repair was completed by 2000.

As shown in Chart 3, at the end of the 2000-2004 Capital Program Shops and Yards will have reached 95% State of Good Repair and investments in 2005-2009 will progress the SGR work to 97%. The Power assets will have reached 90% State of Good Repair; investments in Power in 2005-2009 will progress the SGR work to 95% for these assets. Stations (including GCT) will



be at 90% SGR at the end of 2000-2004; investments in Stations and GCT will bring these assets to 95% SGR by the end of 2005-2009 and these assets are slated for SGR completion by 2014. Finally, Structures will be at 65% SGR by the end of the 2000-2004 Capital Program.

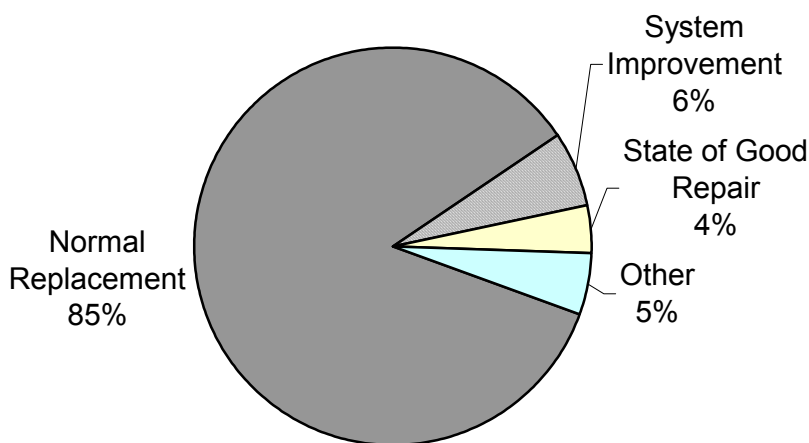
As Metro-North continues its progress toward a complete State of Good Repair, it is able to devote more budgetary resources to Normal Replacement programs and System Improvement projects. Accordingly, the proposed 2005-2009 Capital Program allocates 85%, the majority of its funding, to the Normal Replacement of assets which have reached their expected useful life (see Figure 5 below). Included is the completion of the phased purchase of M-7 electric cars to

begin the retirement of the M-1 car fleet and the purchase of new M-8 cars to begin the growth and replacement of the aging M-2 cars. Investment in the remanufacture of equipment must continue as well to maintain the fleet in a State of Good Repair.

Other significant Normal Replacement projects include the continuation of the phased replacement of the Croton-Harmon shop and yard complex. The complex is obsolete and needs replacement. Failure to replace this asset now will result in a slippage of this asset out of good repair.

Finally, in terms of Station infrastructure needs, platforms and overpasses and building approaches at several locations are approaching the end of their useful life. The continued rehabilitation of the Hudson Line and the initiated rehabilitation of the New Haven Line are critical to address these concerns.

Figure 3
MTA Metro-North Railroad 2005-2009 Capital Program
Investments by Needs Category



While the allocation for State of Good Repair projects represents less than in the past (4% in the proposed 2005-2009 Capital Program as opposed to 13% in the 2000-2004 Capital Program), there are significant projects in this category. For example, while much of the 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 and the continued rehabilitation/replacement of undergrade bridges to progress the State of Good Repair effort for those structures.

System Improvement projects represent 6% of Metro-North's 2005-2009 Capital Program. Much of this funding is devoted to parking expansion and strategic intermodal facilities and station improvement projects. Additional systems improvement funds are included for the

phased development of the Brewster Yard expansion.

Major Accomplishments of the 2000-2004 Capital Program include:

- Through a joint procurement with Long Island Rail Road, Metro-North has purchased 180 M-seven cars under the 2000-2004 Capital Program and accelerated the purchase of an additional 156 cars to be funded under the proposed 2005-2009 Capital Program. Acceptance of these new cars began in April 2004 and M-7 trains are currently in revenue service on the Hudson Line. 2000-2004 Capital Program funding for this project is \$383.4 million.

The purchase of an additional 120 cars was accelerated from the 2005-2009 Capital Program to 2004 for delivery in 2005. The total cost of that purchase was \$237.7 million, including \$208.8 million accelerated from the 2005-2009 plan.

- Metro-North purchased nine Genesis dual mode locomotives in 2000. These were all placed into service on the Harlem and Hudson Lines in September 2001.
- Through an agreement with New Jersey Transit, 65 Comet V coaches were purchased for service on the Port Jervis and Pascack Valley Lines. Metro-North funded the \$74 million project.
- Metro North has invested significantly in the rehabilitation of stations. For example, the Hudson Line Station Improvements project, which includes rehabilitation and improvement of nine lower Hudson Line stations from Morris Heights to Greystone, is a major design-build effort that began in July 2001. The 2000-2004 Capital Program funded \$87 Million for this project, which is approximately 75% complete.
- Metro-North completed the installation of over 300 new Ticket Vending Machines. These machines are located throughout the system including West of Hudson stations and select Connecticut stations. New Express Ticket Vending Machines are being installed at 4 Bronx Metro-North stations as part of the final phase of this project.
- The design-build project to construct Highbridge Yard was completed in June 2003. This yard functions as a critical maintenance facility for Metro-North trains as well as provides alternate storage yard and facilities as a result of the Long Island East Side Access project. The 2000-2004 Capital Program funding was \$22 million.
- Metro North began the replacement of the Croton-Harmon Shop complex with the construction of a new yard and began the design of a new coach and new locomotive shop.
- Secaucus Transfer Station opened for full service in December 2003. Metro-North contributed \$53 million from the 1995-1999 capital program towards the construction of this station, which is being operated by New Jersey Transit. In addition, Metro-North made significant investments to complement this opening. Track capacity was improved, stations were rehabilitated and parking expanded. Rolling Stock investments (described above) resulted in a new fleet for this territory. Complementary investments totaled over \$100 million.
- The Mid-Harlem Third Track project will improve reliability, flexibility and dependability by adding a 3rd track in the densely crowded 2-track territory between Mount Vernon West and

Crestwood. The project was Metro-North's response to the constraints of the existing track capacity of the Harlem Line, the demand for service and projected ridership growth, and Metro-North's continued commitment to support regional transportation goals, to attract new riders to the system, and to provide quality service to its customers. Funded under the 1995-1999 capital program, this project will be completed in Fall 2004.

PLANNING THE PROPOSED 2005-2009 CAPITAL PROGRAM

A Twenty Year Needs Assessment was conducted by Metro-North in 2003 as a first step in identifying the investment strategies for the proposed 2005-2009 Capital Program. The Assessment was an agency-wide effort to determine the long-term needs and investment strategies of the railroad. As part of this process, an Asset Inventory/Condition Database was developed for all key assets on the railroad and the assets/conditions were assembled into a central inventory database. Concurrently, Metro-North reviewed and updated its long-term strategies, such as the Rolling Stock Plan, Shops and Yards Strategy, and Parking and Strategic Facility Strategies, as well as reviewed the status and recommendations of ongoing studies such as the Harlem Line Capacity Study and Traction Power Study. These efforts provided critical input into refining the long-term needs of the railroad. Projects requiring 3rd party consultant assessments to assist in the scoping effort for a 2005-2009 Capital Program were identified and contracts procured (New Haven Line Station Assessment, Station Building Assessment, GCT Platform Assessment).

Needs Summaries (summaries of capital investments) for the period 2005-2024 were developed in 5 year Capital Program increments for work to progress State of Good Repair, Normal Replacement, System Improvements and Network Expansion projects. Metro-North identified \$8.5 billion in Needs over the next 20 years. These projects are all required to progress work towards 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-501

The goal for 2005-2009 Capital Program investments in rolling stock is to continue the modernization of the fleet, which began with the dual-mode and coach purchases in the 1995-1999 Capital Program and continued in the 2000-2004 Capital Program with the M-7 procurement. At the end of the 2000-2004 Capital Program, Metro-North's East of Hudson rolling stock fleet will consist of 842 electric cars, 191 diesel coaches and 49 locomotives including equipment owned by Connecticut DOT (CDOT). In addition, Metro-North has 11 locomotives and 67 coaches available for service on the Port Jervis and Pascack Valley Lines, operated per an agreement by New Jersey Transit. Through the 2005-2009 investments, Metro-North Railroad will continue fleet modernization and expansion efforts to meet ridership trends and enhance the quality of service for Metro-North railroad customers.

2005-2009 Capital Program

Metro-North's purchase of rolling stock is needed primarily to replace equipment that has reached the end of its useful life. Additional equipment is also required to accommodate ridership growth. Rolling Stock projects total \$364 million and represent approximately 26 percent of the entire program for the 2005-2009 period.

M-7 Procurement

Metro-North will continue a program begun in the 2000-2004 Capital Program, purchasing 36 M-7 electric single unit cars for use on the Harlem and Hudson Lines in order to complete the retirement of the M-1 fleet built in the early 1970s and now at the end of its useful life. The cars will be delivered in 2008 and will enable trains to be sized more efficiently to ridership levels, reducing unnecessary operations and maintenance costs associated with running overlong trains, and improving the overall mean distance between failure (MDBF). Total cost in the proposed 2005-2009 Capital Program is \$68.9 million.

The purchase of 120 M-7 electric cars was accelerated to the 2000-2004 Capital Program for delivery in 2005. The total cost of that purchase was \$237.7 million of which \$208.8 million is reimbursed from the 2005-2009 Capital Program. (The proposed 2005-2009 program is net of this acceleration.)

M-8 Procurement

Metro-North plans purchase up to 100 M-8 cars in a joint procurement with CDOT to accommodate projected New Haven Line ridership growth and 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. This is the first phase of a program to provide a total of 340 new cars to replace the M-2 fleet and provide seats for ridership growth through 2015. Total cost in the proposed 2005-2009 Capital Program is \$100.0 million.

M-2 Critical Systems Replacement

Metro-North (along with CDOT) will complete the remanufacture of 241 M-2 electric multiple unit cars used in New Haven Line service to Grand Central Terminal, continuing a program begun in the 2000-2004 Capital Program. These cars were built in the early 1970's and require replacement and upgrade of key components and systems to remain reliably in service until the fleet can be fully replaced. Total cost in the proposed 2005-2009 Capital Program is \$18.6 million.

Rolling Stock Remanufacture Programs

Metro-North will remanufacture 142 M-3A electric multiple unit cars for Harlem and Hudson line service, develop a specification for the remanufacture of M-4s and M-6s, and remanufacture 54 M-4 electric multiple unit cars (with CDOT) for New Haven Line service, and 40 End-Door coaches for the East-of-Hudson coach pool. These cars were built in the 1980's and have passed the midpoint of their useful life; key components need replacement and upgrading to maintain reliable service. This remanufacturing effort will initiate Metro-North's Reliability Centered Maintenance Program, established to stabilize the fleet maintenance program and minimize cost impacts to maintaining the Metro-North fleet in the future. Total cost in the proposed 2005-2009 Capital Program is \$165.8 million.

Purchase of 9 Switcher Locomotives

Metro-North will purchase nine (9) switcher locomotives to continue the modernization of its locomotive fleet. The current fleet of switcher locomotives is over 40 years old, exhibiting breakdowns in basic system components. As a result, this fleet cannot be relied upon to meet daily switching and work train requirements. Metro-North will purchase new locomotives, capable of operating anywhere on the railroad, including the Grand Central Terminal complex. Total cost in the proposed 2005-2009 Capital Program is \$8.5 million.

Replace Obsolete Work Equipment

Metro-North will purchase new non-revenue equipment to replace its oldest freight cars, some of which are well over 40 years old and are no longer useful. This purchase will occur in concert with the purchase of new switcher locomotives. Total cost in the proposed 2005-2009 Capital Program is \$2.2 million.

MTA METRO-NORTH RAILROAD STATIONS CATEGORY M-502

There are 86 Metro-North passenger stations in New York State, 74 east of the Hudson River and 12 more west of the Hudson. The long-term objective of 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.

2005-2009 Capital Program

Included in Metro-North's 2005-2009 Capital Program is the continuing rehabilitation of the historic Grand Central Terminal complex, rehabilitation of stations on all New York State lines, and the parking and strategic facilities. Grand Central Terminal, Stations, Parking and Strategic Facilities projects total \$253.4 million, approximately 18 percent of the total Metro-North Capital Program.

Grand Central Terminal Rehabilitation Projects

Rehabilitation of Grand Central Terminal will continue in the proposed 2005-2009 Capital Program with \$41.6 million allocated for Normal Replacement projects. Major work continuing from the 2000-2004 Capital Program includes the structural rehabilitation of the upper level trainshed area and structural repairs to the exterior East Facade of the historic terminal. Additional funding is reserved for the Normal Replacement of the terminal's infrastructure including trainshed ventilation repairs, elevator rehabilitation, platform improvements and water conveyance utility improvements. In addition, Metro-North will be working with the City of New York to repair roadways surrounding Grand Central Terminal to stop leaks into the terminal's facilities.

Hudson Line Stations Improvements – Hastings to Ossining

The purpose of this project is to replace station infrastructure that have exceeded or are at the end of their useful life. Stations include: Hastings, Dobbs Ferry, Irvington, Tarrytown, Philipse Manor, Scarborough and Ossining. Work will include rehabilitation/replacement of platforms, canopies, stairs, and shelters to meet Metro-North Station Standards and all applicable accessibility regulations. When completed, this project will improve customer safety, comfort and convenience. Total cost in the proposed 2005-2009 Capital Program is \$94 million.

New Haven Line Stations Improvements

This project is the first phase to maintain the Mt Vernon East, Pelham, New Rochelle, Mamaroneck, Harrison, Rye and Port Chester station facilities and buildings in a State of Good Repair (SGR). The New Haven Line stations have been identified for full rehabilitation/replacement based on life cycle and the condition inventory and assessment work completed for the 20-Year Needs Assessment. Total cost in the proposed 2005-2009 Capital Program is \$34 million.

Station Building Rehabilitation

Funding is allocated to address the needs of rehabilitating older historic stations throughout the system. In addition, \$2.9 million has been set aside for station work identified by an assessment funded under the 2000-2004 Capital Program at the Poughkeepsie Station Building. Metro-North will address the structural rehabilitation needs of selected station buildings including, as applicable, new roofs, gutters, sidewalks, windows, electrical and plumbing and other structural items within a station building. Total cost in the proposed 2005-2009 Capital Program is \$13.8 million.

Parking and Strategic Intermodal Facilities

The \$53.6 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. Improved access and expanded commuter parking will be progressed at key facilities establishing strategic intermodal centers that can address the thousands of parking spaces needed throughout the Metro-North system. These investments are a prerequisite to promote increased rail ridership and revenue as well as meet current and projected customer demands for parking and station access. The facilities address the unmet needs at stations where there is a lack of available land for further expansion, water-shed limitations, and other constraints. The work includes major station improvements such as new/expanded station facilities as well as construction of new intermodal facilities to provide for connections with taxis and bus transfers, major interchange access improvements from Interstate highways/major roadways and right of way improvements such as track, interlockings and signal work, as well as all the elements of parking expansion. Potential projects to be progressed include: North White Plains, Southeast (with Brewster Yard), Cortlandt, Woodbury-Harriman, Beacon and Poughkeepsie/New Hamburg.

The work includes environmental reviews, design and initial construction for various projects. Land acquisition was completed for Southeast, and is currently ongoing at numerous other sites.

A \$3.3 million Parking Rehabilitation project consists of the rehabilitation of existing parking facilities and restores them to a State of Good Repair (SGR). Based on the 2003 Existing Conditions Parking Assessment, Metro-North identified possible project sites that have exceeded their useful life and require SGR improvements. SGR work typically includes: resurfacing parking lot pavements; re-striping of space markings for a maximum number of parking spaces; and bringing facilities up to current ADA standards. Potential projects identified requiring SGR work include Woodlawn and Rye.

Other Station Projects

Other station projects include \$3.1 million for rehabilitation work to be done at the Upper Harlem Stations, \$1.0 million for the replacement of station identification signs and \$3.3 million to continue the Automated Ticket Selling program.

MTA METRO-NORTH RAILROAD TRACK AND STRUCTURES CATEGORY M-503

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 existing assets and achieve a State of Good Repair for undergrade bridges by 2019. 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 without safety hazards or speed restrictions. 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.

2005-2009 Capital Program

A total of \$264 million is allocated for track and structures projects, representing 19 percent of the proposed 2005-2009 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 2004. 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 2005-2009 Capital Program is \$59.3 million.

Turnout Replacement – Mainline High Speed

This 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 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 speeds from 60 to 95 miles per hour compared to speeds limited to 45 miles per hour for diverging moves. This improvement will result in reduced travel time for Metro-North customers and greater flexibility for the railroad. Total cost in the proposed 2005-2009 Capital Program is \$44.6 million.

Grand Central Terminal Switch Renewal

This project is a continuation to replace, in kind, the switches located in Grand Central Terminal along with the stick/jointed rail that currently exists within 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 does not deteriorate. The project also includes the renewal of the switch machines associated with the various switches. Total cost in the proposed 2005-2009 Capital Program is \$10 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: BN Yard (additional equipment storage), Mt. Vernon West Yard (turnout replacement), Mott Haven Yard (black-top yard and install grade crossings), Poughkeepsie Yard (replace turnouts and switches), North White Plains Yard (replace turnout switch timbers), and East Highbridge Yard (add storage tracks). Total cost in the proposed 2005-2009 Capital Program is \$5.4 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 2005-2009 Capital Program includes the replacement of 21 miles of rail, 70,000 ties, and 90 miles of resurfacing; all are at the end of their useful life. Total cost in the proposed 2005-2009 Capital Program is \$41.7 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. A total of 54 undergrade and one overhead bridge have been identified for design and repair or replacement. The proposed 2005-2009 Capital Program provides resources for the construction of the following undergrade sites: HA 23.98 Fisher Lane, HU 53.57 Fishkill Creek, 20 select bridges, culvert pipe jacking, and other improvements. This program also includes rehabilitation of the overhead bridge at North Barry Avenue (NH 20.91) in Mamaroneck. Total cost in the proposed 2005-2009 Capital Program is \$31.4 million.

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. Total cost in the proposed 2005-2009 Capital Program is \$4.4 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 outlying field locations and GCT. Total cost in the proposed 2005-2009 Capital Program is \$5 million.

Moodna and Woodbury Viaducts – West of Hudson

This project provides for the rehabilitation of the Moodna and Woodbury viaducts on the Port Jervis Line. 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 2005-2009 Capital Program is \$5.4 million.

Undergrade Bridge Program – West of Hudson

This project provides for the inspection, assessment, design, and repair of undergrade bridges on the Port Jervis Line. There are approximately 80 undergrade bridges on the Port Jervis Line. This project provides allowance for rehabilitation of structures determined as top priorities based on a condition survey in the 2000-2004 Capital Program. Total cost in the proposed 2005-2009 Capital Program is \$6.5 million.

Other Track and Structures Projects

Additional projects in the proposed 2005-2009 Capital Program include improvements to drainage and undercutting, remediation of rock slopes (East of Hudson), rehabilitation of rail top culverts, painting of catenary structures on the New Haven Line, inspection and repair of undergrade bridges along the Beacon Line Bridge, flood control, inspection and design for improvements to the Otisville Tunnel (West of Hudson), and a condition assessment of the Park Avenue Utility Bays. Normal replacement projects include rebuilding retaining walls, purchase of maintenance of way equipment and rolling stock (ballast cars), replacement of DC substation and signal house roofs, replacement of undergrade bridge timbers, cleaning and painting for bridge preservation (East of Hudson), and the technical and video survey of right-of-way clearances throughout the Metro-North system. Safety projects include fencing along the right-of-way, and replacement of bridge walkways. System Improvement projects include the purchase of specialized structures equipment. Total cost in the proposed 2005-2009 Capital Program is \$50.5 million.

MTA METRO-NORTH RAILROAD COMMUNICATIONS AND SIGNALS CATEGORY M-504

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.

2005-2009 Capital Program

The communications and signals projects total approximately \$74.3 million. This represents 5 percent of the total 2005-2009 Capital Program budget. More than 70% of this budget has been allocated to two major projects.

Replace CTC Systems

As a continuation of an effort begun in the 2000-2004 Capital Program, this project includes the replacement and upgrade of the Central Traffic Control (CTC) systems located at the Operational Control Center (OCC) and the Emergency Control Center (ECC); upgrade the facility at the OCC and replace the ECC at Mott Haven; and replacement of the rail traffic control systems. This initiative complements efforts being made under the separate security program. Total cost in the proposed 2005-2009 Capital Program is \$27 million.

Signal System Replacement – Phase II

This project consists of a capacity study to determine signal improvements needed to meet Metro-North's future 2020 operating plan on the Hudson Line, Harlem Line and the New Haven Line; the replacement and installation of new signal locations and vital express signal cables on the New Haven Line and the introduction of new signal Central Instrument Locations (CIL's) controlling interlockings at CP's 130, 136, 137 and 153 into Metro-North's service. Total cost in the proposed 2005-2009 Capital Program is \$28 million.

Other Communications and Signals projects

The remainder of the communications and signals projects include the replacement of Grand Central Terminal's vital processor system; the communication and signal cables from Grand Central Terminal to Mott Haven; the design and replacement of track relays on the Harlem and Hudson lines. Total cost in the proposed 2005-2009 Capital Program is \$19 million.

MTA METRO-NORTH RAILROAD

POWER

CATEGORY M-505

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, 7 AC substation and 3 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.

2005-2009 Capital Program

The proposed 2005-2009 Capital Program allocates \$102.7 million, approximately 7 percent of the total capital program budget, to power projects. Approximately 40% of this budget is allocated to one major project with three other projects accounting for a third of the allocated funding.

Harlem/Hudson Power Improvements

This project will begin the first phase 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. This project includes an allowance for the design and construction of traction power system improvements on the Hudson/Harlem Lines, including investments such as new substations, and upgrades to circuit breaker houses and improvements to the negative return system. Total cost in the proposed 2005-2009 Capital Program is \$44 million.

Substation Retrofit (Harlem & Hudson Lines)

It is a continuation of the 2000-2004 Capital Program Substation Retrofit – New Haven Line (NYS) project. Site-specific engineering and design of the electrical control modifications for each specific location was completed as part of the 2000-2004 Capital Program. The proposed 2005-2009 Capital Program project will retrofit the substation's control system in order to provide the capability for remote lock-out/tag-out function by installing a remote operated field electronic tagging relay to all circuit breakers or other disconnects located on the Harlem and Hudson Lines. This upgrade will allow for compliance with safety rules and will allow sufficient protection to Metro-North employees working on de-energized lines and equipment. Total cost in the proposed 2005-2009 Capital Program is \$13 million.

Substation at Mount Vernon East

The objective of this project is to replace existing primary and secondary substation equipment at Bridge 23 (Mount Vernon East) with two (2) higher-capacity transformers, two (2) 138kV circuit breakers and 38kV metal-clad switchgear which will also house related protective relays, controls, batteries and RTU. This project is necessary as the substation has reached the limit of its electric traction power capacity and it also requires

replacement to prevent the leakage of potentially hazardous materials. Total cost in the proposed 2005-2009 Capital Program is \$13 million.

Other Power Projects

Other power projects include rehabilitation of several substations on the Harlem and Hudson Lines; the replacement of Harlem River Lift Bridge breaker houses; replacement of Grand Central Terminal's aluminum 3rd rail and installation of "E" rail; cyclical replacement of substation batteries; replacement of motor alternator power supplies for signal power at six substation locations; installation of high speed DC circuit breaker relay protection; and the installation of sectionalizing switches in Grand Central Terminal. Total cost in the proposed 2005-2009 Capital Program is \$33 million.

MTA METRO-NORTH RAILROAD

SHOPS AND YARDS

CATEGORY M-506

Metro-North operates 12 shops and/or yard facilities system-wide, including 5 shop and electric/diesel facilities, 1 shop/electric yard, 2 diesel yards for East of Hudson service, and 2 diesel yards for West of Hudson service. 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 (RCM) 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.

2005-2009 Capital Program

There are three major projects within the \$262.8 million shops and yards allocation (19 percent) in the proposed 2005-2009 Capital Program. These projects address the replacement of outmoded facilities at the Croton-Harmon Shop, improvements at the Highbridge Yard to construct a new carwash, and 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 replacement of the Harmon coach and locomotive shops, including priority rehabilitation to the existing Main (EMU) Shop and the introduction of new M-7 Testing and Maintenance Equipment supporting the addition of M-7's rail cars to the Metro-North fleet. The investments will support an expanded fleet of electric and diesel hauled rail cars and take advantage of improved productivity as a result of a more efficient complex that separates maintenance functions and equipment. With the Phase I (South Yard) complete and Phase 2 (Site Preparation for the Coach and Locomotive Shops) underway in the 2000-2004 Capital Program, Phases 3 & 4 will be the focus of the proposed 2005-2009 Capital Program. Phase 3 will include the design/build of the coach and locomotive shops, construction of priority repairs to the Main (EMU) Shop and construction to continue the life of the facility of M-7 testing and maintenance equipment. Phase 4 will include the design of the replacement EMU Shop and Blow Shed for construction in the 2010-2014 Capital Program. Total cost in the proposed 2005-2009 Capital Program is \$243.0 million.

Highbridge Yard Improvements

Provides for the construction of a new exterior carwash facility at Highbridge Yard. This project will meet Metro-North's goals of improved car appearance and cleanliness, provide increased flexibility in train operations, and achieve operating efficiencies. The planned carwash will allow Metro-North to replace the carwash in Croton-Harmon during the 2010-2014 Capital Program so the overall system-wide capacity will be restored with the most efficient car washing technology available. Locating the new carwash facility at Highbridge near the Car Appearance Facility is preferred to enable cars to go through

the carwash and then enter the car appearance facility for interior cleaning. Total cost in the proposed 2005-2009 Capital Program is \$9.8 million.

Brewster Yard Improvements

Funds are allocated for environmental review/design, a new sanding facility and initial phase of construction for the Brewster Yard Improvements (e.g. expanded yard storage, toilet dump and watering services, etc.) to address projected increases in service demand on the Harlem Line. This work will be coordinated with the Southeast Station Intermodal Facility project. Total cost in the proposed 2005-2009 Capital Program is \$4.8 million.

Other Shop and Yard Projects

Other shop and yard projects cover various shops and yards and include a miscellaneous building rehabilitation project that will conduct various roof, boiler and sewer rehabilitations; shops and yards miscellaneous environmental improvements to ensure regulatory compliance and efficiency in addressing various environmental concerns; and the Poughkeepsie Yard storage and facilities design/real estate acquisition in support of a phased yard improvement and expansion in the 2010-2014 Capital Program. Total cost in the proposed 2005-2009 Capital Program for this work is \$5.2 million.

MTA METRO-NORTH RAILROAD

MISCELLANEOUS

CATEGORY M-508

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. Total cost in the proposed 2005-2009 Capital Program is \$87.9 million.

MTA BRIDGES AND TUNNELS

MTA BRIDGES AND TUNNELS

2005-2009 CAPITAL PROGRAM

OVERVIEW

MTA Bridges and Tunnels (B&T) operates seven bridges and two tunnels that form essential links for vehicular highway transportation in the New York City metropolitan area. In 2003, the nine crossings carried approximately 300 million vehicle trips and generated more than \$1 billion in toll revenue. With approximately two-thirds of this toll revenue dedicated to mass transit operations, Bridges and Tunnels performs a unique and vital function in support of regional transportation. The capital program is shaped by the 20-Year Needs Assessment and supports the following themes, which have been established to help guide policy development and resource allocation for the MTA wide capital program.

The MTA's proposed 2005-2009 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

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, Virginia and the Peace Bridge between Buffalo and Fort Erie, Ontario. The IAG 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% mark and more than 1 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 that year almost 70 percent of B&T's traffic (and 80 percent of commercial vehicles) used E-ZPass. Today, approximately 3 million tags are in active use and weekday market share reaches more than 80 percent 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.

Since 1999, 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.

When taken in isolation, individual TRANSMIT readers are valueless, but when combined with data from other TRANSMIT readers operated by other transportation agencies in the region, a comprehensive picture of traffic conditions can be developed. TRANSMIT readers will soon be installed both at and near every B&T facility. Similarly, at the Marine Parkway, Cross Bay 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. And, in a technological leap unimaginable a few years ago, B&T customers can now access video cameras 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 now almost 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 to the existing E-ZPass system in the future.

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 on-going 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 two 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 the 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 in-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.

In addition to its construction program and E-ZPass-related projects, 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 managers 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 2005-2009 program as part of the replacement of the Henry Hudson Bridge upper level toll plaza and the design for a new toll plaza at the Bronx-Whitestone Bridge.

Investment 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.

An example of a soon to be completed safety project is the rehabilitation of the electrical systems on the suspended spans of the Verrazano Narrows Bridge. Through this effort, more reliable roadway lighting and electrical systems are in place for both customers and employees of the facility. In addition, as part of B&T's effort to reduce serious vehicular accidents, a permanent median barrier was installed at Marine Parkway Bridge and new safety shaped median and side barriers will be installed at other facilities over the 2005-2009 period.

In another initiative, the fire standpipe and/or safety systems have been rehabilitated or replaced at the Queens Midtown and Brooklyn-Battery Tunnels and the Battery Parking Garage. The systems on the Triborough Bridge and the suspended span of the Bronx-Whitestone Bridge are currently being rehabilitated and installations and enhancements to the fire safety systems at the Bronx-Whitestone approach roadways, and the Verrazano-Narrows bridges will be carried out over the 2005-09 period. New fire safety systems will also be installed at the Cross Bay Bridge and Henry Hudson lower level roadway as part of the next program.

Also under the 2005-2009 Capital Program, B&T will upgrade the aforementioned weather information systems. This system will provide each facility with accurate existing surface and atmospheric data along with a prediction of future weather conditions. It enables each facility to prepare for and perform efficiently in poor-weather conditions and assists in avoiding or minimizing accidents and promoting safety for B&T's customers. Agency managers can deploy de-icing equipment and reduce vehicular speed limits before an incident happens. This project will replace and enhance the existing weather recording systems at the Bronx Whitestone, Throgs Neck, Triborough and the Verrazano-Narrows Bridges and install new weather sensors at the Brooklyn-Battery and Queens Midtown tunnels. Finally, in other safety/security 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 and underdeck access platforms will be installed at several bridges to improve access and enhance the safety of bridge inspectors and maintenance staff.

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 and reducing the need to perform much more costly and disruptive reconstruction projects in the future. 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. Unlike bridges, federal and state mandated inspection cycles are not specified for tunnels; however, ongoing tunnel rehabilitation projects create ideal access conditions for the monitoring of these structures. As contract work progresses, construction inspection of the work location and adjacent areas allows new areas of deterioration to be identified and addressed as part of the ongoing contract. In-house engineering staff also assesses the condition of all B&T facilities on an on-going basis.

THE PROPOSED 2005-2009 CAPITAL PROGRAM

Bridges and Tunnels capital program totals \$1,255 million over the next five years (see Table 7). 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.

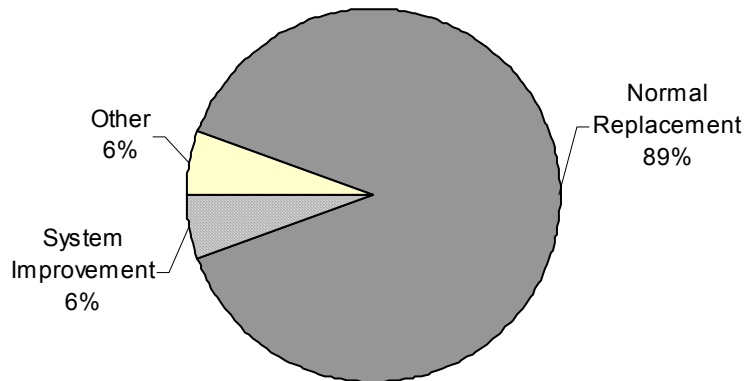
Table 7
MTA Bridges and Tunnels
2005-2009 Capital Program by Investment Category
(\$ in millions)

Category	Plan	Percent
Structures	\$211.9	17%
Roadways & Decks	749.2	60%
Toll Plazas & TMSS	92.3	7%
Utilities	41.2	3%
Buildings & Sites	143.5	11%
Miscellaneous	16.9	1%
Total	\$1,255.2	100%

Numbers may not total due to rounding

Approximately 89 percent of the B&T 2005-2009 Capital Program is allocated for the Normal Replacement of assets that have reached or exceeded their expected useful life (see Figure 4). The remaining five 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 4
MTA Bridges and Tunnels 2005-2009 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).

Bronx-Whitestone Bridge Replacement of the elevated and on-grade approaches in the Bronx

The design for this project was begun in the 2000-2004 Capital Program. Work in the 2005-2009 program is for the construction phase that will replace the elevated approaches and reconstruct the on-grade roadway and end ramp concrete decks of the bridge. The construction will be performed in both the 2005-2009 and 2010-2014 programs.

Cross Bay Bridge Deck Resurfacing and Drainage Rehabilitation

This project was designed in the 2000-2004 Capital Program. Work planned in the 2005-2009 period will rehabilitate deficient elements of the concrete deck slab and replace other elements such as navigation span decks and the bridge drainage system.

Henry Hudson Bridge Replacement of Lower Level Deck

Design for this project is included in the 2000-2004 Capital Program. The construction phase will continue in the 2005-2009 program and will include a complete replacement of the northern approach structure and other bridge elements such as the drainage system, roadway lighting, etc. The deck over the facility garage will be rehabilitated.

Structural Steel Repairs at Marine Parkway Bridge

The deck and most of the structural members were rehabilitated under project MP-01 in the 1992-1999 program. However, several areas still require repair and will be addressed under this project, 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.

Deck Replacement at Randall's Island and Wards Island Viaducts; construction of new ramps

This project is part of the overall Triborough Bridge Rehabilitation program that began in 1997. It will replace portions of the roadway deck and median barrier on the Randall's and Wards Island viaduct and construct exit-entrance ramps to/from the islands which will alleviate traffic congestion resulting from the extended construction ongoing throughout the bridge complex.

Throgs Neck Bridge Rehabilitation of the Orthotropic Deck

The orthotropic deck of the Queens and Bronx approaches will be rehabilitated based upon the prototype that was developed under the 2000-2004 Capital Program.

Continuation of the Rehabilitation of the Elevated Approaches at the Verrazano-Narrows Bridge

The design for this project is included in the 2000-2004 Capital Program. The construction phase will continue in the 2005-2009 program with work involving the replacement of the lower level approach decks in Brooklyn and Staten Island and replacement of the Lily Pond Avenue bridge.

Rehabilitation of Brooklyn-Battery Tunnel Ventilation Buildings-Phase II

Modernization work at the Brooklyn and Governor's Island ventilation buildings was carried out in the 2000-2004 program. This included complete elevator replacement and all related mechanical and electrical work. Under the 2005-2009 program, the work in these areas will address architectural and structural repairs on the ventilation buildings' façade and interior including floor slabs and walls. Windows and doors will also be replaced as necessary.

Queens Midtown Tunnel Rehabilitation of the Queens Service Building and the Facility Engineer Office Building

Scope development is in progress under the 2000-2004 program with design and construction planned in the proposed 2005-2009 Capital Program. The work includes the replacement of the building adjacent to the Service Building. The planned rehabilitation work will correct structural, architectural, electrical and mechanical deterioration. The project scope also includes asbestos and lead abatement work, and the replacement of the Service Building emergency generator with a larger generator that will satisfy future B&T needs.

Verrazano Narrows Bridge: Rehabilitate Decks on Suspended Spans, Upper Level

Conceptual design for this project is underway in the 2000-2004 program followed by a full design and construction under the 2005-2009 program. The construction phase 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 relief joints. The construction will be performed in the 2005-2009 and 2010-2014 capital programs.

SYSTEM CONDITION AND ACCOMPLISHMENTS

MTA Bridges and Tunnels developed its first multi-year capital program in 1989. Since then, the agency has invested more than \$2 billion in its infrastructure. More than half of its facilities are currently over 60 years old. Even with regular maintenance, the structures and mechanical components of the bridges and tunnels eventually deteriorate and 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 \$200 million annually (inflated to year of commitment) in the most recent five-year program. Over the 2005-2009 period, the average annual commitments will increase to approximately \$250 million (inflated to year of commitment).

Accomplishments of the Capital Program

In the 2000-2004 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

An \$81 million project to rehabilitate the roadway of the Brooklyn Battery Tunnel is ongoing and will address the deterioration of the roadway slab in both tubes of this tunnel. Tunnel leak repairs and wall tile replacement will be performed. The fire standpipe and tunnel drainage systems will also be completely rehabilitated. This project will be completed in 2006.

Bronx-Whitestone Bridge Rehabilitation

Bridges and Tunnels embarked on a program to replace the Bronx Whitestone Bridge roadway deck and associated structural elements. The work is divided into phases. Phase I was completed in early 2004 and involved the removal of the stiffening truss and installation of fiber reinforced plastic wind fairing. The goal of this work was to significantly reduce the bridge's vulnerability to wind events and lighten the overall weight burden on the cables, thereby extending the useful life of the bridge cable system. Phase II is ongoing and will involve the replacement of the suspension span deck, electrical system upgrade, installation of the under-bridge moveable platform system and removal/installation of mechanical and plumbing systems.

Queens Midtown Tunnel Rehabilitation

A contract to replace all tunnel exhaust fans and to conduct related upgrades to the tunnel ventilation systems will be awarded later this year.

Triborough Bridge Deck Rehabilitation

Three projects in the 2000-2004 plan continued the 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 will design 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 Street 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 is scheduled for completion in 2005.

Throgs Neck Bridge Rehabilitation

One project for drainage system improvements on the Throgs Neck Bridge will be completed in 2004. This project ensures that roadway runoff water below the bridge's steel superstructure is redirected away from substructure elements, thereby reducing corrosion to these elements. Some of the orthotropic deck's subfloor beams and gusset plates were replaced under two separate prototype contracts. The existing suspended span roadway deck was completely resurfaced and a new asphalt wearing surface was applied on top of the existing deck.

Verrazano-Narrows Bridge Rehabilitation

Three projects in the 2000-2004 program carried out rehabilitation work at the Verrazano Narrows Bridge. The Brooklyn on-grade approach to the Verrazano Narrows Bridge was rehabilitated and completed in 2003. A project is underway to seal the anchorages for protecting the structure from moisture penetration. Another project installed a dehumidification system in the anchorages. In addition, a study was performed to determine the feasibility of widening the Belt Parkway ramps in order to facilitate reconstruction and allow for two-lane access to and from both the upper and lower levels of the bridge.

Traffic Management and Safety Systems

The utilization of Intelligent Transportation Systems (ITS) began just 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. With approximately 3 million tags in circulation, E-ZPass accounts for over 70% of the total toll transactions at B&T's facilities. 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 12 percent) from 1995 (prior to E-ZPass) to 2003. An E-ZPass lane can process more than 1,000 vehicles in an hour, almost four times as many as cash lanes. The use of E-ZPass by the majority of B&T customers has significantly improved traffic flow at the facilities and throughout region. It has also contributed to improving the environment and the safety and security of our customers. All these gains have resulted in higher customer satisfaction. In addition, E-ZPass has been instrumental in reducing operational costs at the B&T.

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 Randalls Island, installation of Closed Circuit TV (CCTV) coverage at various facilities, installation of Variable message signs (VMS) on approach roads or approach spans to facility plazas; enhancements to current Toll Registry Systems and additions to various components of the electronic toll collection system.

PLANNING THE PROPOSED 2005-2009 CAPITAL PROGRAM

In anticipation of the proposed 2005-2009 Capital Program, Bridges and Tunnels conducted its fourth assessment of long-term needs of all bridges and tunnels. In addition, comprehensive biennial inspections of the seven bridge facilities also continue. The assessment of long-term needs, which utilizes comprehensive surveys of each facility, reviews of past maintenance records and life cycle cost analysis of facility components, identified approximately \$6 billion in capital needs for the 2005-2024 period (2003 dollars). 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 complemented the long-term needs strategy and provided much more detailed information by identifying specific project needs and establishing a baseline for each facility's condition. 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. These findings provided the basis for project development of the proposed 2005-2009 Capital Program.

The Bridges and Tunnels Engineering and Construction Department continued to implement several enhancements to its planning process, including scope development, master planning and estimating. Virtually all projects proposed in the 2005-2009 time frame 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.

MTA BRIDGES AND TUNNELS PROGRAM PLAN

MTA BRIDGES AND TUNNELS

STRUCTURES

CATEGORY D-501

Generally, the structural improvements on Bridges and Tunnels bridges address either the components of the superstructure, that part of the bridge above the foundation such as the suspension system and roadway deck supporting system or the substructure, 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 proposed 2005-2009 Capital Program

Projects planned in the proposed 2005-2009 Capital Program under the category of structures total \$212 million and comprise 17% of the total 5-year program. Major projects include:

Bronx Whitestone Bridge: Critical Panel Unwrapping, Partial Replacement of Suspender Ropes, Cable and Anchorage Investigation/Monitoring

Critical panels of the cable will be un-wrapped to allow for inspections and to verify the effectiveness of the main cable acoustic monitoring system. Information gathered from the monitoring system and cable unwrapping efforts will be used to determine when cable replacement is necessary. Partial replacement of suspender ropes will be carried out as part of this project. Total cost in the proposed 2005-2009 Capital Program is \$30.0 million.

Cross-Bay Bridge: Deck Resurfacing, Drainage Rehabilitation, Fire Standpipe System Installation and Substructure and Underwater work

These projects will rehabilitate deficient elements of the concrete deck slab, including replacement of navigation span decks, the bridge drainage system and other elements. The bridge railings and lighting standards will also be replaced, as will the bridge navigation lights. Scour protection will be installed to the north abutment and a dry fire standpipe will also be installed under this project. Work associated with the rehabilitation of the bridge's substructure will be addressed. Total cost in the proposed 2005-2009 Capital Program is \$57.0 million.

Marine Parkway Bridge: Structural Steel Repairs Construction

While Phase I deck and structural members were rehabilitated in the 1992-1999 program, several areas still require significant repairs and will be addressed under this project. Work will continue with structural steel repairs under the deck and the overhead transverse steel bracing members of the through and lift span trusses. Structural steel repairs for miscellaneous steel members of the north and south towers will also be performed and inspection platforms with safety rails will be installed. Total cost in the proposed 2005-2009 Capital Program is \$22.0 million.

Throgs Neck Bridge: Catwalk Rehabilitation, Suspended Span Cable Rewrapping and Investigation of Suspender Ropes, Anchorage and Tower Protection

These projects continue work begun under the 2000-2004 Capital Program. In the 2005-2009 program, an investigation of the suspended span cable will be conducted and

necessary repairs to the cable system will be performed. An investigation of the suspender ropes will also be performed. The mainline maintenance & inspection platform (catwalk) will be replaced and extended at the Bronx abutment to meet OSHA safety requirements and enhance access for maintenance and inspection of the bridge. As a protection against wayward marine traffic, the existing protection system at the Bronx anchorage will be evaluated and the Queens anchorage walls will be strengthened. At both the Queens and Bronx tower bases, the existing fender system will be evaluated and refurbished. Total cost in the proposed 2005-2009 Capital Program is \$36.0 million.

MTA BRIDGES AND TUNNELS

ROADWAYS AND DECKS

CATEGORY D-502

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 proposed 2005-2009 Capital Program

Deck replacement/rehabilitation work represents the highest level of investments planned in the 2005-2009 program (\$749 million or 60% of the total program). 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:

Bronx-Whitestone Bridge: Replacement of the (Bronx) Elevated & On Grade Approaches Deck and End Ramp

Construction will include the replacement of the Bronx elevated approaches and reconstruction of the on-grade roadway and end ramp concrete decks. Work associated with strengthening the bridge against seismic events, replacement of power and communication systems, roadway lighting and extension of fire standpipe system are also included in this project. Total cost in the proposed 2005-2009 Capital Program is \$133.0 million, with work continuing in the 2010-2014 program.

Henry Hudson Bridge: Replacement of Lower Level Deck

This project is for the construction phase that will completely replace the northern approach structure; rehabilitate the deck over the facility garage; install new roadway parapets and new drainage system; remove and replace bearings, deck joints, floorbeam cover plates. Crack and spall repairs at abutments, skewbacks and column footings will be addressed. New access platforms for inspection and maintenance purposes will be installed. This project will also include the replacement of lower level roadway lighting, removal of transite conduits (bridge lighting feeders), replacement of electrical feeders, manholes, conduits, cables, and transformers. Seismic retrofit of the lower level deck and structural system will also be addressed. Total cost in the proposed 2005-2009 Capital Program is \$51.0 million.

Triborough Bridge: Deck Replacement at Randall's Island and Wards Island Viaducts and Construction of New Ramps

Design is underway under the 2000-2004 Capital Program. The construction phase will involve the partial replacement of the roadway decks and median/side barrier south from the Bronx Plaza to the Wards Island anchorage including the anchorage itself; and construction of exit-entrance ramps to/from the islands which will alleviate traffic congestion resulting from the extended construction work that is going on throughout the bridge complex. The construction of these ramps is part of an agreement with the Parks Department's overall plan for the development of the Randall's Island Sports

Foundation. Other work planned under this project includes the relocation of all electrical and communication services from the median barrier to allow for demolition and the building of an approach with a sidewalk; replacement of portions of the viaduct decks with pre-cast concrete panels; and replacement of the Wards Island anchorage deck with composite units of structural steel cross beams and pre-cast concrete decks. Total cost in the 2005-2009 Capital Program is \$293.0 million.

Throgs Neck Bridge: Rehabilitation of the Orthotropic Deck

The orthotropic deck of the Queens and Bronx approaches will be rehabilitated based upon the prototype that was developed under 2000-2004 Capital Program. Work will involve replacing the two end rows of sub-floor beams at each of the deck spans; replacing connection bolts and providing shims between deck ribs and sub-floor beams; installing longitudinal shear connectors; repairing floor beam webs; and replacing horizontal gusset plates. Total cost in the proposed 2005-2009 Capital Program is \$69.0 million.

Verrazano-Narrows Bridge

Rehabilitation of Approach Span Decks, Expansion Joints, Power & Communications

The design for this project is included in the 2000-2004 Capital Program. Separate contracts will be issued for the replacement of the lower level approach decks in Brooklyn and Staten Island and for the replacement of the Lily Pond Avenue bridge. The contracts will include roadway deck replacement, bearing replacement, seismic retrofit, drainage, electrical and under deck platform installation as well as related structural work. Total cost in the proposed 2005-2009 Capital Program is \$66.0 million.

Rehabilitate Decks on Suspended Spans, Upper Level

The scope of this project will include the replacement of the suspended portion of the existing upper level roadway from the Staten Island Anchorage to the Brooklyn Anchorage with a new deck designed for a higher load rating with a minimum service life of 50 years. The project includes, the replacement of the median and outside parapet walls with new concrete barriers, replacement of relief joints, improvements to seismic vulnerabilities, replacement of the drainage system, and replacement of sign gantries on the upper level. The upper level and lower level lighting system will be replaced, including the tower floodlights. A new fire standpipe system will be installed along with new pumps, motors, valves and controls. 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 will be replaced. Total cost in the 2005-2009 Capital Program is \$110.0 million, with work continuing in the 2010-2014 program.

MTA BRIDGES AND TUNNELS

TOLL PLAZAS & TRAFFIC MGMT/SAFETY SYSTEMS

CATEGORY D-503

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 ten to twenty 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 proposed 2005-2009 Capital Program

Toll Plaza Improvements and Traffic Management/Safety Systems comprise \$92 million. Project highlights in this category of work include:

Bronx-Whitestone Bridge: New Toll Plaza Design

This project is for a design that will lead to reconstruction of the toll plaza. This project will involve widening the lanes, and reconfiguring the toll plaza so that the different types of service options, i.e., manual toll collection or E-Z Pass, are grouped in a way that best serves the customer. Total cost in the proposed 2005-2009 Capital Program is \$7.0 million.

Henry Hudson Bridge: Upper Level Toll Plaza Deck Replacements

The replacement of the existing upper level toll plaza will be accomplished under this project. Toll plaza booths, canopy, toll collection equipment, utilities, electrical services, HVAC System and toll plaza roadway lighting will also be replaced. Total cost in the proposed 2005-2009 Capital Program is \$21.0 million.

Traffic Management and Safety Systems

B&T plans to implement various initiatives in the ITS area during the 2005-2009 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; design and installation of up-to-date operations centers with advanced technologies both at Randall's Island Operations Command Communications and Control Center and the facilities.

One of the goals in the 2005-2009 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. The completion of the upgraded systems at the Randall's Island Operations Command Communications and Control Center will also move B&T closer toward achieving this goal.

B&T will need to maintain a reliable power and communication infrastructure for the E-ZPass system at each of its toll plazas. Therefore it will continue to make significant investments in other key elements of the E-ZPass system during the 2005-2009 time frame, including the development of an advanced Violation Enforcement System. The region is dependent on B&T revenues to subsidize transit operations and a highly advanced and reliable system that automates much of the violations processing and assures that revenue integrity is maintained, is essential. The deployment of a Digital Video Surveillance System to meet the needs of the Internal Security Department is also planned during this period. These two initiatives support the fiduciary function of B&T by further protecting B&T's revenue stream.

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.

MTA BRIDGES AND TUNNELS

UTILITIES

CATEGORY D-504

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 proposed 2005-2009 Capital Program

Work in this category constitutes mostly Normal Replacement work totaling \$41 million or 3% of the total program and include the following projects:

Throgs Neck Bridge: Rehabilitation of Existing Bridge Lighting System and Facility Power Upgrade

The roadway lighting system will be replaced and the existing power supply will be upgraded to meet electrical demands for the new roadway lighting system. All of the existing fixtures, lampposts, junction boxes, conduit and wiring will also be replaced. Total cost in the proposed 2005-2009 Capital Program is \$15.0 million.

Variable Message Signs

Variable message signs (VMS) and variable speed limit signs on approach roads or approach spans to facility plazas will be installed. Total cost in the proposed 2005-2009 Capital Program is \$11.0 million.

MTA BRIDGES AND TUNNELS

BUILDINGS AND SITES

CATEGORY D-505

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 proposed 2005-2009 Capital Program

Work in this category comprises \$144 million or 11% 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: Phase II Rehabilitation of Ventilation Buildings

This project continues where Phase I ends. Phase I included the complete replacement of elevators and all related mechanical and electrical work. Under the 2005-2009 program, work will address architectural and structural repairs on the ventilation buildings' façade and interior including floor slabs and walls. Windows and doors will be replaced as necessary. Total cost in the proposed 2005-2009 Capital Program is \$18.0 million.

Queens Midtown Tunnel: Rehabilitation of the Queens Service Building and the Facility Engineer Office Building

The Facility Engineer's office building that is adjacent to the service building will be replaced. The current service building will be rehabilitated by correcting the building's structural, architectural, electrical and mechanical deterioration. The project scope also includes asbestos removal and lead abatement work, and the replacement of the Service Building emergency generator with a larger generator that will satisfy future needs. Total cost in the proposed 2005-2009 Capital Program is \$7.0 million.

Triborough Bridge

New Service Building

A new Bronx Service Building to replace the current Bronx plaza operations service building will be constructed. Total cost in the proposed 2005-2009 Capital Program is \$37.0 million.

Tenant Relocation/New Building for Shops and Warehouse

A new building to house the warehouse and maintenance shops that would be relocated during construction associated with the deck replacement project will be constructed. Total cost in the proposed 2005-2009 Capital Program is \$19.0 million.

Tenant Relocation / New building to House Department of Parks and Recreation

A building to house the NYC Department of Parks & Recreation personnel and shops (which would be displaced as a result of construction associated with the deck replacement project) will be constructed. Total cost in the proposed 2005-2009 Capital Program is \$32.0 million.

Rehabilitation of Building 104

Design and renovation of Building 104 on Randalls/Wards Island to house B&T engineering and other administrative staff who currently occupy the Robert Moses Building will be carried out. These employees need to be relocated when construction activities for the deck replacement projects commence. Total cost in the proposed 2005-2009 Capital Program is \$21.0 million.

MTA BRIDGES AND TUNNELS MISCELLANEOUS CATEGORY D-506

Projects in this area provide for costs associated with the support and management of the capital program. The 2005-2009 Capital Program contains \$17 million for projects with program-wide applicability such as protective liability coverage, independent engineer services, value engineering services, and scope development.

PROGRAM PROJECT LISTING

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE						Total
			2005	2006	2007	2008	2009	2005 - 2009
01 NEW SUBWAY CARS								
01	Purchase 47 A-Div Cars	SI	75.9	.0	.0	.0	.0	75.9
02	Purchase 620 B Div Cars	NR	.0	.0	1,204.3	.0	.0	1,204.3
03	Purchase 292 B Div Cars	NR	.0	.0	.0	586.4	.0	586.4
Element Total 01			\$75.9	\$0	\$1,204.3	\$586.4	\$0	\$1,866.6
Category Total 501			\$75.9	\$0	\$1,204.3	\$586.4	\$0	\$1,866.6

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
02 BUS REPLACEMENT								
01	150 Standard Buses 2005	NR	73.1	.0	.0	.0	.0	73.1
02	150 Articulated Buses 2005	NR	84.4	.0	.0	.0	.0	84.4
03	187 Paratransit Vehicles 2005	NR	10.6	.0	.0	.0	.0	10.6
04	IFU: Replace Main Components	NR	.0	22.8	.0	.0	.0	22.8
06	200 Standard Buses 2006	NR	.0	100.3	.0	.0	.0	100.3
07	173 Paratransit Vehicles 2006	NR	.0	13.8	.0	.0	.0	13.8
09	56 Hi-Cap Express 2007	NR	.0	.0	28.6	.0	.0	28.6
10	200 Standard Buses 2007	NR	.0	.0	103.6	.0	.0	103.6
11	104 Paratransit Vehicles 2007	NR	.0	.0	8.6	.0	.0	8.6
12	94 Articulated Buses 2008	NR	.0	.0	.0	58.2	.0	58.2
13	185 Standard Buses 2008	NR	.0	.0	.0	99.1	.0	99.1
15	NOx Emission Initiative	SI	.0	.0	.0	6.0	.0	6.0
16	268 Paratransit Vehicles 2008	NR	.0	.0	.0	22.8	.0	22.8
17	182 Hi-Cap Express 2009	NR	.0	.0	.0	.0	99.1	99.1
18	106 Standard Buses 2009	NR	.0	.0	.0	.0	58.8	58.8
19	216 Paratransit Vehicles 2009	NR	.0	.0	.0	.0	19.0	19.0
Element Total 02			\$168.1	\$136.9	\$140.8	\$186.1	\$177.0	\$808.8
Category Total 503			\$168.1	\$136.9	\$140.8	\$186.1	\$177.0	\$808.8

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
04 FARE COLLECTION							
01 Smart Card Implementation	SI	.0	.0	43.9	.0	.0	43.9
02 AFC Replacement Ph 2	NR	.0	.0	46.2	.0	.0	46.2
03 Replace H.P.E.M	NR	.0	.0	.0	6.5	.0	6.5
Element Total 04		\$0.0	\$0.0	\$90.1	\$6.5	\$0.0	\$96.6
07 STATION ESCALATORS/ELEVATORS							
01 8 Escalators Roosevelt Island	NR	35.8	.0	.0	.0	.0	35.8
02 10 Escalators Parsons Blvd ARC	NR	34.7	.0	.0	.0	.0	34.7
04 5 Escalators Van Wyck ARC	NR	.0	32.3	.0	.0	.0	32.3
05 Replace 10 Hydraulic Elevators	NR	.0	.0	.0	10.7	.0	10.7
Element Total 07		\$70.6	\$32.3	\$0.0	\$10.7	\$0.0	\$113.5

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
11 STATION REHABILITATION							
01 Water Condition Remedy 2005	SGR	3.9	.0	.0	.0	.0	3.9
02 Rehab Chambers St BW7	SGR	28.7	.0	.0	.0	.0	28.7
03 Rehab Avenue M BRT	SGR	20.8	.0	.0	.0	.0	20.8
04 Rehab Neck Road BRT	SGR	18.9	.0	.0	.0	.0	18.9
05 Rehab Avenue H BRT	SGR	22.9	.0	.0	.0	.0	22.9
06 Rehab Avenue J BRT	SGR	21.3	.0	.0	.0	.0	21.3
07 Rehab Avenue U BRT	SGR	20.8	.0	.0	.0	.0	20.8
09 Rehab 59th St BW7	SGR	36.4	.0	.0	.0	.0	36.4
10 Rehab 59th St 8AV	SGR	57.0	.0	.0	.0	.0	57.0
12 Railings 2005-2006 Rehabs	SGR	3.4	.0	.0	.0	.0	3.4
13 Kings Highway BRT	NR	19.1	.0	.0	.0	.0	19.1
14 Newkirk Av Plaza Ph 2 BRT	NR	22.8	.0	.0	.0	.0	22.8
15 Rehab Wall St LEX	NR	49.0	.0	.0	.0	.0	49.0
16 Rehab Times Square Ph 3	SGR	.0	170.8	.0	.0	.0	170.8
17 Rehab Ft Hamilton Parkway WST	SGR	.0	15.6	.0	.0	.0	15.6
18 Rehab 71 St WST	SGR	.0	16.2	.0	.0	.0	16.2
19 Rehab 79 St WST	SGR	.0	14.6	.0	.0	.0	14.6
20 Rehab 18 Av WST	SGR	.0	14.4	.0	.0	.0	14.4
21 Rehab 20 Av WST	SGR	.0	14.7	.0	.0	.0	14.7
22 Rehab Union Turnpike QBL	SGR	.0	28.9	.0	.0	.0	28.9
23 Rehab Jay St FUL	SGR	.0	41.8	.0	.0	.0	41.8
24 Rehab 62 St WST	SGR	.0	12.6	.0	.0	.0	12.6
25 Rehab Bay Parkway WST	SGR	.0	13.7	.0	.0	.0	13.7
26 Rehab 9 Av WST	SGR	.0	13.4	.0	.0	.0	13.4
27 Rehab 96 St BW7	SGR	.0	51.5	.0	.0	.0	51.5
30 Rehab Forest Hills-71 Av QBL	SGR	.0	30.2	.0	.0	.0	30.2
31 Rehab Bay 50 St WST	SGR	.0	14.4	.0	.0	.0	14.4
32 Rehab 25 Av WST	SGR	.0	14.1	.0	.0	.0	14.1
33 Rehab Lawrence St 4AV	SGR	.0	17.5	.0	.0	.0	17.5
34 Rehab 47-50 St Rock Ctr 6AV	SGR	.0	34.0	.0	.0	.0	34.0
36 Rehab Smith-9th St CUL	SGR	.0	38.3	.0	.0	.0	38.3
37 Water Condition Remedy 2007	SGR	.0	.0	4.2	.0	.0	4.2
38 Rehab Morrison-Sound Vw Av PEL	SGR	.0	.0	24.2	.0	.0	24.2
42 Rehab Chambers St NAS	SGR	.0	.0	69.4	.0	.0	69.4
43 Rehab Buhre Av PEL	SGR	.0	.0	21.7	.0	.0	21.7
44 Rehab Middletown Rd PEL	SGR	.0	.0	20.4	.0	.0	20.4
45 Rehab Zerega Av PEL	SGR	.0	.0	21.4	.0	.0	21.4
46 Rehab Castle Hill Av PEL	SGR	.0	.0	22.2	.0	.0	22.2
47 Rehab Parkchester-E 177 St PEL	SGR	.0	.0	26.7	.0	.0	26.7
48 Rehab St Lawrence Av PEL	SGR	.0	.0	21.5	.0	.0	21.5
49 Rehab Elder Av PEL	SGR	.0	.0	21.0	.0	.0	21.0
50 Rehab Whitlock Av PEL	SGR	.0	.0	19.4	.0	.0	19.4

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
11 STATION REHABILITATION							
51 Railings 2007-09 Rehabs	SGR	.0	.0	2.0	.0	.0	2.0
52 Grand Central-42 St Mez LEX	NR	.0	.0	16.5	.0	.0	16.5
55 Rehab Beach 67 St RKY	SGR	.0	.0	.0	6.9	.0	6.9
56 Rehab Beach 60 St RKY	SGR	.0	.0	.0	7.0	.0	7.0
57 Rehab Beach 44 St RKY	SGR	.0	.0	.0	6.9	.0	6.9
58 Rehab Beach 36 St RKY	SGR	.0	.0	.0	6.6	.0	6.6
59 Rehab Beach 25 St RKY	SGR	.0	.0	.0	6.6	.0	6.6
60 Rehab Mott Av RKY	SGR	.0	.0	.0	6.4	.0	6.4
61 Rehab Beach 90 St RKY	SGR	.0	.0	.0	7.7	.0	7.7
62 Rehab Beach 98 St RKY	SGR	.0	.0	.0	8.4	.0	8.4
63 Rehab Beach 105 St RKY	SGR	.0	.0	.0	8.7	.0	8.7
74 Rehab East 180 St WPR	SGR	.0	.0	.0	33.3	.0	33.3
75 Water Condition Remedy 2009	SGR	.0	.0	.0	.0	4.5	4.5
76 Rehab 20th Av SEA	SGR	.0	.0	.0	.0	29.4	29.4
84 Rehab 8th Av SEA	SGR	.0	.0	.0	.0	29.4	29.4
85 Rehab Ft Ham Pkwy SEA	SGR	.0	.0	.0	.0	29.4	29.4
86 Rehab 18th Av SEA	SGR	.0	.0	.0	.0	29.4	29.4
87 Rehab Kings Hwy SEA	SGR	.0	.0	.0	.0	29.4	29.4
88 Rehab New Utrecht SEA	SGR	.0	.0	.0	.0	29.4	29.4
89 Rehab Bay Pkwy SEA	SGR	.0	.0	.0	.0	29.4	29.4
90 Rehab Av U SEA	SGR	.0	.0	.0	.0	29.4	29.4
91 Rehab 86th St SEA	SGR	.0	.0	.0	.0	29.4	29.4
Element Total 11		\$324.8	\$556.7	\$290.3	\$98.5	\$268.6	\$1,539.0
13 DISABLED ACCESSIBILITY							
01 ADA Chambers St BW7	SI	19.4	.0	.0	.0	.0	19.4
03 ADA 59 St-Columbus Crl Cmplx	SI	2.7	.0	.0	.0	.0	2.7
04 ADA 135th St LNX	SI	16.4	.0	.0	.0	.0	16.4
05 ADA Kings Highway BRT	SI	6.9	.0	.0	.0	.0	6.9
06 ADA Bowling Green LEX	SI	10.4	.0	.0	.0	.0	10.4
07 ADA Church Av CUL	SI	24.1	.0	.0	.0	.0	24.1
08 ADA Union Turnpike QBL	SI	.0	15.7	.0	.0	.0	15.7
09 ADA Jay St FUL	SI	.0	13.7	.0	.0	.0	13.7
10 ADA Bay Parkway WST	SI	.0	16.3	.0	.0	.0	16.3
11 ADA 96 St BW7	SI	.0	25.7	.0	.0	.0	25.7
12 ADA Jay-Lawrence Transfer	SI	.0	13.5	.0	.0	.0	13.5
13 ADA 71st Av QBL	SI	.0	12.9	.0	.0	.0	12.9
14 ADA 47-50 St Rock Ctr 6AV	SI	.0	14.9	.0	.0	.0	14.9
15 ADA Chambers St NAS	SI	.0	.0	11.6	.0	.0	11.6
17 ADA Mott Av RKY	SI	.0	.0	.0	2.1	.0	2.1
19 ADA East 180 St WPR	SI	.0	.0	.0	7.3	.0	7.3
Element Total 13		\$79.8	\$112.7	\$11.6	\$9.4	\$0	\$213.5

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
14 OTHER STATION IMPROVEMENTS								
01	Station Signage 2005	NR	2.8	.0	.0	.0	.0	2.8
03	Intermodal: Myrtle-Wyckoff	SI	6.3	.0	.0	.0	.0	6.3
04	Pltfrm Topping 4 Stations BRT	SGR	8.6	.0	.0	.0	.0	8.6
05	Bowling Green Entrance Canopy	SI	2.8	.0	.0	.0	.0	2.8
06	Xfer Lawrence St/Jay St	SI	.0	60.8	.0	.0	.0	60.8
07	Replace Canopies AST	SGR	.0	.0	16.5	.0	.0	16.5
08	Repl 9 Gap Fillers 14 St LEX	SGR	.0	.0	.0	36.0	.0	36.0
09	Station Signage 2008	NR	.0	.0	.0	2.7	.0	2.7
10	Scrubber Rooms, 4 Stations	NR	.0	.0	.0	1.4	.0	1.4
11	Platform Rehab Various Locs	SGR	.0	.0	10.0	.0	.0	10.0
Element Total 14			\$20.5	\$60.8	\$26.5	\$40.1	\$0	\$147.9
Category Total 504			\$495.7	\$762.5	\$418.5	\$165.1	\$268.6	\$2,110.4

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
02 TRACK REHABILITATION							
01 Mainline Track Repl 2005	NR	130.0	.0	.0	.0	.0	130.0
02 Track Force Account 2005	NR	35.0	.0	.0	.0	.0	35.0
03 Welded Rail 2005	NR	10.3	.0	.0	.0	.0	10.3
04 Mainline Track Repl 2006	NR	.0	133.7	.0	.0	.0	133.7
05 Track Force Account 2006	NR	.0	35.0	.0	.0	.0	35.0
06 Welded Rail 2006	NR	.0	10.6	.0	.0	.0	10.6
07 Mainline Track Repl 2007	NR	.0	.0	138.2	.0	.0	138.2
08 Track Force Account 2007	NR	.0	.0	35.0	.0	.0	35.0
09 Welded Rail 2007	NR	.0	.0	11.0	.0	.0	11.0
10 Mainline Track Repl 2008	NR	.0	.0	.0	142.9	.0	142.9
11 Track Force Account 2008	NR	.0	.0	.0	35.0	.0	35.0
12 Welded Rail 2008	NR	.0	.0	.0	11.3	.0	11.3
13 Mainline Track Repl 2009	NR	.0	.0	.0	.0	147.8	147.8
14 Track Force Account 2009	NR	.0	.0	.0	.0	35.0	35.0
15 Welded Rail 2009	NR	.0	.0	.0	.0	11.7	11.7
Element Total 02		\$175.3	\$179.4	\$184.1	\$189.2	\$194.6	\$922.6
03 SWITCH REPLACEMENT							
01 36 Mainline Switches I/H 2005	NR	40.3	.0	.0	.0	.0	40.3
02 36 Mainline Switches I/H 2006	NR	.0	41.5	.0	.0	.0	41.5
03 36 Mainline Switches I/H 2007	NR	.0	.0	42.9	.0	.0	42.9
04 36 Mainline Switches I/H 2008	NR	.0	.0	.0	44.3	.0	44.3
05 36 Mainline Switches I/H 2009	NR	.0	.0	.0	.0	45.9	45.9
Element Total 03		\$40.3	\$41.5	\$42.9	\$44.3	\$45.9	\$214.9
Category Total 505		\$215.6	\$220.9	\$227.0	\$233.6	\$240.4	\$1,137.5

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
02 TUNNEL LIGHTING							
01 Tun Ltg Boro Hall-Chambers CLK	SGR	30.5	.0	.0	.0	.0	30.5
02 Tun Ltg Bowling Gr-Bkln Br LEX	SGR	19.7	.0	.0	.0	.0	19.7
03 Tun Ltg Carroll-Crnbyr Jct PPK	SGR	36.1	.0	.0	.0	.0	36.1
04 Tun Ltg Crnbry Jct-Chmbrs CRAN	SGR	21.4	.0	.0	.0	.0	21.4
05 Tun Ltg 42 St Shuttle	SGR	.0	13.4	.0	.0	.0	13.4
06 Tun Ltg 42 St -96 St BW7	SGR	.0	43.0	.0	.0	.0	43.0
07 Tun Ltg 168 St - 207 St 8AV	SGR	.0	48.6	.0	.0	.0	48.6
08 Tun Ltg Local Tracks 6AV	SGR	.0	.0	23.1	.0	.0	23.1
09 Tun Ltg Crnbry Jct-Bwy Laf RUT	SGR	.0	.0	21.3	.0	.0	21.3
10 Tun Ltg Brooklyn Br-33 St LEX	SGR	.0	.0	.0	54.4	.0	54.4
Element Total 02		\$107.6	\$104.9	\$44.4	\$54.4	\$0.0	\$311.3
03 VENTILATION FACILITIES							
01 Fan Rehab 5 Locs 6AV	SGR	120.9	.0	.0	.0	.0	120.9
02 Fan Wrap-up ARC	NR	33.0	.0	.0	.0	.0	33.0
03 Fans 4 Locs QBL AST	SGR	.0	110.7	.0	.0	.0	110.7
04 Fans 4 Locs 8AV	SGR	.0	.0	140.5	.0	.0	140.5
05 New Fan n/o W 4 St 8AV	SI	.0	.0	.0	37.8	.0	37.8
06 New Fan QBL	SI	.0	.0	.0	37.6	.0	37.6
07 Fans 3 Locs 8AV	SGR	.0	.0	.0	82.2	.0	82.2
Element Total 03		\$153.9	\$110.7	\$140.5	\$157.6	\$0.0	\$562.7
04 PUMPING FACILITIES							
01 Pumps 10 Locs QBL	SGR	37.1	.0	.0	.0	.0	37.1
02 Pumps 3 Locs 6AV	SGR	13.6	.0	.0	.0	.0	13.6
03 Deep Well Rehab FUL	SGR	13.5	.0	.0	.0	.0	13.5
04 Wrap-Up, 5 Deep Wells NOS	NR	.0	8.8	.0	.0	.0	8.8
05 Pumps 3 Locs PPK	SGR	.0	16.8	.0	.0	.0	16.8
06 Pumps 4 Locs PEL JER LNX	SGR	.0	20.6	.0	.0	.0	20.6
07 Add Deep Wells XTN	NR	.0	.0	9.1	.0	.0	9.1
08 Rehab Deep Wells LNX	NR	.0	.0	.0	6.6	.0	6.6
Element Total 04		\$64.3	\$46.2	\$9.1	\$6.6	\$0.0	\$126.2
Category Total 506		\$325.8	\$261.8	\$194.0	\$218.6	\$0.0	\$1,000.2

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
03 LINE STRUCTURE REHABILITATION							
01 Rehab 50 Emergency Exits 05-06	SGR	11.8	.0	.0	.0	.0	11.8
02 EPK Joralemon Tube-Nevins	SGR	32.0	.0	.0	.0	.0	32.0
03 Overcoat Bx Pk East-241 St WPR	NR	21.2	.0	.0	.0	.0	21.2
04 Overcoat 162 St-190 St JER	NR	10.7	.0	.0	.0	.0	10.7
05 Strip-Repaint End of Line JER	NR	7.2	.0	.0	.0	.0	7.2
06 WST 9 Av-Bay 50 St	SGR	.0	25.9	.0	.0	.0	25.9
07 Rehab Culver Viaduct Ph 2	SGR	.0	113.2	.0	.0	.0	113.2
08 8AV n/o 168-n/e 207,Yard Lead	SGR	.0	28.3	.0	.0	.0	28.3
09 BWY BMT Whitehall-Canal	SGR	.0	24.1	.0	.0	.0	24.1
11 Rehab 75 Emergency Exits 07-09	SGR	.0	.0	18.7	.0	.0	18.7
12 Ocean Parkway Sta Viaduct BRT	NR	.0	.0	25.1	.0	.0	25.1
14 BWY BMT Lexington-42 St	SGR	.0	.0	26.0	.0	.0	26.0
15 Overcoat Portal-E180 St WPR	NR	.0	.0	14.3	.0	.0	14.3
16 Overcoat Cypress Hills-121 JAM	NR	.0	.0	13.2	.0	.0	13.2
17 Overcoat Whitlock Prtl-EOL PEL	NR	.0	.0	21.4	.0	.0	21.4
18 Rockaway Viaduct Ph 2	NR	.0	.0	.0	67.9	.0	67.9
19 Far Rockwy & Rockwy Pk Viaduct	NR	.0	.0	.0	38.2	.0	38.2
22 Ovrct 125 St Arch,Dkmn-215 BW7	NR	.0	.0	.0	7.9	.0	7.9
23 Strip-Rpnt Bridges & Wye RKY	NR	.0	.0	.0	11.3	.0	11.3
24 Ovrct Junction-Main St Ptl FLS	NR	.0	.0	.0	10.9	.0	10.9
25 Ovrct Church St Prtl-W8 St CUL	NR	.0	.0	.0	19.0	.0	19.0
26 SBC Retaining Wall, Overpasses	NR	.0	.0	.0	.0	26.2	26.2
29 Strip-Repaint Portal-41 Av AST	NR	.0	.0	.0	.0	17.6	17.6
30 Ovrct E Pkwy-Cypress Hills JAM	NR	.0	.0	.0	12.5	.0	12.5
Element Total 03		\$82.9	\$191.5	\$118.8	\$167.8	\$43.7	\$604.6
Category Total 507		\$82.9	\$191.5	\$118.8	\$167.8	\$43.7	\$604.6

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
03 SIGNAL MODERNIZATION							
02 Signal Control Mods Ph 3	SGR	.0	.0	33.0	.0	.0	33.0
03 Stop Cable Replacement, Ph 1	NR	18.4	.0	.0	.0	.0	18.4
05 Middle Track Signalization JER	SI	38.0	.0	.0	.0	.0	38.0
06 ATS B-Division Ph 1	SI	.0	135.0	.0	.0	.0	135.0
07 Signal Key-By Circuit Mod Ph 2	SGR	.0	.0	38.4	.0	.0	38.4
08 CBTC Flushing Line	NR	.0	265.6	.0	.0	.0	265.6
09 Stn Time Signal Enhance LEX	SI	.0	40.7	.0	.0	.0	40.7
10 Stop Cable Replacement, Ph 2	NR	.0	.0	19.5	.0	.0	19.5
11 WPR Ph 3: E 180 St	SGR	.0	.0	185.3	.0	.0	185.3
12 CBTC Bergen - W 8 CUL	SGR	.0	.0	350.0	.0	.0	350.0
14 Interlockings 5th Av, Lex QBL	SGR	.0	106.2	.0	.0	.0	106.2
15 Interlockings 36 St-Bergen XTN	SGR	.0	.0	.0	.0	140.9	140.9
Element Total 03		\$56.4	\$547.5	\$626.3	\$0	\$140.9	\$1,371.1
06 COMMUNICATIONS SYSTEMS							
01 Data Network 2 IND/BMT-ATM Opt	SI	134.2	.0	.0	.0	.0	134.2
02 SysWide Appl Migration Ph 2	SI	.0	49.2	.0	.0	.0	49.2
04 Upgrade Copper Cable for SONET	NR	.0	.0	.0	8.8	.0	8.8
06 SysWide Time Synch-Mastr Clock	NR	.0	.0	.0	1.7	.0	1.7
08 Ant Cable Replacement Ph 2	NR	.0	.0	.0	.0	31.6	31.6
09 Platform Edge CCTV 9 Stns XTN	SI	5.6	.0	.0	.0	.0	5.6
10 Systemwide Wireless Cts	NR	.0	131.3	.0	.0	.0	131.3
11 PA/CIS Ph 3	SGR	.0	85.8	.0	.0	.0	85.8
13 Station Agent Comm / EBCS Ph 1	NR	.0	.0	.0	56.7	.0	56.7
Element Total 06		\$139.8	\$266.4	\$0	\$67.2	\$31.6	\$505.0
Category Total 508		\$196.2	\$813.9	\$626.3	\$67.2	\$172.5	\$1,876.1

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
02 SUBSTATIONS							
01 Repl Power Transformers 3 locs	SGR	.0	1.9	.0	.0	.0	1.9
02 Modernize 70th Av Substn	SGR	26.0	.0	.0	.0	.0	26.0
03 Modernize Green St Substn	SGR	20.6	.0	.0	.0	.0	20.6
04 Modernize Greenwich Substation	SGR	20.7	.0	.0	.0	.0	20.7
05 Modernize Dyckman Substation	SGR	22.1	.0	.0	.0	.0	22.1
06 Rockwell Place Substation	SI	13.0	.0	.0	.0	.0	13.0
07 Modernize Caton Av Substn	SGR	.0	23.6	.0	.0	.0	23.6
08 Modernize E193 St Substn	SGR	.0	19.5	.0	.0	.0	19.5
09 Rehab 3 IRT Enclosures	NR	.0	.0	8.2	.0	.0	8.2
10 Modernize S Railroad Av Substn	SGR	.0	.0	21.7	.0	.0	21.7
11 Modernize Meserole Av Substn	SGR	.0	.0	26.9	.0	.0	26.9
12 Rehab Undgrnd Sbstdn Hatchways	NR	.0	.0	.0	14.7	.0	14.7
13 Rehab 3 IND Enclosures	NR	.0	.0	.0	8.5	.0	8.5
16 Switchgr/Trnsfrms 6 IND Sbstdn	SGR	.0	.0	.0	.0	9.3	9.3
17 DC Feeder Sys 4 IND Substn	NR	.0	.0	.0	.0	7.2	7.2
Element Total 02		\$102.5	\$45.0	\$56.9	\$23.2	\$16.5	\$244.0
04 POWER DISTRIBUTION							
01 Circuit Breaker Houses 6 Locs	SGR	33.2	.0	.0	.0	.0	33.2
02 Power Cable 8AV Cranberry Tube	NR	15.5	.0	.0	.0	.0	15.5
03 Cntrl & Bat Cables 4 Sbstdn CZs	NR	.0	59.2	.0	.0	.0	59.2
04 Rehabilitate Emergency Alarms	NR	.0	.0	.0	22.7	.0	22.7
06 Repl Negative Cables RKY	NR	.0	.0	.0	45.4	.0	45.4
07 Repl Negatives 4AV	NR	.0	.0	.0	45.7	.0	45.7
08 Rehab 2 Circuit Breaker Houses	SGR	.0	.0	.0	11.3	.0	11.3
11 SCADA Upgrade IRT	NR	.0	.0	.0	.0	88.1	88.1
Element Total 04		\$48.7	\$59.2	\$0.0	\$125.1	\$88.1	\$321.1
Category Total 509		\$151.2	\$104.2	\$56.9	\$148.3	\$104.5	\$565.1

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
04 MAINTENANCE SHOPS								
01	Rehab 207 St Overhaul Shop	SGR	239.9	.0	.0	.0	.0	239.9
03	Recon Livonia Maint Shop	SGR	.0	159.4	.0	.0	.0	159.4
04	Atlantic Av Cable Shop Ph 1	SGR	.0	10.6	.0	.0	.0	10.6
05	Car Washer: Coney Island Yd	NR	.0	1.3	.0	.0	.0	1.3
06	New SMS Shop for AC Units	SI	.0	33.0	.0	.0	.0	33.0
09	Heavy Shop Equipment	NR	.0	.0	7.0	.0	.0	7.0
15	Rehab 38 St Yd Shp,Retain Wall	NR	9.5	.0	.0	.0	.0	9.5
Element Total 04			\$249.4	\$204.2	\$7.0	\$0	\$0	\$460.6
Category Total 510			\$249.4	\$204.2	\$7.0	\$0	\$0	\$460.6

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
02 YARD IMPROVEMENTS							
01 Yard Lighting: Cnr, ENY, FP	SGR	10.2	.0	.0	.0	.0	10.2
02 38 St Yd Prtl, Viaduct, Ret Wall	SGR	11.0	.0	.0	.0	.0	11.0
03 Corona Yd Ph 3 Signals, Track	NR	.0	118.0	.0	.0	.0	118.0
04 Yard CCTV	SGR	7.7	.0	.0	.0	.0	7.7
06 Yard Fencing Upgrades	NR	2.1	.0	.0	.0	.0	2.1
08 Jamaica Yard Expansion	SI	.0	.0	153.6	.0	.0	153.6
10 Yard Hydrants Ph 2	SGR	.0	.0	.0	17.2	.0	17.2
Element Total 02		\$30.9	\$118.0	\$153.6	\$17.2	\$0.0	\$319.8
05 YARD TRACK REHABILITATION							
01 Yard Track 2005	SGR	2.7	.0	.0	.0	.0	2.7
02 Yard Track 2006	SGR	.0	2.8	.0	.0	.0	2.8
03 Yard Track 2007	SGR	.0	.0	2.9	.0	.0	2.9
04 Yard Track 2008	SGR	.0	.0	.0	3.0	.0	3.0
05 Yard Track 2009	SGR	.0	.0	.0	.0	3.1	3.1
Element Total 05		\$2.7	\$2.8	\$2.9	\$3.0	\$3.1	\$14.6
06 YARD SWITCH REPLACEMENT							
01 Repl 20 Yard Switches 2005	SGR	8.3	.0	.0	.0	.0	8.3
02 Repl 20 Yard Switches 2006	SGR	.0	8.5	.0	.0	.0	8.5
03 Repl 20 Yard Switches 2007	SGR	.0	.0	8.8	.0	.0	8.8
04 Repl 20 Yard Switches 2008	SGR	.0	.0	.0	9.1	.0	9.1
05 Repl 20 Yard Switches 2009	SGR	.0	.0	.0	.0	9.4	9.4
Element Total 06		\$8.3	\$8.5	\$8.8	\$9.1	\$9.4	\$44.0
Category Total 511		\$41.9	\$129.3	\$165.3	\$29.3	\$12.5	\$378.4

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
03 DEPOT REHAB AND RECONSTRUCTION							
01 Reserve: Charleston Depot	SI	15.0	.0	.0	.0	.0	15.0
02 Rehab Castleton Depot	NR	.0	14.0	.0	.0	.0	14.0
03 Rehab Ulmer Park Depot	NR	.0	25.0	.0	.0	.0	25.0
04 Rehab Flatbush Depot	NR	.0	21.2	.0	.0	.0	21.2
05 Jamaica Depot Replacement	SI	.0	.0	125.0	.0	.0	125.0
06 Reconstruct Clara Hale Depot	NR	.0	.0	63.2	.0	.0	63.2
07 ENY Depot Rehab,Base Shop Conv	SI	.0	.0	82.3	.0	.0	82.3
08 Rehab Yukon Depot	NR	.0	.0	.0	8.0	.0	8.0
Element Total 03		\$15.0	\$60.2	\$270.5	\$8.0	\$0.0	\$353.7
04 DEPOT IMPROVEMENTS							
02 Fluid Application System	SI	7.6	.0	.0	.0	.0	7.6
03 Repl Roofs CS JG	NR	9.0	.0	.0	.0	.0	9.0
04 Misc Property Acquisition	NR	10.0	.0	.0	.0	.0	10.0
05 Bus Locator System-Systemwide	SI	.0	85.0	.0	.0	.0	85.0
06 Replace Bus Radio System	NR	.0	88.7	.0	.0	.0	88.7
07 Lifts,Compressors CS,MV	NR	.0	15.6	.0	.0	.0	15.6
08 Bus Rapid Transit Ph 1	SI	.0	.0	21.9	.0	.0	21.9
09 Refurbish Keene Systems	NR	.0	.0	.0	3.4	.0	3.4
10 10 Bus Washers KB,GH,MV,CS	NR	.0	.0	.0	23.5	.0	23.5
11 Bus Lifts Various Locations	NR	.0	.0	.0	8.8	.0	8.8
13 Depot Equipment	NR	.0	.0	.0	.0	8.8	8.8
Element Total 04		\$26.6	\$189.4	\$21.9	\$35.7	\$8.8	\$282.4
Category Total 512		\$41.6	\$249.6	\$292.4	\$43.7	\$8.8	\$636.1

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
02 SERVICE VEHICLES								
01	Rubber Tire Vehicles 2005-2006	NR	12.7	.0	.0	.0	.0	12.7
02	Purchase 18 Flatcars	NR	4.7	.0	.0	.0	.0	4.7
03	Purchase 2 Ballast Regulators	NR	.0	7.8	.0	.0	.0	7.8
04	Rubber Tire Vehicles 2007-2009	NR	.0	.0	12.6	.0	.0	12.6
05	Purch 9 Diesel-Elec Locos	NR	.0	.0	26.5	.0	.0	26.5
07	Purch 10 Diesel-Elec Locos	SI	.0	28.8	.0	.0	.0	28.8
Element Total 02			\$17.3	\$36.6	\$39.1	\$0	\$0	\$93.1
Category Total 513			\$17.3	\$36.6	\$39.1	\$0	\$0	\$93.1

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
02 MISCELLANEOUS							
01 Program Contingency 2005-2009		17.3	10.0	10.0	10.0	10.0	57.3
02 Capital Revolving Fund		5.0	5.0	5.0	5.0	5.0	25.0
03 Insurance and Deductible		5.0	5.0	5.0	5.0	5.0	25.0
Element Total 02		\$27.3	\$20.0	\$20.0	\$20.0	\$20.0	\$107.3
04 MANAGEMENT INFORMATION SYSTEMS							
01 Rehab 9 Node Site Facilities	NR	6.2	.0	.0	.0	.0	6.2
02 HP Server Consolidation/Repl	NR	9.0	.0	.0	.0	.0	9.0
03 Automatic Tele. Travel Info	NR	.0	.0	2.8	.0	.0	2.8
04 Replace PBX Switches	NR	.0	.0	7.0	.0	.0	7.0
06 Token Ring Repl/Ethernet Conv	NR	.0	.0	.0	4.3	.0	4.3
Element Total 04		\$15.2	\$0	\$9.9	\$4.3	\$0	\$29.4
05 ENGINEERING SERVICES							
01 MTA Engineering Consultants		15.6	.0	.0	.0	.0	15.6
02 Boring Services BK/Q/SI 2005	NR	1.8	.0	.0	.0	.0	1.8
03 Boring Services M/Bx 2005	NR	1.5	.0	.0	.0	.0	1.5
04 Engineering Services 2005	NR	4.1	.0	.0	.0	.0	4.1
05 Scope Development 2005		9.3	.0	.0	.0	.0	9.3
06 Concrete Batch Plant Insp 2005	NR	1.1	.0	.0	.0	.0	1.1
08 Concrete Cylinder Testing 2006	NR	.0	.6	.0	.0	.0	.6
10 Engineering Services 2006	NR	.0	4.2	.0	.0	.0	4.2
11 Scope Development 2006		.0	9.6	.0	.0	.0	9.6
12 Boring Services BK/Q/SI 2007	NR	.0	.0	1.9	.0	.0	1.9
13 Boring Services M/Bx 2007	NR	.0	.0	1.6	.0	.0	1.6
15 Engineering Services 2007	NR	.0	.0	4.4	.0	.0	4.4
16 Design Reserve		.0	.0	15.0	15.0	15.0	45.0
17 Scope Development 2007		.0	.0	9.9	.0	.0	9.9
19 Engineering Services 2008	NR	.0	.0	.0	4.5	.0	4.5
20 Scope Development 2008		.0	.0	.0	10.2	.0	10.2
21 Concrete Batch Plant 2008	NR	.0	.0	.0	1.2	.0	1.2
24 Concrete Cylinder Testing 2009	NR	.0	.0	.0	.0	.6	.6
26 Scope Development 2009		.0	.0	.0	.0	10.6	10.6
27 Construction Support 2005		2.1	.0	.0	.0	.0	2.1
28 Construction Support 2007		.0	.0	2.2	.0	.0	2.2
Element Total 05		\$35.5	\$14.4	\$34.9	\$31.0	\$26.2	\$142.0

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
06 ENVIRONMENTAL AND SAFETY							
01 Asbestos Removal IQ 2005	NR	5.8	.0	.0	.0	.0	5.8
02 Groundwater & Soil Remediation	NR	6.4	.0	.0	.0	.0	6.4
03 Consult-USTs, Remediation 2005	NR	6.4	.0	.0	.0	.0	6.4
04 Fire Alarm/Sprinklers Var Locs	NR	.0	10.6	.0	.0	.0	10.6
05 Asbestos Air Monitor IQ 2006	NR	.0	4.8	.0	.0	.0	4.8
06 Asbestos Disposal IQ 2006	NR	.0	1.0	.0	.0	.0	1.0
07 Fire Alarms 3 Depots	NR	.0	.0	11.0	.0	.0	11.0
08 Asbestos Removal IQ	NR	.0	.0	.0	7.0	.0	7.0
09 Consult-USTs, Remediation 2009	NR	.0	.0	.0	7.0	.0	7.0
10 Asbestos Disposal-IQ	NR	.0	.0	.0	.0	1.0	1.0
11 Asbestos/Lead Air Monitor IQ	NR	.0	.0	.0	.0	6.7	6.7
Element Total 06		\$18.7	\$16.4	\$11.0	\$14.1	\$7.7	\$67.8
07 EMPLOYEE FACILITIES							
01 EFR Chambers St BW7	SGR	4.3	.0	.0	.0	.0	4.3
02 EFR 59 St 8 AV	SGR	12.6	.0	.0	.0	.0	12.6
03 (ICC) EFR Church Av CUL	SGR	9.1	.0	.0	.0	.0	9.1
04 (ICC) EFR Jamaica Yard Tower	SGR	4.4	.0	.0	.0	.0	4.4
06 Bus Command Center	SI	.0	10.0	.0	.0	.0	10.0
07 EFR Jay St FUL	SGR	.0	8.9	.0	.0	.0	8.9
08 EFR 96 St BW7	SGR	.0	4.0	.0	.0	.0	4.0
09 EFR 149 St-Grand Concourse JER	SGR	.0	4.5	.0	.0	.0	4.5
10 EFR 71 Av QBL	SGR	.0	4.8	.0	.0	.0	4.8
11 EFR 47-50 St Rock Ctr 6 AV	SGR	.0	2.6	.0	.0	.0	2.6
13 (ICC) EFR 4th Av 6AV	SGR	.0	3.6	.0	.0	.0	3.6
15 GPS Revenue Control	SI	.0	.4	.0	.0	.0	.4
19 Fordham Rd AFC Eqp Mnt Qtrs	NR	.0	.0	1.1	.0	.0	1.1
20 Roosevelt/74th AFC Eqp Mnt Qtr	NR	.0	.0	3.4	.0	.0	3.4
21 Atlantic Av AFC Eqp Mnt Qtrs	NR	.0	.0	4.0	.0	.0	4.0
23 EFR Chambers St NAS	SGR	.0	.0	12.1	.0	.0	12.1
24 EFR Parkchester-E 177 St PEL	SGR	.0	.0	6.1	.0	.0	6.1
25 (ICC) EFR 207th St 8AV	SGR	.0	.0	8.2	.0	.0	8.2
26 EFR East 180 Street WPR	SGR	.0	.0	.0	4.6	.0	4.6
27 (ICC) EFR 21st St XTN	SGR	.0	.0	.0	6.1	.0	6.1
32 (ICC) EFR 6 Av Passage (42-34)	SI	.0	.0	.0	.0	11.5	11.5
35 DOS Roof Replacement Ph 1	NR	.0	15.0	.0	.0	.0	15.0
36 DOS Roof Replacement Ph 2	NR	.0	.0	.0	15.0	.0	15.0
37 RTO Facilities Hardening	NR	.0	4.8	.0	.0	.0	4.8
Element Total 07		\$30.3	\$58.6	\$34.8	\$25.7	\$11.5	\$161.0
Category Total 516		\$126.9	\$109.4	\$110.6	\$95.1	\$65.4	\$507.4
TOTAL PROGRAM		\$2,188.5	\$3,220.9	\$3,601.0	\$1,941.2	\$1,093.5	\$12,045.1

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
01 MISCELLANEOUS								
01	St George Track/Switch Rehab	SGR	36.1	.0	.0	.0	.0	36.1
02	Station Structural Repairs	NR	4.9	.0	.0	.0	.0	4.9
03	Rehabilitate 3 Station Houses	NR	1.8	.0	.0	.0	.0	1.8
05	Circuit Breaker House Eqpt	NR	4.6	.0	.0	.0	.0	4.6
06	Work Train Equipment	NR	.0	8.8	.0	.0	.0	8.8
07	Arthur Kill Station	SGR	.0	.0	9.1	.0	.0	9.1
08	Repair 6 Bridges (thru spans)	NR	.0	.0	14.3	.0	.0	14.3
09	Rehabilitate 8 Station Houses	NR	.0	.0	.0	6.2	.0	6.2
Element Total 01			\$47.5	\$8.8	\$23.4	\$6.2	\$0	\$85.9
Category Total 507			\$47.5	\$8.8	\$23.4	\$6.2	\$0	\$85.9
TOTAL PROGRAM			\$47.5	\$8.8	\$23.4	\$6.2	\$0	\$85.9

* Represents values less than \$50,000

NYCT AGENCY SUMMARY

Commitments (\$ in millions)						
AGENCY	2005	2006	2007	2008	2009	Totals 2005-2009
TOTAL NYCT PROGRAM	\$2,188.5	\$3,220.9	\$3,601.0	\$1,941.2	\$1,093.5	\$12,045.1
TOTAL SIR PROGRAM	\$47.5	\$8.8	\$23.4	\$6.2	\$0	\$85.9
TOTAL	\$2,236.0	\$3,229.7	\$3,624.4	\$1,947.3	\$1,093.5	\$12,131.0
TOTAL MTA CAPITAL PROGRAM	\$2,236.0	\$3,229.7	\$3,624.4	\$1,947.3	\$1,093.5	\$12,131.0

		Commitments (\$ in millions)					
ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
01 REVENUE EQUIPMENT							
M7 M7 Procurement - 120 Cars	NR	.0	364.4	19.4	.0	.0	383.8
M9 M9 Specification Development	NR	2.2	.0	.0	.0	.0	2.2
Element Total 01		\$2.2	\$364.4	\$19.4	\$0	\$0	\$386.0
Category Total 501		\$2.2	\$364.4	\$19.4	\$0	\$0	\$386.0

Long Island Rail Road

STATIONS

L - 502

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
04 STATION AND BUILDINGS							
2A Hunterspoint Station Rehab	NR	1.0	11.8	.0	1.0	.0	13.8
2B Broadway Platform Replacement	NR	.9	15.8	.0	.0	.0	16.7
2C Seaford Platform Replacement	NR	1.1	.0	13.4	2.0	.0	16.5
2F Babylon Platform Rehab	NR	.2	6.0	.0	.0	.0	6.2
2G Babylon Br Stair Replacement	NR	.2	3.8	.0	.0	.0	4.0
2Q Cold Spring Harbor Overpass	NR	.1	.0	1.3	.0	.0	1.5
2T Escalator Replacement Program	NR	.2	2.8	.0	1.0	.0	4.1
2U Elevator Replacement Program	NR	.3	2.0	.9	.0	.0	3.3
2W Fare Collection Program	NR	5.5	.0	.0	.0	.0	5.5
23 Atlantic Terminal-Phase 2	SI	.0	5.5	.0	.0	.0	5.5
25 Jamaica Fit-Out-Phase 2	SI	.4	.0	7.5	.0	.0	7.8
Element Total 04		\$9.9	\$47.7	\$23.1	\$4.0	\$0.0	\$84.7
05 PARKING							
2Z Intermodal Facility Developmnt	SI	.0	.0	3.0	1.2	1.2	5.4
21 Parking Rehabilitation	NR	.8	9.6	1.0	1.0	1.0	13.4
Element Total 05		\$0.8	\$9.6	\$4.0	\$2.2	\$2.2	\$18.9
06 PENN STATION							
VB PS Comm, Power & Signals	NR	11.3	.0	.0	.0	.0	11.3
VC PS Emp Fac, Yards & Buildings	NR	.0	.0	9.5	.0	.0	9.5
VG PS Track, Tunnels & Structures	NR	6.1	.0	.0	.4	.0	6.5
VJ Station Masters Office Design	NR	1.5	.0	.0	.0	.0	1.5
VK Coordinated Tri-Venture Signs	SI	2.9	.0	.0	.0	.0	2.9
Element Total 06		\$21.8	\$0.0	\$9.5	\$0.4	\$0.0	\$31.7
Category Total 502		\$32.5	\$57.3	\$36.7	\$6.6	\$2.2	\$135.3

* Represents values less than \$50,000

Long Island Rail Road

TRACK L - 503

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
01 ANNUAL TRACK REHAB PROGRAM							
E1 Track Equipment	NR	9.0	8.3	.0	.0	.0	17.3
R1 Culverts	NR	1.7	2.0	1.0	.0	.0	4.7
R2 Drainage Control	NR	.3	2.0	2.0	.3	.0	4.7
R3 Fencing	NR	2.0	2.0	.5	.0	.0	4.5
R4 Demolitions	NR	.0	1.6	.0	.0	.0	1.6
R6 Track Stability/Retaining Wall	NR	2.5	1.3	.0	.0	.0	3.8
T1 2005 Annual Track Program	NR	36.0	.0	.0	.0	.0	36.0
T2 2006 Annual Track Program	NR	.0	76.8	.0	.0	.0	76.8
T3 2007 Annual Track Program	NR	.0	.0	69.0	.0	.0	69.0
T4 2008 Annual Track Program	NR	.0	.0	.0	73.1	.0	73.1
T5 2009 Annual Track Program	NR	.0	.0	.0	.0	79.3	79.3
Element Total 01		\$51.5	\$93.9	\$72.5	\$73.4	\$79.3	\$370.7
03 INTERLOCKINGS							
J3 Jay Intlkg Reconfig - Design	SI	19.3	.0	.0	.0	.0	19.3
J4 Jay Intlkg Reconfig - Const.	SI	.0	.0	9.0	.0	.7	9.7
J5 Jamaica Capacity Improvements	SI	.0	.0	.0	50.0	19.3	69.3
T6 Hall Universal Crossover	SI	5.5	.0	.0	.0	.0	5.5
Element Total 03		\$24.8	\$0.0	\$9.0	\$50.0	\$20.0	\$103.8
04 OTHER TRACK IMPROVEMENTS							
T7 Main Line Corridor-Des/Con Ph1	SI	.0	.0	4.5	.0	117.8	122.3
T8 Main Line Corridor-Grade Xing	SI	.0	.0	.0	60.3	20.0	80.3
T9 Double Track Mainline-EIS/Des	SI	.0	17.0	1.0	1.0	1.0	20.0
Element Total 04		\$0.0	\$17.0	\$5.5	\$61.3	\$138.8	\$222.6
Category Total 503		\$76.4	\$111.0	\$87.0	\$184.7	\$238.1	\$697.2

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
01 BRIDGES								
B1	Bridge Program	SGR	20.0	20.0	20.0	20.0	6.3	86.3
Element Total 01			\$20.0	\$20.0	\$20.0	\$20.0	\$6.3	\$86.3
02 TUNNELS								
VA	ERT Fire & Life Safety	NR	69.7	.0	.0	.0	.0	69.7
Element Total 02			\$69.7	\$0	\$0	\$0	\$0	\$69.7
Category Total 504			\$89.7	\$20.0	\$20.0	\$20.0	\$6.3	\$156.0

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
01 COMMUNICATIONS IMPROVEMENTS							
S6 Improved Radio Coverage/Infras	SI	2.5	2.5	3.1	3.5	1.5	13.1
S7 Fiber Optic Network	NR	17.5	12.5	12.5	12.5	10.0	65.0
S8 AVPS Expansion	SI	10.0	8.0	4.0	4.0	2.1	28.1
S9 Communications Pole Line Repl	NR	1.6	1.6	1.6	1.6	.5	6.9
Element Total 01		\$31.6	\$24.6	\$21.2	\$21.6	\$14.1	\$113.1
02 SIGNAL IMPROVEMENTS							
SA Wayside Event Recorders	SI	3.8	3.0	.0	.0	.0	6.8
SB Babylon Branch Improvements	NR	7.0	23.8	.0	.0	.0	30.8
SC Centralized Train Control-Ph 1	SI	2.1	.0	18.5	.0	.0	20.6
SG Signal Normal Replacement Prog	NR	4.0	1.3	.0	.0	.0	5.3
SH Hall Interlocking	NR	.0	20.0	22.7	.0	.0	42.7
SK Jay Interlocking	NR	.0	20.0	27.1	.0	.0	47.1
SL Jay, Hall & Dunton Microprocs.	NR	16.0	.0	.0	.0	.0	16.0
SV Valley Stream Interlocking	NR	11.0	.0	.0	.0	.0	11.0
SW Babylon to Patchogue	SI	.0	.0	.0	49.6	.0	49.6
SX Babylon-Speonk Signalization	SI	8.3	.0	.0	.0	.0	8.3
Element Total 02		\$52.3	\$68.1	\$68.3	\$49.6	\$0.0	\$238.3
Category Total 505		\$83.9	\$92.7	\$89.5	\$71.2	\$14.1	\$351.4

* Represents values less than \$50,000

Long Island Rail Road

SHOPS AND YARDS

L - 506

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
01 SHOPS AND YARDS								
6B	West Side Yard Facility Rehab	NR	.9	.0	.0	.0	.0	.9
6C	Hillside Facility/Bldg Rehab	NR	2.8	.0	.0	.0	.0	2.8
6H	M of W Repair Facility	NR	.0	1.0	8.1	.0	.0	9.1
6K	Rolling Stock Support Equipmnt	NR	.0	1.1	5.5	5.5	5.4	17.5
6L	Shop Reconfig. & LCM Infra.	SI	2.1	12.5	12.5	12.5	.0	39.6
6M	Babylon Yard Reconfiguration	SI	5.2	.0	.0	.0	.0	5.2
6N	Long Island City Yard (3A/3B)	NR	.0	10.0	.0	1.5	.0	11.5
6Q	Port Jefferson Reserve	SI	.0	.0	.0	.0	88.7	88.7
6S	Port Jefferson Branch Yard	SI	.0	12.6	.0	89.3	.0	102.0
Element Total 01			\$11.1	\$37.2	\$26.1	\$108.8	\$94.2	\$277.4
Category Total 506			\$11.1	\$37.2	\$26.1	\$108.8	\$94.2	\$277.4

* Represents values less than \$50,000

Long Island Rail Road

POWER L - 507

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
01 POWER								
PA	Replace Substation DC Breakers	NR	3.2	.0	.0	.0	.0	3.2
PB	Replace Substation Batteries	NR	.4	.3	.0	.3	.1	1.1
PC	New Substation Construction	SI	2.6	31.3	.0	.0	.0	33.9
PG	Substation Reconstruction	NR	1.5	32.6	.0	.0	.0	34.2
PH	Replace Substation Components	NR	9.0	9.0	9.5	9.0	9.0	45.5
PJ	Third Rail Cable System	NR	2.0	1.0	1.0	.6	.0	4.6
PK	Third Rail Protection Board	NR	2.0	2.1	2.4	2.4	2.2	11.1
PM	Composite Third Rail	NR	4.0	4.0	4.0	4.2	4.0	20.2
PS	Signal Power Line	NR	1.1	.7	.7	.7	.3	3.5
PT	Power Pole Line	NR	.6	.4	.5	.5	.3	2.3
PU	Signal Power Motor Generators	NR	.8	1.0	.0	.0	.0	1.8
P6	Emergency Generators	NR	.2	.0	.0	.0	.0	.2
P7	Repl Bridge Electrical System	NR	.0	.0	.6	.0	.0	.6
P8	Signal Load Electrical System	NR	1.2	.0	.0	.0	.0	1.2
Element Total 01			\$28.6	\$82.4	\$18.7	\$17.7	\$15.9	\$163.3
Category Total 507			\$28.6	\$82.4	\$18.7	\$17.7	\$15.9	\$163.3

* Represents values less than \$50,000

Long Island Rail Road

MISCELLANEOUS

L - 509

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
04 MISCELLANEOUS							
J9 Network Enhanc. Contingency		.0	.0	13.0	1.8	.0	14.8
OC Program Contingency		43.0	.0	.0	.0	.0	43.0
OP Program Development		2.1	4.9	5.1	5.2	5.4	22.8
6T Main Line Branch Yard Des	SI	.0	.0	.0	12.1	2.0	14.1
8A Substations Envir. Remediation	NR	11.0	.0	.0	.0	.0	11.0
8B Yaphank Landfill Env Remediatn	NR	.3	3.6	1.0	.0	.0	4.9
8C LIC CarWash Envir. Remediation	NR	.0	.0	.0	.9	.0	.9
8D Richmond Hill Yd Env Remediatn	NR	.0	.0	.5	.0	.0	.5
8F Rail Lubricators Design	NR	.0	.4	.0	.0	.0	.4
8H Holban Yard- Envir Delineation	NR	.0	.0	.4	.0	.0	.4
8K Morris Park - Environ. Study	NR	.3	5.6	.0	.0	.0	5.9
8L Program Administration		23.7	24.4	25.2	26.1	27.9	127.3
8M Independent Engineer		.0	1.0	1.0	1.0	1.1	4.0
8N Liability Insurance		.0	.8	.9	.9	.9	3.5
8P Property Liability		.0	1.4	1.4	1.5	1.5	5.8
Element Total 04		\$80.5	\$42.0	\$48.5	\$49.5	\$38.8	\$259.3
Category Total 509		\$80.5	\$42.0	\$48.5	\$49.5	\$38.8	\$259.3
TOTAL PROGRAM		\$404.9	\$807.0	\$345.9	\$458.5	\$409.6	\$2,426.0

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
01 REVENUE EQUIPMENT							
01 Spec/Purch 9 Diesel Locomotive	NR	.3	.0	8.2	.0	.0	8.5
02 M-2 Critical Sys Rplcmnt - 241	NR	18.6	.0	.0	.0	.0	18.6
03 M-3A Midlife Remanu - 142 cars	NR	127.9	.0	.0	.0	.0	127.9
04 M-4 Midlife Remanufacture Spec	NR	.0	.0	.7	.0	14.0	14.7
05 M-6 Midlife Remanufacture Spec	NR	.0	.0	.0	.0	.6	.6
06 M-7 Purchase (36 Cars)	NR	68.9	.0	.0	.0	.0	68.9
07 NHL M-8 Purch (up to 100 cars)	NR	.0	100.0	.0	.0	.0	100.0
09 EndDoorCoach Midlife Remanu-40	NR	22.6	.0	.0	.0	.0	22.6
Element Total 01		\$238.3	\$100.0	\$8.9	\$0.0	\$14.6	\$361.8
03 MISCELLANEOUS							
08 Replace Obsolete Work Equipmnt	NR	2.2	.0	.0	.0	.0	2.2
Element Total 03		\$2.2	\$0.0	\$0.0	\$0.0	\$0.0	\$2.2
Category Total 501		\$240.5	\$100.0	\$8.9	\$0.0	\$14.6	\$364.0

* Represents values less than \$50,000

Metro-North Railroad

STATIONS

M- 502

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
01 GRAND CENTRAL TERMINAL							
01 GCT Trainshed Struct. Repairs	NR	14.8	.0	.0	2.0	.0	16.8
02 GCT Leaks Remediation	NR	.0	6.8	.0	.0	.0	6.8
03 GCT Exterior Rehab/Repainting	NR	11.1	.0	.0	.0	.0	11.1
05 GCT Elevator Rehab. Ph. III	NR	2.0	.0	2.4	.0	.0	4.3
07 GCT Platform Improvements	NR	1.0	.0	.0	.0	.0	1.0
08 GCT Water Conveyance Utilities	NR	.3	1.3	.0	.0	.0	1.6
Element Total 01		\$29.2	\$8.1	\$2.4	\$2.0	\$0.0	\$41.6
02 OUTLYING STATIONS							
01 Hudson Line Stations Impr.	NR	94.1	.0	.0	.0	.0	94.1
02 Upper Hudson Line Stations	NR	1.0	4.3	.0	.0	.0	5.3
03 Poughkeepsie Station Building	SGR	.8	2.1	.0	.0	.0	2.9
04 Upper Harlem Line Station Impr	NR	.4	2.7	.0	.0	.0	3.1
05 New Haven Line (NYS) Stations	NR	7.0	.0	27.3	.0	.0	34.3
06 Station Building Rehabs.	SGR	.0	10.9	.0	.0	.0	10.9
07 Station & Platform Info. Signs	NR	1.0	.0	.0	.0	.0	1.0
08 Ticket Selling Machines	NR	3.3	.0	.0	.0	.0	3.3
Element Total 02		\$107.6	\$20.0	\$27.3	\$0.0	\$0.0	\$154.9
03 PARKING							
01 Parking Rehabilitation	SGR	1.1	1.1	1.1	.0	.0	3.3
02 Parking Expansion	SI	3.3	14.9	17.6	17.8	.0	53.6
Element Total 03		\$4.4	\$16.0	\$18.7	\$17.8	\$0.0	\$56.9
Category Total 502		\$141.1	\$44.1	\$48.4	\$19.8	\$0.0	\$253.4

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
01 TRACK							
01 Cyclical Track Program	NR	11.9	12.3	12.2	11.8	11.0	59.3
02 Turnouts Mainline/High Speed	NR	17.6	13.4	5.8	7.9	.0	44.6
03 GCT Turnout and Switch Renewal	NR	10.0	.0	.0	.0	.0	10.0
04 Turnouts Yards	NR	3.6	1.2	.0	.7	.0	5.4
05 M of W Equipment	NR	1.1	1.1	1.2	1.0	1.1	5.5
06 Rebuild Retaining Walls	NR	.1	.6	1.5	.0	.0	2.2
07 Rock Slope Remed. - E of H	NR	5.7	.0	.0	.0	.0	5.7
09 Drainage and Undercutting	NR	3.6	1.1	1.1	1.1	1.2	8.1
10 Purchase MOW Rolling Stock	NR	2.1	.0	.0	.0	.0	2.1
Element Total 01		\$55.5	\$29.8	\$21.7	\$22.5	\$13.3	\$142.9
02 STRUCTURES							
01 Replace/Repair Undergrade Br.	NR	16.4	13.7	.0	.0	.0	30.1
02 Rehabilitate Culverts/Railtop	SGR	.8	.6	.6	.6	.8	3.3
03 D.C. Substation/Signal House	NR	.5	.4	.4	.4	.5	2.2
04 Park Ave. Utility Bays Survey	SGR	.0	.9	.0	.0	.0	.9
05 Replace Timbers Undergrade Br.	NR	.9	.7	.4	.4	.5	2.8
06 Overhead Bridge Program-E of H	SGR	1.3	.0	.0	.0	.0	1.3
07 Bridge Preservation Program	NR	.0	.0	1.3	1.3	.0	2.5
08 Right-of-Way Fencing	SGR	.3	.3	.3	.3	.3	1.5
09 Remove Obsolete Facilities	SGR	1.8	.0	.8	.8	1.1	4.4
10 Specialized Structures Equip.	SI	.0	1.0	.0	.0	.0	1.0
12 Clearance Inventory and Video	NR	.4	.0	.4	.0	.3	1.1
13 Bridge Walkways	SI	1.1	.0	1.0	.0	.0	2.1
15 Catenary Painting NHL (NYS)	SGR	.0	.7	2.5	.0	.0	3.2
16 Employee Welfare & Storage Fac	NR	1.1	3.9	.0	.0	.0	5.0
17 Beacon Line Undergrade Bridge	SGR	.4	.0	1.8	.0	.0	2.1
18 Systemwide Flood Control	SGR	.6	.0	.0	.0	.0	.6
Element Total 02		\$25.5	\$22.1	\$9.4	\$3.7	\$3.4	\$64.1
03 WEST OF HUDSON INFRASTRUCTURE							
01 West of Hudson Track Program	NR	11.8	.0	11.5	11.5	6.9	41.7
02 West of Hudson Improvements	NR	.5	.5	.5	.5	.5	2.5
03 Moodna/Woodbury Viad. W of H	NR	.0	.5	4.9	.0	.0	5.4
04 Otisville Tunnel - W of H	SGR	.0	.0	.0	1.1	.0	1.1
05 Undergrade Br Program - W of H	SGR	4.7	1.9	.0	.0	.0	6.5
Element Total 03		\$16.9	\$2.9	\$16.9	\$13.1	\$7.4	\$57.2
Category Total 503		\$98.0	\$54.7	\$48.0	\$39.3	\$24.1	\$264.2

* Represents values less than \$50,000

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
01 COMMUNICATIONS AND SIGNALS							
05 Replace CTC Systems (OCC/ECC)	NR	24.7	2.4	.0	.0	.0	27.1
07 Signal System Repl. UH/NHL	NR	21.4	6.6	.0	.0	.0	28.0
08 Improve Upper Hud Signal Power	SI	.0	.0	.0	.0	1.0	1.0
10 Upgrade Grade Crossings	NR	.2	.4	.4	.0	.0	1.0
11 C&S Cable Repl. GCT to Mott	NR	4.2	.0	.0	.0	.0	4.2
12 Vital Processor System (GCT)	NR	.0	1.1	1.3	4.2	.0	6.5
13 Refur/Repl Electric Sw. Machin	NR	1.0	.0	.0	.0	.0	1.0
14 Replace High Cycle Rate Relays	NR	.8	.0	.0	.0	.0	.8
15 Design/Repl Track Relays - H&H	NR	2.6	.0	.0	.0	.0	2.6
16 Repl. Interlock/Siding W of H	NR	.4	.6	.0	1.1	.0	2.1
Element Total 01		\$55.4	\$11.0	\$1.7	\$5.3	\$1.0	\$74.3
Category Total 504		\$55.4	\$11.0	\$1.7	\$5.3	\$1.0	\$74.3

* Represents values less than \$50,000

Metro-North Railroad

POWER M- 505

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
01 POWER								
01	Substation Bridge 23	NR	.0	12.8	.0	.0	.0	12.8
02	Substation Retrofit - H & H	NR	13.1	.0	.0	.0	.0	13.1
03	Harl River Lift Br. Brk Houses	NR	1.6	.0	4.7	.0	.0	6.3
04	Alum 3rd Rail and E-Rail GCT	NR	2.1	.0	.0	.0	.0	2.1
05	Replace Substation Batteries	NR	1.0	.0	.0	.0	.0	1.0
06	Replace Motor Alternators	NR	.5	.0	5.5	.0	.0	6.0
07	Install High Speed DC Circuit	NR	2.1	.0	.0	.0	.0	2.1
08	H & H Lines Power Impr.	NR	2.5	11.5	30.2	.0	.0	44.2
09	Rehab H & Hudson Lines Subst.	NR	.5	9.8	.6	.0	.0	10.9
10	Install Sec. Switches GCT	SI	.1	4.1	.0	.0	.0	4.2
Element Total 01			\$23.6	\$38.2	\$41.0	\$0	\$0	\$102.7
Category Total 505			\$23.6	\$38.2	\$41.0	\$0	\$0	\$102.7

* Represents values less than \$50,000

Metro-North Railroad

SHOPS AND YARDS

M- 506

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
01 SHOPS AND YARDS								
01	Misc. Building Rehabilitation	NR	2.5	.0	.0	.0	.0	2.5
02	Brewster Yard Improvements	SI	1.3	.0	.0	.0	3.5	4.8
03	HarmonShop Replcmnt-MasterPlan	NR	194.1	33.8	.0	15.0	.0	243.0
05	Highbridge Yard Improvements	SI	1.0	.0	8.8	.0	.0	9.8
06	Poughkeepsie Yard Improvements	SI	.0	.0	.0	1.1	.0	1.1
07	Shops&Yards Misc. Env Imprvmts	SI	1.6	.0	.0	.0	.0	1.6
Element Total 01			\$200.5	\$33.8	\$8.8	\$16.1	\$3.5	\$262.8
Category Total 506			\$200.5	\$33.8	\$8.8	\$16.1	\$3.5	\$262.8

* Represents values less than \$50,000

Metro-North Railroad

MISCELLANEOUS

M- 508

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
01 MISCELLANEOUS								
02	Systemwide Lead/Asbestos Abate	SI	5.5	.0	.0	.0	.0	5.5
03	Environmental Remediation	SI	2.2	.0	.0	.0	.0	2.2
04	Railroad Protective Liability		.7	.7	.7	.7	.7	3.3
05	Independent Engineer		.7	.7	.7	.7	.7	3.5
06	Program Administration		7.9	7.9	7.9	7.9	7.9	39.7
07	Program Scope Development		11.6	.0	.0	.0	.0	11.6
08	OCIP		13.1	.0	.0	.0	.0	13.1
09	Customer & Employee Comms.	SGR	1.2	7.9	.0	.0	.0	9.0
Element Total 01			\$42.9	\$17.2	\$9.3	\$9.3	\$9.3	\$87.9
Category Total 508			\$42.9	\$17.2	\$9.3	\$9.3	\$9.3	\$87.9
TOTAL PROGRAM			\$801.9	\$299.0	\$166.0	\$89.8	\$52.5	\$1,409.3

* Represents values less than \$50,000

CRR AGENCY SUMMARY

Commitments (\$ in millions)						
AGENCY	2005	2006	2007	2008	2009	Totals 2005-2009
TOTAL LIRR PROGRAM	\$404.9	\$807.0	\$345.9	\$458.5	\$409.6	\$2,426.0
TOTAL MNR PROGRAM	\$801.9	\$299.0	\$166.0	\$89.8	\$52.5	\$1,409.3
TOTAL	\$1,206.9	\$1,106.0	\$511.9	\$548.3	\$462.2	\$3,835.3
TOTAL MTA CAPITAL PROGRAM	\$1,206.9	\$1,106.0	\$511.9	\$548.3	\$462.2	\$3,835.3



Bridges and Tunnels

Structures D - 501

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
AW Agency-Wide							
04 Program Contingency		14.5	20.2	7.5	8.3	6.4	56.8
Element Total AW		\$14.5	\$20.2	\$7.5	\$8.3	\$6.4	\$56.8
BB Brooklyn-Battery Tunnel							
28 Rehabilitation of Tunnel Walls	NR	.0	.9	2.5	.0	.0	3.4
Element Total BB		\$0.0	\$0.9	\$2.5	\$0.0	\$0.0	\$3.4
BW Bronx-Whitestone Bridge							
84 Cable and Anchorage Investig.	NR	11.8	.0	.0	.0	.0	11.8
85 Critical Panel Unwrapping	NR	.0	.0	10.5	.0	.0	10.5
86 Partial Replacement of Suspend	NR	.0	.0	7.7	.0	.0	7.7
Element Total BW		\$11.8	\$0.0	\$18.2	\$0.0	\$0.0	\$30.1
CB Cross-Bay Bridge							
08 Deck and Structural Rehab	NR	48.8	.0	.0	.0	.0	48.8
09 Substructure/Underwater Repair	NR	8.4	.0	.0	.0	.0	8.4
Element Total CB		\$57.2	\$0.0	\$0.0	\$0.0	\$0.0	\$57.2
MP Marine Parkway Bridge							
02 Structural Steel Repairs	NR	.0	22.9	.0	.0	.0	22.9
Element Total MP		\$0.0	\$22.9	\$0.0	\$0.0	\$0.0	\$22.9
QM Queens Midtown Tunnel							
82 Rehab 2nd Avenue Overpass	NR	6.0	.0	.0	.0	.0	6.0
Element Total QM		\$6.0	\$0.0	\$0.0	\$0.0	\$0.0	\$6.0
TN Throgs Neck Bridge							
47 Catwalk Rehabilitation	NR	1.3	.8	13.1	.0	.0	15.2
85 Suspended Span Cable Rewrap.	NR	8.7	.0	.0	.0	.0	8.7
87 Anchorage & Tower Protection	NR	1.0	.0	1.6	9.1	.0	11.8
Element Total TN		\$11.0	\$0.8	\$14.7	\$9.1	\$0.0	\$35.7
Category Total 501		\$100.4	\$44.8	\$43.0	\$17.4	\$6.4	\$211.9

* Represents values less than \$50,000

Bridges and Tunnels

Roadways & Decks

D - 502

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
BW Bronx-Whitestone Bridge							
89 Elevated & On Grade (Bx) Appr.	NR	.0	.0	.0	133.1	.0	133.1
Element Total BW		\$0.0	\$0.0	\$0.0	\$133.1	\$0.0	\$133.1
HH Henry Hudson Bridge							
04 Replacement of Cross Drainage	NR	.4	.0	.0	1.7	.0	2.1
80 Replacement / Rehabilitation	NR	4.2	46.6	.0	.0	.0	50.9
Element Total HH		\$4.7	\$46.6	\$0.0	\$1.7	\$0.0	\$52.9
TB Triborough Bridge							
64 Replacement of Decks at R. I.	NR	293.4	.0	.0	.0	.0	293.4
Element Total TB		\$293.4	\$0.0	\$0.0	\$0.0	\$0.0	\$293.4
TN Throgs Neck Bridge							
50 Replacement of Concrete Deck	NR	.6	.8	1.0	15.3	.0	17.7
82 Rehabilitation of Orthotropic	NR	3.4	1.4	64.5	.0	.0	69.3
Element Total TN		\$4.0	\$2.2	\$65.5	\$15.3	\$0.0	\$87.0
VN Verrazano-Narrows Bridge							
17 Rehabilitation of Approach	NR	.0	65.6	.0	.0	.0	65.6
80 Rehab Decks on Susp Spans	NR	9.5	.0	.0	100.5	.0	110.0
84 Widening of Belt Parkway Ramps	SI	.0	7.4	.0	.0	.0	7.4
Element Total VN		\$9.5	\$72.9	\$0.0	\$100.5	\$0.0	\$182.9
Category Total 502		\$311.6	\$121.8	\$65.5	\$250.5	\$0.0	\$749.4

* Represents values less than \$50,000

Bridges and Tunnels

Toll Plazas & Traffic Mgmt Sys D - 503

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
AW Agency-Wide							
35 Weather Information Systems	NR	.4	.0	2.0	.0	.0	2.4
36 Installation of CCTV/Fiber Opt	SI	.0	1.4	.0	6.9	.0	8.3
37 Operation Centers, ITS Systems	SI	.0	.3	.0	3.2	.0	3.5
46 Violations Enhancement System	SI	.0	1.6	.0	7.0	.0	8.6
47 Digital Video Surveillance Sys	NR	.0	.6	.0	4.0	.0	4.6
48 2nd Generation E-Zpass In-Lane	NR	.0	1.7	.0	9.7	.0	11.4
49 E-Zpass Systems Infrastructure	NR	1.7	.0	.0	10.0	.0	11.7
52 Adv. Automated Traffic Detect.	SI	1.7	.0	9.7	.0	.0	11.4
54 Sub-Regional Integration	SI	.3	.0	.0	1.8	.0	2.1
Element Total AW		\$4.1	\$5.6	\$11.7	\$42.6	\$0	\$64.0
BW Bronx-Whitestone Bridge							
12 New Toll Plaza (Design)	SI	7.5	.0	.0	.0	.0	7.5
Element Total BW		\$7.5	\$0	\$0	\$0	\$0	\$7.5
HH Henry Hudson Bridge							
85 Upper Level Toll Plaza Deck	NR	1.7	.0	3.2	16.0	.0	20.9
Element Total HH		\$1.7	\$0	\$3.2	\$16.0	\$0	\$20.9
Category Total 503		\$13.3	\$5.6	\$14.9	\$58.5	\$0	\$92.3

* Represents values less than \$50,000

Bridges and Tunnels

Utilities

D - 504

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
AW Agency-Wide								
80	Variable Message Signs	SI	11.3	.0	.0	.0	.0	11.3
82	Alternate Fuel Storage	SI	.0	.7	.0	4.2	.0	4.9
Element Total AW			\$11.3	\$7.7	\$0.0	\$4.2	\$0.0	\$16.2
BB Brooklyn-Battery Tunnel								
15	Expand and Upgrade the Control	NR	.6	4.5	.0	.0	.0	5.2
45	Rehabilitation of Tunnel Vent.	NR	.0	2.8	.0	.0	.0	2.8
Element Total BB			\$6.6	\$7.3	\$0.0	\$0.0	\$0.0	\$7.9
QM Queens Midtown Tunnel								
31	Replace Supply Fan House	NR	.0	.0	.0	1.9	.0	1.9
Element Total QM			\$0.0	\$0.0	\$0.0	\$1.9	\$0.0	\$1.9
TN Throgs Neck Bridge								
51	Bridge Lighting and Fac Power	NR	1.3	.0	.8	13.1	.0	15.2
Element Total TN			\$1.3	\$0.0	\$0.8	\$13.1	\$0.0	\$15.2
Category Total 504			\$13.2	\$8.0	\$0.8	\$19.2	\$0.0	\$41.2

* Represents values less than \$50,000

Bridges and Tunnels

Buildings & Sites

D - 505

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
AW Agency-Wide							
12 Hazardous material abatement	SI	4.3	.0	.0	.0	.0	4.3
Element Total AW		\$4.3	\$0	\$0	\$0	\$0	\$4.3
BB Brooklyn-Battery Tunnel							
46 Pipe Gallery Rehabilitation	NR	.6	1.1	.0	.0	.0	1.8
47 New Sewer Connection-Gov Isl	NR	.0	1.8	.0	.0	.0	1.8
80 Rehabilitation of Ventilation	NR	.0	3.1	15.3	.0	.0	18.4
Element Total BB		\$6	\$6.1	\$15.3	\$0	\$0	\$22.0
QM Queens Midtown Tunnel							
01 QSB, FE bldgs rehab	NR	.8	.0	.0	6.2	.0	6.9
Element Total QM		\$8	\$0	\$0	\$6.2	\$0	\$6.9
TB Triborough Bridge							
34 New Service Building	NR	2.6	1.9	32.1	.0	.0	36.6
56 Tenant Relocation/New Building	NR	.0	.0	.0	2.0	16.5	18.5
57 Tenant Relocation/New Building	NR	.0	.0	2.3	.0	29.8	32.0
58 Rehab Robert Moses Bldg	NR	.0	.3	.1	1.3	.0	1.8
59 Rehabilitation of Building 104	NR	5.1	.0	16.2	.0	.0	21.3
Element Total TB		\$7.7	\$2.2	\$50.7	\$3.3	\$46.3	\$110.2
Category Total 505		\$13.4	\$8.3	\$66.0	\$9.5	\$46.3	\$143.5

* Represents values less than \$50,000

Bridges and Tunnels

Miscellaneous D - 506

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
AW Agency-Wide								
15	MTA Independent Engineer		2.1	.0	.0	.0	.0	2.1
18	Protective Liability Insurance		2.7	.0	.0	.0	.0	2.7
21	Program Administration		6.8	.0	.0	.0	.0	6.8
22	Miscellaneous		2.1	.0	.0	.0	.0	2.1
28	Scope Development		3.2	.0	.0	.0	.0	3.2
Element Total AW			\$16.9	\$0	\$0	\$0	\$0	\$16.9
Category Total 506			\$16.9	\$0	\$0	\$0	\$0	\$16.9
TOTAL PROGRAM			\$468.9	\$188.5	\$190.1	\$355.1	\$52.6	\$1,255.2

* Represents values less than \$50,000

ALL AGENCY SUMMARY

AGENCY	Commitments (\$ in millions)					Totals 2005-2009
	2005	2006	2007	2008	2009	
TOTAL NYCT PROGRAM	\$2,188.5	\$3,220.9	\$3,601.0	\$1,941.2	\$1,093.5	\$12,045.1
TOTAL SIR PROGRAM	\$47.5	\$8.8	\$23.4	\$6.2	\$0	\$85.9
TOTAL TRANSIT	\$2,236.0	\$3,229.7	\$3,624.4	\$1,947.3	\$1,093.5	\$12,131.0
TOTAL LIRR PROGRAM	\$404.9	\$807.0	\$345.9	\$458.5	\$409.6	\$2,426.0
TOTAL MNR PROGRAM	\$801.9	\$299.0	\$166.0	\$89.8	\$52.5	\$1,409.3
TOTAL COMMUTER RAIL	\$1,206.9	\$1,106.0	\$511.9	\$548.3	\$462.2	\$3,835.3
TOTAL B&T PROGRAM	\$468.9	\$188.5	\$190.1	\$355.1	\$52.6	\$1,255.2
TOTAL	\$468.9	\$188.5	\$190.1	\$355.1	\$52.6	\$1,255.2
TOTAL MTA CAPITAL PROGRAM	\$3,911.8	\$4,524.3	\$4,326.5	\$2,850.7	\$1,608.3	\$17,221.5

MTA SECURITY

MTA SECURITY

2005-2009 CAPITAL PROGRAM

OVERVIEW

In the wake of the September 11, 2001 terrorist attacks on the World Trade Center, the MTA initiated an intense planning effort to determine how to best protect its customers and key assets from a terrorist incident. In late 2001, experts in this field defined critical vulnerabilities and determine appropriate protective or response strategies. The result of these efforts was the implementation of a multi-faceted effort. This effort included developing immediate near-term operating initiatives to protect vulnerable locations; developing a set of mid-term protective measures that included both operating and smaller-scale capital initiatives to protect vulnerable assets and enhance response capabilities; and finally, identifying 57 longer-term large-scale capital investments to harden vulnerable assets and implement the networks and equipment necessary to conduct targeted surveillance, control access, stop intrusion and provide the command and control systems to support incident response.

The 2000-2004 Capital Program was amended to allocate \$591 million to fund the first 24 of the large-scale projects plus some additional supporting investments. In spring of 2003, the top six priority projects of this group received \$143 million from the Department of Homeland Security.

The MTA's proposed 2005-2009 Capital Program includes an allocation of \$478 million to fund the remaining 33 large-scale projects previously identified. In addition, \$17 million for smaller-scale agency initiatives related to enhancing security readiness are included to support these larger capital initiatives (See Table 8). The MTA will vigorously pursue funding from Homeland Security and other federal sources to fund these critical projects. In the absence of all or part of Federal funds, alternate funding sources will need to be identified.

Table 8
MTA Security
2005-2009 Capital Program
(\$ in millions)

Category	Plan
Vulnerability Assessment Projects	\$478.0
Security Readiness Support Initiatives	17.0
Total	\$495.0

MTA SECURITY PROGRAM PLAN

Due to the sensitive nature of the security planning effort, the 2005-2009 Capital Program identifies a single budgetary reserve for \$478 million, which will be used to progress the remaining 33 large-scale initiatives identified by the terrorist experts' analysis. A \$17 million budgetary reserve is also created for 2005-2009 to fund smaller scale initiatives that will support and complement the larger projects upon their completion.

PROGRAM PROJECT LISTING

Security

SECURITY E - 501

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005 - 2009
01 SECURITY								
01	Security Reserve: 33 Projs	SI	95.6	95.6	95.6	95.6	95.6	478.0
02	Security Readiness Initiatives	SI	17.0	.0	.0	.0	.0	17.0
Element Total 01			\$112.6	\$95.6	\$95.6	\$95.6	\$95.6	\$495.0
Category Total 501			\$112.6	\$95.6	\$95.6	\$95.6	\$95.6	\$495.0
TOTAL PROGRAM			\$112.6	\$95.6	\$95.6	\$95.6	\$95.6	\$495.0

NETWORK EXPANSION

MTA CAPITAL CONSTRUCTION

MTA CAPITAL CONSTRUCTION 2005-2009 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. MTA's expansion projects are guided by New York State Governor George E. Pataki's "Master Links" program or as a special City initiative to develop the far West Side of Manhattan.

The MTA CCC's proposed 2005-2009 Capital Program will focus on the following projects (see Table 9 and Figure 7), which will expand the nation's largest transportation network:

- Construct East Side Access (ESA), which will bring Long Island Rail Road commuters into Grand Central Terminal, creating a terminal on Manhattan's East Side to complement Penn Station on the West Side.
- Construct the initial phase of Second Avenue Subway, which will relieve the pressure on New York City Transit's overcrowded Lexington Avenue Line and improve access to downtown Manhattan.
- Design and construct a direct rail link between Lower Manhattan, Jamaica and JFK International Airport.
- Construct an extension of New York City Transit's Flushing (#7) subway line (to be funded by the City of New York) in coordination with plans to develop Manhattan's Far West side.

Figure 5
MTA Capital Construction Company Projects



Table 9
MTA Capital Construction Company
2005-2009 Proposed Capital Program
(\$ in millions)

Project	Total Estimated Cost	2005-2009 Proposed Capital Program	2005-2009 Expected Funding From Federal Sources and Project Stakeholders	2005-2009 Net MTA Need
East Side Access*	\$6,306	\$4,596	\$2,298	\$2,298
Second Avenue Subway**	\$16,800	\$2,825	\$1,413	\$1,413
7 West Extension ***	\$2,053	\$1,990	\$1,990	\$0
LIRR from Jamaica/JFK Airport to Lower Manhattan	TBD	\$400	\$0	\$400
MTA CCC Administration	TBD	\$120	\$0	\$120
Total Net MTA Need				\$4,231

Numbers may not total due to rounding

* ESA \$6.3 billion project estimate includes \$52.3 million of non-ESA funds – \$40.5million in the 2000-2004 Capital Program and \$11.9 million in the proposed 2005-2009 Capital Program. ESA \$4.6 billion Proposed Capital Program estimate excludes non-ESA funds.

** 2005-2009 funding is for the first phase of the full-length Second Avenue Subway.

*** Includes costs funded in the 2000-2004 Capital Program

MTA CAPITAL CONSTRUCTION PROGRAM PLAN

MTA CAPITAL CONSTRUCTION

EAST SIDE ACCESS

CATEGORY G-509

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 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 Grand Central Terminal (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. The project will also construct a new passenger station at Sunnyside and new train storage yards in Queens and the Bronx.

Specific project construction details include:

- Construction of 3.5 route-miles (7 miles of tunnels) in Queens and Manhattan
- Construction of two new LIRR stations – at GCT and Sunnyside
- Construction of a new concourse and entrances at GCT
- Construction of a new storage yard at Arch St. in Queens
- Reconfiguration of LIRR's Harold Interlocking
- Reconstruction of a portion of Yard A for storing trains that serve GCT
- Construction of a new storage yard for Metro-North Railroad in the Bronx (Highbridge)

The cost for bringing the LIRR to Grand Central Terminal is estimated to be approximately \$6,306 million.

Major milestones and forecasts

Start Preliminary Design	March 1999
Obtain Record of Decision	May 2001
Start Early Construction Activities	September 2001
Complete Final Design	4 th Quarter 2008
Complete Construction	4 th Quarter 2011
Begin Revenue Service to GCT	2 nd Quarter 2012

Prior Program Highlights / Accomplishments

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 included \$1,500 million of ESA funds and \$40.5 million in non-ESA funds to continue design and to begin construction of major elements of the project. This included the following:

- Clean-up and preparation of the existing LIRR yards in Sunnyside, Queens and excavation of the existing 63rd St. tunnel bellmouth structure. This work is completed.
- Open-cut excavation in the existing yard and construction of permanent tunnel structures.
- Construction of a new Metro-North Railroad Highbridge maintenance facility and storage yard in the Bronx that will replace MNR's Madison Ave. Yard in Grand Central Terminal. The yard has achieved beneficial use.
- Major demolition, civil and structural work and relocation of existing MNR tracks in the GCT Madison Ave. Yard in preparation of future construction of a passenger concourse for LIRR passengers.
- Construction of the Arch St. LIRR Maintenance and Repair facility for the rolling stock that will support LIRR's GCT service. (Prior to starting service to GCT, LIRR will use this as an acceptance facility for their new fleet of electric cars.)
- Excavation of tunnels in Manhattan from the existing 63rd St. tunnel at 2nd Ave. to the new station caverns at GCT.
- Procurement of long lead materials for force account construction at Harold and construction of new interlockings.

The Proposed 2005-2009 Capital Program

The Proposed 2005-2009 Capital Program contains \$4,595.6 million in ESA funds and \$11.9 million in non-ESA funds to complete all major construction elements and to provide LIRR service to GCT by June 2012. 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 (\$832 million)
- Construction and fit-out of the new LIRR concourse and mezzanines and Grand Central Terminal (\$374 million)
- Construction of new entrances (\$64 million)
- Reconfiguration of the Harold Interlocking and yard lead (\$438 million)
- Construction of bored tunnels under Sunnyside Yard and Harold Interlocking (\$119 million)
- Construction of a mid-day yard to store rolling stock (\$185 million)
- Construction of a new station at Sunnyside (\$48 million)
- Procurement of 180 electric cars (\$460 million)
- Purchase of required real estate interests (\$132 million)

MTA CAPITAL CONSTRUCTION

SECOND AVENUE SUBWAY

CATEGORY G-510

The purpose of the full-length Second Avenue Subway 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 Ave. 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 Ave. 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 Ave. 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 and recently completed 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 would operate along

the full length of the route between 125th St. and Hanover Square. The other would operate along Second Ave. from 125th St. to 63rd St., then travel west along the existing 63rd St. line and join the Broadway line (currently served by the N, R Q, W) 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 is estimated to cost a total of \$16.8 billion, based on year of expenditure dollars. It will be implemented over 16 years, providing for four operational phases. These could potentially overlap and include: 1) 105th St. to 62nd St., including connection 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

The 1995-1999 Capital Program included \$5.2 million to fund the MESA study. 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 approval from the FTA.
- Receive Record of Decision from FTA in July 2004.
- Conducted construction industry outreach, and requested proposals for the first tunneling contract of Phase 1.

The Proposed 2005-2009 Capital Program

The Proposed 2005-2009 Capital Program contains \$2.75 billion to complete Phase 1 construction. The total cost for Phase 1 is \$3.8 billion, including the \$1.05 billion from the 2000-2004 Capital Program. All elements of project management, insurance, and real estate necessary to support construction of Phase 1 are also funded. In addition, the proposed plan provides \$75 million to begin final design of the Phase 2 segment. At the completion of Phase 1, service will operate between 96th St. and Second Ave. and Brooklyn via the Broadway line. The scope of Phase 1 includes:

- Constructing 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.
- Constructing 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.

MTA CAPITAL CONSTRUCTION

7 WEST EXTENSION

CATEGORY G-511

In order to remain competitive in the global marketplace, the City of New York has identified the Far West Side Manhattan corridor - the "Hudson Yards" - as an area that can uniquely help meet the demands for commercial, retail, and residential space in the region. The New York City Planning Commission and New York City Transit are jointly carrying out a single, comprehensive environmental review and analysis of extending Transit's Flushing (#7) line service to, and in conjunction with, proposed rezoning of far west Midtown Manhattan. The environmental review also analyzes a proposed expansion of the Jacob K. Javits Convention Center and construction of a multi-use sports and entertainment facility. The Extension supports the development that the rezoning permits, while the value of the new development finances the Extension. The City will fund construction of the Extension.

Project Description

This project will extend the #7 line from its current terminus at the Times Square station near 41st St. and 8th Ave. west to 11th Ave. and then south to the vicinity of 24th St.

Specific project construction details include:

- Construction of approximately 7,000 feet of twin bore tunnels
- Construction of two new stations: a two-track station near 41st St. and 10th Ave. and a three track terminal station near 34th St. and 11th Ave.
- Approximately 1,800 feet of layup track south of the terminal station.
- Providing track, traction power, electrical, signaling and communications systems.

It is anticipated that the Extension will be constructed through six major contracts issued over a three-year period. The major contracts will be for tunnels, station caverns and structures, power, track, communication, and signal work.

Prior Program Highlights / Accomplishments

The 2000-2004 Capital Program included \$63 million for environmental study and preliminary engineering. Major highlights include:

- Began conceptual engineering and the environmental review in September 2002.
- After issuing the environmental assessment and conducting a public scoping process, identified the preferred alternative for the Extension in May 2003.
- Completed the Draft Environmental Impact Statement in June 2004 for public comment.
- Conducted construction industry outreach, and requested proposals for a tunneling contract. Starting final design and awarding the construction contract are contingent on completion of the environmental review process and provision of funding by the City of New York.

The Proposed 2005-2009 Capital Program

The proposed 2005-2009 Capital Program contains \$1.99 billion to construct the Extension. The total project cost is \$2.053 billion, including \$63 million from the 2000-2004 Capital Program referenced above. All elements of project management, insurance, and real estate necessary to support construction are also funded. (The "outfitting" of the 41st St. station would be deferred until a future date per the City's request.)

MTA CAPITAL CONSTRUCTION LOWER MANHATTAN RAIL LINK TO JFK CATEGORY G-515

As a result of the attack on the World Trade Center complex in 2001, the Lower Manhattan Development Corporation (LMDC), under the leadership of Governor George Pataki, has identified improvements in commuter access between Jamaica, Brooklyn and Lower Manhattan and improvements in access to JFK Airport as key elements needed to support the Downtown area's economic recovery and its ability to compete with other World economic centers such as London, Berlin and Tokyo.

A feasibility study undertaken by the LMDC in cooperation with the MTA, the Port Authority, and the NYC Economic Development Corporation determined that the leading strategy to address both goals was to provide a direct rail link from Jamaica to Lower Manhattan using the existing LIRR Atlantic Branch and a new tunnel underneath the East River and Lower Manhattan. Direct airport service would be provided via a connection from the Atlantic Branch to the Port Authority's AirTrain system at Jamaica. Other strategies using existing subway tunnels should continue to be explored in the next study phase.

The Proposed 2005-2009 Capital Program

The proposed 2005-2009 Capital Program includes \$400 million as the MTA's contribution to the design and construction of this rail link.

MTA CAPITAL CONSTRUCTION MISCELLANEOUS CATEGORY G-516

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 will establish an organization of core management personnel. Project support for planning, design and construction management will be provided by staff that is matrixed from the sponsor operating agencies and MTA headquarters. MTA Capital Construction Company is establishing consistent procedures, standards and guidelines that will be applied to all the projects under its management.

The Proposed 2005-2009 Capital Program

The proposed 2005-2009 Capital Program requests \$120 million to manage these projects and for incidental project costs not eligible for federal reimbursement.

PROGRAM PROJECT LISTING

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005-2009
01 EAST SIDE ACCESS							
51 Program Management Services	NE	.0	29.9	26.5	.0	18.6	75.0
52 Construction Management	NE	.0	34.2	2.0	45.3	24.0	105.5
53 General Conditions	NE	.0	12.7	.0	.0	.0	12.7
54 Gen'l Engineering Contracts	NE	.0	70.6	.0	.0	.0	70.6
55 Force Account Design Support	NE	.0	6.0	1.6	.8	.0	8.4
56 Real Estate	NE	15.0	83.3	13.8	.9	19.1	132.0
57 Purchase Rolling Stock	NE	.0	.0	.0	400.0	60.0	460.0
58 MTA Management	NE	.0	12.0	12.0	11.0	29.2	64.2
59 OCIP	NE	19.0	104.5	.0	.0	.0	123.5
60 GCT Caverns,63rd StTun Rehab	NE	.0	.0	832.1	.0	.0	832.1
61 Vent Plant Facilities	NE	.0	101.0	.0	.0	.0	101.0
62 GCT Concourse/Caverns Finish	NE	.0	.0	373.9	.0	.0	373.9
63 GCT Surface Entrances	NE	.0	.0	64.1	.0	.0	64.1
64 Lexington IRT Improvements	NE	.0	.0	12.5	.0	.0	12.5
65 Queens Soft-Ground Tunnels	NE	.0	423.2	.0	.0	.0	423.2
66 Tunnel Structure@Rail Yard	NE	.0	.0	.0	118.8	.0	118.8
67 Mid-Day StorageYard Facility	NE	.0	.0	.0	185.1	.0	185.1
68 Sunnyside Passenger Station	NE	.0	.0	.0	.0	47.6	47.6
69 Amtrak Building Demo/Relo	NE	.0	24.6	.0	.0	.0	24.6
70 Procure Rail Fastners	NE	.0	10.0	.0	.0	.0	10.0
71 Procure/Install Track/3rdRail	NE	.0	.0	89.1	.0	.0	89.1
72 Various System Elements	NE	.0	.0	.0	450.2	.0	450.2
73 Tunnel Ventilation	NE	.0	.0	.0	141.8	.0	141.8
74 Harold & Point Cent. Inst. Loc	NE	.0	64.9	.0	.0	.0	64.9
75 F Interlocking Cent. Inst. Loc	NE	.0	19.8	.0	.0	.0	19.8
76 Harold Structures - Part 2	NE	.0	131.9	.0	.0	.0	131.9
77 Harold Structures - Part 3	NE	.0	.0	.0	122.0	.0	122.0
78 Cross-Connector Tunnel	NE	.0	.0	104.8	.0	.0	104.8
79 Q Interlocking Cent. Inst. Loc	NE	.0	.0	5.2	11.6	.0	16.8
80 Loop Interlocking Cent. Inst.	NE	.0	.0	.0	1.7	4.5	6.2
81 Harold Stage 1 - Amtrak F/A	NE	.0	15.9	.0	.0	.0	15.9
82 Harold Stage 2 - Amtrak F/A	NE	.0	.0	6.4	.0	.0	6.4
83 Harold Stage 3 - Amtrak F/A	NE	.0	.0	.0	.0	2.9	2.9
84 Harold Stage 4 - Amtrak F/A	NE	.0	.0	.0	.0	.7	.7
85 Harold Stage 1 - LIRR F/A	NE	.0	52.1	.0	.5	.2	52.8
86 Harold Stage 2 - LIRR F/A	NE	.0	.0	31.0	.0	.0	31.0
87 Harold Stage 3 - LIRR F/A	NE	.0	.0	.0	.0	17.8	17.8
88 Harold Stage 4 - LIRR F/A	NE	.0	.0	.0	.0	11.5	11.5
89 Amtrak Material - Stage 2	NE	.0	3.3	.0	.0	.0	3.3
90 Amtrak Material - Stage 3	NE	.0	.0	.0	6.6	.0	6.6
91 Amtrak Material - Stage 4	NE	.0	.0	.0	.0	2.4	2.4
92 LIRR Material - Stage 2	NE	.0	28.9	.0	.0	.0	28.9
93 LIRR Material - Stage 3	NE	.0	.0	.0	14.9	.0	14.9
94 LIRR Material - Stage 4	NE	.0	.0	.0	.0	8.4	8.4
Element Total 01		\$34.0	\$1,228.5	\$1,574.9	\$1,511.1	\$247.2	\$4,595.6
Category Total 509		\$34.0	\$1,228.5	\$1,574.9	\$1,511.1	\$247.2	\$4,595.6
50% Federal Funds							\$2,297.8
Net MTA Cost							\$2,297.8

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005-2009
01 SECOND AVENUE SUBWAY								
01	Construction	NE	.0	1,208.0	1,118.0	49.0	.0	2,375.0
02	Real Estate	NE	.0	.0	69.0	.0	.0	69.0
03	Rolling Stock	NE	.0	.0	.0	.0	306.0	306.0
04	Final Design Phase 2	NE	.0	.0	.0	75.0	.0	75.0
Element Total 01			\$0	\$1,208.0	\$1,187.0	\$124.0	\$306.0	\$2,825.0
Category Total 510			\$0	\$1,208.0	\$1,187.0	\$124.0	\$306.0	\$2,825.0
50% Federal Funds								\$1,412.5
Net MTA Cost								\$1,412.5

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005-2009
01 FLUSHING LINE EXTENSION								
01	Construction	NE	366.0	910.0	.0	634.0	.0	1,910.0
02	Final Design	NE	80.0	.0	.0	.0	.0	80.0
Element Total 01			\$446.0	\$910.0	\$0.0	\$634.0	\$0.0	\$1,990.0
Category Total 511			\$446.0	\$910.0	\$0.0	\$634.0	\$0.0	\$1,990.0
100% City Funds								\$1,990.0
Net MTA Cost								\$0.0

Capital Construction Company

LWR MANHATTAN RAIL LINK TO JFK
G- 515

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005-2009
01 LWR MANHATTAN RAIL LINK TO JFK								
01	Lwr Manhattan Rail Link to JFK	NE	.0	.0	400.0	.0	.0	400.0
Element Total 01			\$0	\$0	\$400.0	\$0	\$0	\$400.0
Category Total 515			\$0	\$0	\$400.0	\$0	\$0	\$400.0
Net MTA Cost								\$400.0

		Commitments (\$ in millions)						
ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005-2009
01 MTA CC ADMINISTRATION								
01	MTA Capital Const. Admin.	NE	20.0	40.0	20.0	20.0	20.0	120.0
Element Total 01			\$20.0	\$40.0	\$20.0	\$20.0	\$20.0	\$120.0
Category Total 516			\$20.0	\$40.0	\$20.0	\$20.0	\$20.0	\$120.0
							Net MTA Cost	\$120.0

MTA INTERAGENCY

MTA INTERAGENCY 2005-2009 CAPITAL PROGRAM OVERVIEW

Included for the first time in the MTA's capital program as a separate investment category are capital projects for the MTA's police department. The MTA Police Department was consolidated in 1998 from separate departments at the Long Island Rail Road and Metro-North Railroad. Capital investments supporting police facilities and equipment have been traditionally included in the MTA five-year plans but were funded in the context of the agency capital programs. With the consolidation of the railroad police departments, the capital needs for the new MTA Police Department are being presented here.

Additionally, this section of the capital plan budgets the purchase of computer hardware and software that will support the MTA-wide integrated systems initiative.

Table 10
MTA Interagency
2005-2009 Capital Program
(\$ in millions)

Category	Plan
MTA Police Department	\$69.1
Integrated Systems	75.0
Total	\$144.1

MTA INTERAGENCY

MTA POLICE DEPARTMENT

CATEGORY N-510

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. Prior to the consolidation, capital improvements associated with police needs at the LIRR and MNR were addressed as part of the respective agencies capital programs. Beginning with the 2005-2009 Capital Program, the MTA will establish a dedicated capital program needed by the MTA Police to accomplish its mission of providing safety/security throughout the MTA network.

The Proposed 2005-2009 Capital Program

The MTA Police Department's proposed 2005-2009 Capital Program will focus on the following list of projects, including predominately facilities, communication systems and emergency service units, which are required to allow the Police to effectively perform their duty of protecting our customers and the overall MTA system-wide infrastructure in the post 9/11 environment (See Table 11).

Table 11
MTA Police Department
2000-2004 Capital Program by Investment Category
(\$ in millions)

Project	Plan
Suffolk County District Office	\$4.7
Nassau County District Office	1.3
K-9 Training Facility	2.3
Specialty Units Facility	3.7
Emergency Service Units	1.0
Engineering/Consultant Services	2.1
Program Contingency/Administration	3.8
Public Safety Radio	45.0
Communication Center Backup	2.0
Archive/Digital Backup System	0.2
Integrated Incident Mgt. System	0.3
Access Control	1.2
Enhanced 911	1.5
Total:	\$69.1

Numbers may not total due to rounding

Suffolk County District Office: District 1

The current District 1 office is located in Ronkonkoma Station and at 1,800 square feet is

severely undersized and lacking of the many basic requirements needed to effectively operate a police district office, such as holding cells and interview rooms. This project will be to perform the design and construction of a new 10,000 square foot facility to be located at the former Central Islip Station. The new facility not only will allow for the required elements (holding cell, interview room, evidence collection rooms, etc) currently lacking at the current facility, but it also will provide space for the future expansion of the MTA Police force. The total cost in the 2005-2009 Capital Program is \$4.72 million.

Nassau County District Office: District 2

In a joint project with MTA Long Island Rail Road, MTAPD will purchase and rehabilitate a facility in Mineola, in order to house administrative personnel in District Two. (Currently, personnel for this district 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 2005-2009 Capital Program is \$1.33 million.

K-9 Training Facility

The K9 unit currently has 17 teams of dogs and handlers, with each dog trained in detection of explosives and incendiary devices as well as patrol. Currently, there is no training facility owned or operated by the unit. Instead, the unit has had to utilize facilities owned and operated by other agencies. The department plans to design and construct a new training facility to accommodate its current K9 unit and any future needs. The new facility will allow for decreased dependency on outside agencies, thus, decreased operating costs as well as increased training sessions. The facility will include, a building, railcars on tracks with makeshift crossings and platforms for training exercises. Total cost in the 2005-2009 Capital Program is \$2.3 million.

Specialty Units Facility

A permanent facility will be constructed to be shared by MTAPD's Highway Safety and the Emergency Service Units (ESU). Currently, the Highway and the two ESU (East & North) units do not have a permanent separate facility that can accommodate their equipment and vehicles - the Highway Unit is housed in a MTA B&T facility at the Bronx-Whitestone Bridge, and the ESU units are in the LIRR Hillside Maintenance Facility. The proposed joint facility will be a reporting location with offices and garage space to store vehicles, and motorcycles as well as lockers, adequate and secure storage space for special equipment. Total cost in the 2005-2009 Capital Program is \$3.66 million.

Emergency Service Units Vehicles

The Emergency Services Unit is the MTAPD's specialized rapid deployment team. They are trained to offer medical assistance and provide tactical support in the event of an emergency. ESU vehicles will be purchased to transport specialized equipment. Total cost in the 2005-2009 Capital Program is \$0.98 million.

Public Safety Radio

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 mitigating lack of coverage issues, allowing interoperability among participating agencies of the SWN and standardization to one system for the MTA Police. Total cost in the 2005-2009 Capital Program is \$45 million.

Communications Center Backup

This project will provide for a Backup Communications Center for the MTA Police in order to continue normal operations/dispatching in the event of an emergency or significant outages at the current center. Total cost in the 2005-2009 Capital Program is \$2 million.

Archive/Digital Backup System

This project will provide the MTA Police with an automated system for performing tape backups for the department's servers in addition to providing redundancy at the backup communications center. Total cost in the 2005-2009 Capital Program is \$0.2 million.

Integrated Incident Management System (IIMS)

The IIMS will provide real-time information and data recovery in the event of power interruption. The information is shared between all participating agencies (NYSP, NYPD, NYS DOT, NYC DOT and MTA agencies), providing detailed text and video information for first responders in the event of an emergency. The system will include client applications, vehicle video systems and mapping components. Total cost in the 2005-2009 Capital Program is \$0.25 million.

Access Control

This project will provide for the standardization and centralization of all Police facilities access control methods. The access control system will consist of a central control server, facility management and monitoring capabilities, and identification cards management and video surveillance of building perimeters. Total cost in the 2005-2009 Capital Program is \$1.2 million.

Enhanced 911

This project will provide for a fully independent telephone system located in the MTA Police data center and at the Communication Center with telecommunication diversity for failure recover and enhanced 911 services. Total cost in the 2005-2009 Capital Program is \$1.5 million.

MTA INTERAGENCY MTA INTEGRATED SYSTEMS INITIATIVE CATEGORY N-511

In order to provide comprehensive, integrated information to MTA corporate directors in furtherance of MTA's corporate governance initiatives as well as to respond to recent state comptroller's regulations, MTA intends to continue development of an MTA-wide system to integrate inter-agency financial, human resource and other support service information and work processes. This will ensure uniformity amongst the agencies, better internal controls over redundancies and inefficiencies and a higher level of information to all decision makers.

The business plan for this initiative is currently being developed. Information systems supporting the implementation of the new business plan and processes will need to be purchased and programmed. The Proposed 2005-2009 Capital Plan includes \$75 million for the purchase of the necessary computer hardware and software, consulting services, and the costs associated with the redesign of work processes.

PROGRAM PROJECT LISTING

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT	NEEDS CODE	2005	2006	2007	2008	2009	Total 2005-2009
01 MTA PD PROJECTS							
01 Suffolk County District Office	NR	4.7	.0	.0	.0	.0	4.7
02 Nas. Cty Dist. Office (Purch)	NR	1.3	.0	.0	.0	.0	1.3
03 Nas. Cty Dist. Office (Fitout)	NR	.0	.0	.0	.0	.0	.0
04 K-9 Facility	SI	2.3	.0	.0	.0	.0	2.3
05 Highbridge Yd Speciality Units	NR	3.7	.0	.0	.0	.0	3.7
06 Emergency Service Units (4)	NR	.0	.5	.0	.5	.0	1.0
07 Indefinite Quantities (GEC)		.4	.4	.4	.4	.5	2.1
08 Program Contingency/Admin.		.1	.1	.1	.1	3.4	3.8
09 Public Safety Radio	SI	45.0	.0	.0	.0	.0	45.0
10 Communication Center Backup	SI	2.0	.0	.0	.0	.0	2.0
11 Archive/Digital Backup System	NR	.2	.0	.0	.0	.0	.2
12 Integrated Incident Mgt System	SI	.3	.0	.0	.0	.0	.3
13 Access Control	SI	.6	.4	.1	.1	.0	1.2
14 Enhanced 911	SI	1.5	.0	.0	.0	.0	1.5
Element Total 01		\$62.0	\$1.4	\$.6	\$1.2	\$3.8	\$69.1
Category Total 510		\$62.0	\$1.4	\$.6	\$1.2	\$3.8	\$69.1

Commitments
(\$ in millions)

ELEMENT DESCRIPTION/PROJECT		NEEDS CODE	2005	2006	2007	2008	2009	Total 2005-2009
04 FINANCIAL SYSTEMS UPGRADE								
01	Financial Systems Upgrade	SI	25.0	25.0	25.0	.0	.0	75.0
Element Total 04			\$25.0	\$25.0	\$25.0	\$0	\$0	\$75.0
Category Total 511			\$25.0	\$25.0	\$25.0	\$0	\$0	\$75.0
TOTAL PROGRAM			\$87.0	\$26.4	\$25.6	\$1.2	\$3.8	\$144.1