



Progress Report: The MTA Capital Security Program

Thomas P. DiNapoli
New York State Comptroller

Report 2-2008

June 2007

In the wake of the September 11, 2001, terrorist attacks on the World Trade Center, the Metropolitan Transportation Authority (MTA) initiated intense planning efforts to determine how to best protect its customers and key assets from a terrorist incident. These efforts culminated in a multifaceted strategy that included operational initiatives—such as increasing the number and the presence of uniformed security personnel—and 57 security-related projects funded through the capital program to harden and control access to vulnerable facilities.

Events since September 11, 2001, have only heightened concerns about the risks posed by terrorists willing to carry out indiscriminate attacks on public transportation systems. In December 2003, Chechen rebels bombed a Russian commuter train, killing 46 people and injuring 165. In March 2004, terrorist attacks on commuter trains in Madrid killed 191 people and injured 600. The London rail and bus bombings in July 2005 killed more than 50 people and injured another 700.

After the London subway bombings, the MTA revealed that it had committed only \$54 million of the \$591 million budgeted for Phase 1 of the capital security program—and that most of those commitments were for design work. Subsequently, the MTA said it planned to “accelerate” the design and construction of the security program, and that it would commit the balance of the security budget by December 31, 2005.

In September 2005, the State Comptroller reported that the projected cost of Phase 1 had grown from \$591 million to \$721 million, an increase of \$130 million or 22 percent. MTA officials explained that costs had grown because the original \$591 million budget was based on project plans that were very conceptual, and additional design work was still needed to further define the projects.

In response to these developments, the State Comptroller formed an internal task force, under the direction of the State Deputy Comptroller for the City of New York, to examine the MTA’s security program. The task force has issued two progress reports on the program, as well as an audit regarding the MTA’s internal controls over security-sensitive information.

This is the third in our series of progress reports on the MTA’s capital security program. The first report, issued in March 2006, found that while Phase 1 of the program got off to a fast start, it quickly fell behind schedule, and the delays were systemic. Still, the first report concluded that the transit system was more secure than it was before September 11, 2001, because the MTA had implemented—often with the cooperation of other stakeholders—a number of operational and other initiatives that mitigated inherent security risks.

The second report, issued in October 2006, found that while most capital security projects had fallen further behind their scheduled completion dates, the MTA was making progress. Nearly twice as many projects had progressed to the construction phase compared with six months earlier, and most construction tasks were on or ahead of the schedules that were established at the time the construction contracts were awarded.

Our current review finds that the capital security program continues to fall behind schedule. As of March 16, 2007, only two projects had been completed—six fewer than planned—and eight of the 16 projects were one year or more behind the schedules established by the MTA in late 2003 and early 2004. Moreover, more than half of the construction tasks that were underway were taking longer to complete compared with the schedules established by the MTA at the time the construction contracts were awarded—a dramatic reversal from the status in our prior report.

Despite the growing delays, the regional mass transit system is becoming incrementally more secure as construction tasks are completed. As of March 16, 2007, six of 33 planned construction tasks had been completed and 15 others were in progress. In addition, the public is benefiting from a multifaceted and coordinated effort by the MTA, New York City, New York State, and the federal government to improve security.

Background

The Metropolitan Transportation Authority operates the largest and most diverse transportation system in the nation, and keeping it secure entails significant challenges. Each weekday, the MTA provides 8 million subway, commuter rail, and bus trips in a 5,000-square-mile area that extends from New York City through Long Island, southeastern New York State, and Connecticut.

The MTA operates a total of 734 subway and commuter rail stations—many of which operate 24 hours a day, 7 days a week. The MTA also operates a network of bridges and tunnels that are a vital component of New York City's transportation infrastructure. The strength of the mass transit system—its ability to move large numbers of people quickly through numerous entry points—also makes it difficult to secure.

The MTA's 2000-2004 capital program allocated \$591 million to fund the 24 highest-priority projects of the capital security program (i.e., Phase 1). These were subsequently reconfigured into 17 construction projects (for contracting purposes). One project was subsequently abandoned after a technical assessment found that the project was not viable.

The projects in Phase I target the MTA's most vulnerable and heavily used assets, such as stations, transit hubs, bridges, and tunnels. Security improvements include perimeter protection, structural hardening, fire/life/safety and evacuation improvements, and electronic security and surveillance. Each of the projects involves one or more facilities and security improvements. For example, a bridge project could include a single bridge or multiple bridges and various types of security improvements, such as hardening and/or video surveillance.

Scope and Methodology

This is our third progress report on the MTA's capital security program. The findings in this report, as in our previous reports, were developed with the cooperation of the MTA and are based on a review of MTA documents and interviews with MTA officials. We did not audit the accuracy of the documents provided to us or independently verify the statements of MTA officials.

The public has a right to know how well the MTA is progressing with the implementation of planned capital security projects, but that need must be balanced against the release of information that could compromise security. For this reason, this report does not discuss the status of individual security projects.

We determined the status of the capital security program by using three quantitative measures.

- The first measure tracks the number of projects in the design and construction phases, and the number of completed projects.
- The second measure tracks each project's progress toward its scheduled completion date by comparing the MTA's latest projected completion date or actual completion date against "baseline" schedules that were developed by the MTA in late 2003 and early 2004. According to the MTA, these baseline schedules were the earliest schedules that included both start and completion dates.
- The third measure compares the status of individual construction tasks against the schedules that were set at the time the construction contracts were awarded.

Findings

Our findings—outlined below—focus on the status, as of March 16, 2007, of the 16 capital security projects that comprised Phase 1 of the MTA's capital security program when we first began monitoring it, in August 2005.

- Two high-priority projects were completed by December 31, 2006—six fewer than planned. Moreover, both finished projects took substantially longer than expected to complete. (Three other projects had made substantial progress but were not completed as of March 16, 2007.)

- Eight of the 16 projects¹ that comprised Phase 1 were one year or more behind schedule, including six projects that were two years or more behind schedule. (In our last report, three projects were two years or more behind schedule.)
- The 16 security projects entailed a total of 33 separate construction tasks, including six tasks that had been completed and another 15 that were in progress.
- The percentage of construction tasks behind schedule nearly doubled since our last review. Whereas 27 percent of construction tasks were behind schedule in October 2006, our latest review finds that 52 percent of tasks were behind schedule in March 2007.
- For the first time, the electronic security program, which accounts for more than half of the cost of the capital security program, fell behind the schedule that was established when the contract was awarded. While the delay is relatively small—only two months—it may portend further delays.
- The cost of Phase 1 has grown from \$591 million to \$721 million, an increase of \$130 million or 22 percent, mostly because the scope of the capital security program has been expanded. This estimate, however, excludes the cost of renovating two “high-priority” facilities that were planned as part of Phase 1 but have since been deferred to Phase 2. When these costs are considered, the cost of Phase 1 has effectively grown to \$815 million, an increase of \$224 million or 38 percent.
- The MTA has implemented, often with the cooperation of other stakeholders, a multifaceted approach to securing the transit system. Besides the capital security program, the MTA has increased the number of security personnel and coordination among security agencies, and has implemented a public relations campaign to alert the public to suspicious activity.

¹ Our analysis includes two facilities (one project) that the MTA had planned to complete as part of Phase 1, but has deferred until Phase 2.

In response to a draft of this report, the MTA stated that while the capital security program has not progressed as planned, much of the delay can be attributed to complications arising from retrofitting a 100-year-old transit system that operates 24 hours a day with state-of-the-art security technology and hardening protection never before imagined.

The new MTA administration has recently taken a number of steps to minimize additional delays and costs. These steps include consolidating responsibility for the security program, establishing milestones and realistic completion schedules, instituting weekly meetings of senior managers to track the program’s progress, and additional internal oversight.

Adherence to Project Schedules

As of March 16, 2007, Phase 1 of the MTA’s capital security program encompassed 16 construction projects. (One project of the original 17 has been abandoned.) We determined the status of the capital security program by using the three quantitative measures described in the “Scope and Methodology” section on page 2 of this report.

Project Status

During the eight-month period between July 15, 2006 and March 16, 2007, only one project was completed, which brings the number of completed projects to two. (Both projects were finished later than expected: one by nine months, the other by ten months.) Only one project progressed from the design to the construction phase during the same eight-month period. As of March 16, 2007, nine of the 14 projects still to be completed were in some phase of construction—and five projects (36 percent of the total) were still in the design stage (see Figure 1).

Figure 1
Construction Projects by Phase

	Dec. 2005	July 2006	Mar. 2007
Completed	1	1	2
Construction Phase	5	9	9 *
Design Phase	<u>10</u>	<u>6</u>	<u>5</u>
Total	16	16	16

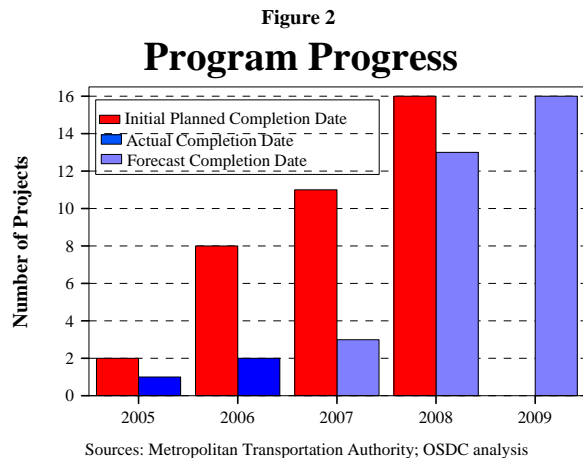
*Note: Although one additional project has advanced to the construction phase since July 2006, the number of projects under construction did not increase because one project was completed.

Sources: Metropolitan Transportation Authority; OSDC analysis

Progress Toward Completion Dates

As of March 16, 2007, eight of the 16 projects that comprised Phase 1 were a year or more behind the schedules set by the MTA in late 2003 and early 2004, including six projects that were two years or more behind schedule. In our last report, we found that only three projects were two years or more behind schedule as of July 15, 2006. Most but not all of the delays have been due to problems encountered prior to the start of construction.

While the MTA had planned to complete a total of eight projects by December 31, 2006, only two were actually finished by that time (see Figure 2). Of the 14 projects yet to be completed, seven have incurred delays during the eight-month period covered by our current review.



The MTA had expected to complete 11 projects by the end of 2007, but as of March 16, 2007, only three were expected to be completed by that time. If the MTA keeps to the current schedule, Phase 1 will be completed by December 2009, more than a year later than the MTA's original estimate of September 2008.

In response to a draft of this report, the MTA stated that it prefers to measure the progress of the capital security program when the projects are ready to move into construction. This approach, however, overlooks the significant delays the MTA acknowledges that it encountered during the pre-construction phase.

The MTA also stated that one project that had recently been deferred to Phase 2 should not be included in our analysis of Phase 1. We disagree. The project had been part of Phase 1 since we began monitoring the capital security program in August 2005, and its inclusion ensures consistent reporting.

Construction Phase

When construction contracts are awarded, the MTA and the contractor agree on a schedule to complete specified work. (Some projects entail one construction task while others involve multiple tasks.) Each construction task has a contractually specified end date. If a contractor fails to fulfill its obligations it can incur financial penalties. Alternatively, the MTA risks incurring additional costs if it is unable to fulfill its obligations under the contract.

Only five projects have begun construction on all of their planned construction tasks, and six additional projects have begun construction on at least one task. In total, 21 of the 33 planned construction tasks were in progress or completed² as of March 16, 2007.

In our last review, only four of 15 construction tasks, or 27 percent, were behind the schedules set when the construction contract was awarded. Our current review finds 11 of 21 tasks, or 52 percent, behind schedule (see Figure 3).

Figure 3
Progress of Construction Tasks

On or Ahead of Schedule	1 to 3 Months Behind Schedule	4 to 6 Months Behind Schedule	7 Months or More Behind Schedule
10 Tasks	6 Tasks	2 Tasks	3 Tasks

Sources: Metropolitan Transportation Authority; OSDC analysis

As of March 16, 2007, six construction tasks had been completed. Half took longer than expected to complete (two tasks were three months late and one was nine months late), which reinforces our concern that construction tasks are taking longer to complete than the time expected when the contracts were awarded.

Reasons for Delay

As stated previously, much of the delay in the capital security program has taken place before the start of construction. While design work began for 11 of the 16 Phase 1 construction projects within three months of their scheduled start dates, design work for three other projects was delayed by one

² One other construction task was completed, but the MTA did not provide data that would permit us to measure its progress against the schedule at award.

year or more. The MTA explained that the delay was caused by placing greater importance on the top six priorities, at the expense of the other projects.

Seven of the 16 projects—nearly half of the total—were delayed by six months or more during the design stage. In response to one of our prior reports, MTA officials stated that design tasks took longer than planned because the initial risk assessment did not adequately define projects; some proposed mitigations were more complicated than first envisioned; a second opinion was sought during the conceptual design stage on some projects; and the scope was broadened on others.

We also found that the start of construction on one project was delayed by about 20 months because the owner of a building that adjoins an MTA facility had not agreed to fund needed security improvements. The delay affected another project that was to be part of the same contract, and the MTA now intends to fund the improvements itself.

The MTA also informed us that it has taken longer than expected to obtain permits from federal, State, and City agencies. We were told that while agencies had expedited the process because of the importance of these projects, it still took longer than the MTA had anticipated.

According to data provided by the MTA, five projects have been adversely affected by delays in obtaining permits. The MTA anticipated that the process would take five months to complete, but it has actually taken, on average, about one year. The adverse impact on the start of construction, however, was significantly reduced—to about three months—because the MTA accelerated the procurement process.

In addition, the MTA has extended the construction phase on three projects by ten months or more because the projects were more complicated than originally contemplated. Also, two projects encountered delays because site conditions differed from expectations.

Compliance with Budget Targets

Following the London subway bombings on July 7, 2005, the MTA revealed that it had committed only \$54 million of the \$591 million budgeted for security projects—and that most of the commitments were for design work. Subsequently, the MTA said it planned to

“accelerate” the design and construction of the security program, and that it would commit the balance by December 31, 2005.

By the end of 2005, however, the MTA had committed only \$428 million—a shortfall of 27 percent. Moreover, the amount that was committed represented only 59 percent of the anticipated cost of Phase 1 at that time, because cost expectations had increased. One year later, the MTA still had not committed the full amount planned for Phase 1. As of March 16, 2007, the MTA had committed \$564 million—78 percent of the current expected cost. While the MTA should take care to commit its resources wisely, such a significant shortfall is indicative of sustained delays in the program.

In September 2005, the Office of the State Comptroller reported that the projected cost of the capital security program had grown from \$591 million to \$721 million, an increase of \$130 million or 22 percent. MTA officials explained that costs had grown because the original \$591 million budget was based on project plans that were very conceptual, and that additional design work was still needed to further define the projects.

Officials also stated that many of the security projects were unprecedented in the construction field, and therefore accurate cost estimates were difficult to obtain before the design processes were completed. Also, as the program progressed, additional facilities were added and the scope of some security improvements was broadened.

In July 2006, the MTA reported to us that the estimated cost of Phase 1 had grown from \$591 million to \$735.6 million, which is \$144.6 million more than originally budgeted. This estimate reflects the cancellation of one entire project (which had an estimated cost of \$33 million) and four additional security improvements. If these plans were still intact, the growth in the cost of the program would have been even higher.

In September 2006, the MTA informed us that the cost of Phase 1 had been reduced to \$719.8 million. The reduction, however, was due to the deferral of previously planned construction work on two high-priority facilities. When these costs are considered, the cost of Phase 1 has effectively grown from \$591 million to \$815 million.

As of March 16, 2007, the budget for Phase 1 of the capital security program was \$720.9 million, which is \$129.9 million more than originally planned. To help fund these unplanned costs, the MTA expects to draw upon \$34.4 million in homeland security funding, \$94.4 million in resources that could have benefited the MTA's operating budget, and \$1 million in additional resources from the Federal Emergency Management Agency.

Figure 4
Security Project Cost
By Type of Remediation
(in millions)

Remediation	Original Estimate	Mar. 2007 Estimate	Change (Inc./Dec.)
Electronic Security	\$ 265.0	\$ 420.7	\$ 155.7
Structural Hardening	221.0	151.7	(69.3)
Fire/Life/Safety	80.0	82.7	2.7
Perimeter Protection	25.0	41.3	16.3
Other	---	24.5	24.5
Total	\$ 591.0	\$ 720.9	\$ 129.9

Source: Metropolitan Transportation Authority; OSD analysis

Figure 4 shows the allocation of resources by type of remediation (discussed below). Slightly more than 89 percent of the resources (\$643 million) has been allocated to fund construction tasks, while almost 11 percent has been allocated to fund design.

Electronic Security: The electronic security project is now expected to cost \$421 million, which is \$156 million or 59 percent more than originally budgeted. The project accounts for 58 percent of the cost of the capital security program and most of the growth in program costs. Costs are higher because the scope of the mitigation has been expanded, more facilities have been added, and the proposed mitigation is more costly than first envisioned.

The MTA reported to us in March 2007 that the electronic security program had fallen two months behind the schedule set when the construction contract was awarded—the first delay in the electronic security program since we began monitoring the MTA's capital security program in August 2005.

In response to a draft of this report, the MTA informed us that the integrated electronic security program faces certain capacity and scheduling problems that may result in additional costs (\$21 million) and delays. Also, the MTA has hired a consultant to perform a top-down review of the electronic security program and to determine how it fits within the MTA's overall security program.

Structural Hardening: The MTA intends to spend \$152 million to harden bridges, tunnels, and other structures to make them better able to withstand the impact of explosive devices. The allocation of resources is 21 percent of the total value of Phase 1 and represents \$70 million less than initially planned, because the MTA cancelled a number of planned structural improvements. One project involving hardening has been completed, and another project that entails the hardening of eight facilities has made substantial progress: three of the eight facilities have been completed and two others are nearing completion.

Fire, Life, and Safety Improvements: The MTA plans to spend \$83 million on fire, life, and safety improvements to its tunnels and stations. These investments include improved lighting, signage, ventilation, and communication equipment, which are critically important to accelerate emergency response time and expedite evacuation.

Perimeter Protection: Perimeter protection entails the installation of bollards (i.e., metal or concrete posts) and other devices that are designed to expand the security perimeter around a facility. These projects are expected to cost \$41 million, which is 64 percent more than originally planned.

Phase 2

Phase 2 of the capital security program was expected to cover the remaining 33 security projects on the original list of 57, and to cost \$495 million. Although Phase 2 is still expected to cost \$495 million, the program will be revised in response to changes in the terrorist threat over the past few years, and the shortage of federal funding. Changes could include narrowing or altering the scope of projects, or abandoning them entirely.³

³ In November 2005, the MTA hired Kroll to determine if the terrorist threat had changed since September 11, 2001, and how to adjust Phase 2 to reflect any new security priorities.

In December 2006, the MTA Board amended its capital program to reflect plans to borrow up to \$141 million to fund security improvements on the two facilities that were deferred from Phase 1 and on another facility of a similar type. The MTA still plans to seek federal grants to help finance Phase 2, but it has not yet identified the other projects that are planned as part of Phase 2.

Federal Funding

Passenger rail systems in the United States carry 16 times more passengers daily than commercial airlines do. Despite the high passenger volume, the federal government has spent much more money on aviation security than on mass transit security. Since 2003, federal spending for transit security has averaged about \$130 million a year, while federal funding for aviation security has averaged more than \$5 billion a year.

The MTA received a total of \$44 million in federal fiscal years (FFYs) 2003 and 2004. These resources were used to fund access controls, purchase explosive and chemical detection equipment, and improve perimeter protection.

The MTA received \$33 million in rail and bus security grants in FFY 2005. Even though the allocation was the largest made to any transit agency, it represented a rate of only \$0.01 per transit rider. The MTA is using these resources to install closed-circuit television (CCTV) cameras, perimeter fencing, and other access controls. The MTA anticipates the receipt of \$34.4 million in federal security funding in FFY 2006, which will be used to help fund unplanned costs in Phase 1, and it is likely to receive a similar amount in FFY 2007.

U.S. Senators Schumer and Clinton have cosponsored legislation that recommends spending more than \$1 billion on rail security improvements, including \$400 million to improve lighting, ventilation, and communication equipment in the six New York tunnels used by the MTA and Amtrak.

Mayor Bloomberg has called for threat-based funding criteria to replace the current statutory formula that is used to allocate most federal homeland security funds, which guarantees each state a minimum amount. In FFY 2006, for example, 40 percent of funds (\$528 million) allocated to the states under the federal State Homeland Security Program were distributed

without regard to risk, need, or effectiveness. New York City, which was allocated a portion of New York State's funding, received only \$1.74 per person; by contrast, the state of Wyoming received \$8.68 per person.

In FFY 2006, New York City was awarded only \$127 million in federal funding to help prepare, prevent, and respond to a terrorist attack. The funding was 40 percent less than the previous year's award of \$211 million. Since FFY 2003, the City has used federal homeland security grants to fund counterterrorism operations, purchase medical and communications equipment, and fund training for police officers, firefighters, and medical personnel.

Figure 5 shows the allocation of homeland security grants to New York City and the MTA beginning in FFY 2003.

Figure 5
Homeland Security Grants
New York City and the MTA
(in millions)

Recipient	Federal Fiscal Year			
	2003	2004	2005	2006
New York City	\$ 187.3	\$ 96.4	\$ 210.7	\$ 126.6
MTA	<u>27.8</u>	<u>16.1</u>	<u>33.0</u>	<u>34.4</u>
Total	\$ 215.1	\$ 112.5	\$ 243.7	\$ 161.0

Note: The amount allocated to the MTA in FFY 2006 is an estimate.
Sources: New York City OMB; Metropolitan Transportation Authority; OSD analysis

Other Initiatives

The MTA has implemented, often with the cooperation of other stakeholders, a multifaceted approach to making the transit system more secure. These initiatives include, but are not limited to, the following.

- Since 2001, the MTA Police Department (MTAPD) has expanded by 201 employees, or 42 percent. It has assigned 75 officers to counterterrorism operations, including a ten-person Emergency Services Unit and a Canine Unit with 50 bomb-sniffing dogs.
- The MTA has hired 261 additional Bridge and Tunnel officers, and instituted checkpoints at bridge and tunnel entrances to check for suspicious packages. The Triborough Bridge and Tunnel Authority has also upgraded its command center in order to improve response time in the event of an emergency.

- To coordinate and oversee the MTA’s security activities, the MTA created the Office of Public Safety and the Interagency Counterterrorism Task Force (ICTF). The ICTF engages in outreach to local police and emergency service providers, and produces a daily intelligence briefing on transit-related threats and terrorist activities that is shared worldwide.
- Multiple layers of security agencies work to protect the transit network, and are particularly prevalent in transit hubs such as Grand Central Terminal, Pennsylvania Station, and the Jamaica Terminal. For example, the New York City Police Department patrols the entire transit system and stations police officers at the entrances to underwater subway tunnels. Recently, the MTA announced that it will coordinate with federal, State, and local law enforcement to enhance the police presence on the commuter railroads.
- The MTA has successfully implemented a public relations campaign that features the slogan “If You See Something, Say Something” to alert the public to suspicious activity. The MTA periodically updates its marketing campaign, and recently rolled out the “Eyes of New York” ads.
- The MTA’s operating agencies each coordinate at least four emergency drills annually. These drills include local law enforcement agencies and first responders and usually cover communications, rescue, extrication, and first aid.
- The MTA’s operating agencies have implemented a number of interim security improvements while awaiting the completion of the capital security projects. In addition to the improvements funded with federal grants, the MTA has allocated operating resources to fund subway car seat locks, subway station emergency exit bars, and additional CCTV cameras in subway stations and buses. For example, the MTA plans to install 2,773 CCTV cameras at 136 subway stations. (There were 1,105 CCTV cameras installed at

63 stations as of January 2006.) The CCTV bus program, however, has encountered problems during testing, which has delayed the program by three months.

- The MTA has allocated \$25 million over a four-year period to provide enhanced security training. The MTA has plans to hire a consultant to design training modules for MTA personnel in the areas of security awareness, customer communications, and emergency preparedness. Training is expected to start in June 2007 and would begin with employees in customer service positions, such as motormen, engineers, conductors, and station attendants.
- The MTA has placed \$150 million of the 2006 operating budget surplus in reserve to fund capital security initiatives. The MTA plans to use some of these resources to fund the installation of intercoms in 75 subway cars and to purchase new radios for the MTAPD, but it has not yet finalized the cost estimates and schedules for these projects.
- The MTA recently implemented a “directed patrol” strategy to increase the visibility of uniformed officers and to establish a sense of security and safety on commuter trains, platforms, stations, and parking lots. The MTAPD is working closely with local, county, and State law enforcement agencies in this endeavor.

Major Contributors:

Kenneth Bleiwas, Deputy Comptroller
Leonard Liberto
Jane Moore