



Progress Report on the Capital Security Program of the Metropolitan Transportation Authority

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The Metropolitan Transportation Authority (MTA) 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.

In the wake of the September 11, 2001, terrorist attacks on the World Trade Center, the 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 size and 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.

More recently, terrorists detonated several bombs on a commuter train in Mumbai (Bombay), India, killing 190 people and injuring hundreds more. In addition, the Federal Bureau of Investigation uncovered a plot to bomb the underwater PATH train tunnels between New York City and New Jersey.

In March 2006, the State Comptroller reported that the construction projects that comprise Phase 1 of the capital security program were significantly behind the schedules developed by the MTA in late 2003 and early 2004. Nevertheless, the report concluded that the transit system was more secure because the MTA implemented operational initiatives that have improved security.

Our current review finds that the capital security program has fallen further behind schedule. Additionally, the cost of Phase 1 has grown. According to the MTA, projects are taking longer and costing more than expected because they are more complicated than initially assumed, and also because in some cases project scopes have been expanded. In addition, achieving a consensus among stakeholders on proposed mitigations has taken longer than expected, and some projects have encountered other difficulties, such as unexpected site conditions.

Even though projects are taking longer than expected, the MTA is making progress. Nine projects are now in the construction stage—four more than when we reported in March 2006. In addition, most of the construction tasks now in progress are on or ahead of the schedules established at the time the construction contracts were awarded. Nonetheless, Phase 1 of the capital security program will not be completed until November 2009, eight years after the terrorist attacks on the World Trade Center, and the MTA has not yet begun Phase 2.

Background

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), and one of those projects was eventually abandoned because it was viewed as not viable after extensive review and a technical assessment.

Each of the remaining 16 projects 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 project 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.

In July 2005, the MTA revealed that it had committed only \$54 million of the \$591 million budgeted for Phase 1 security projects. As a result, in September 2005, the State Comptroller announced the formation of 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. It is expected that the task force will issue a series of reports and audits concerning the MTA's security program.

The first report, issued in March 2006, found that while Phase 1 of the MTA's capital security program got off to a fast start, it quickly fell behind schedule, and the delays were systemic. Specifically, the report found that:

- Half of the 16 projects were eight or more months behind schedule, including five that were 20 months or more behind schedule;
- Five projects were expected to be completed by March 1, 2006, but only one had been completed by that time; and
- Ten projects were still in the design stage and only five were in the construction phase.

Although capital security projects were taking significantly longer than the MTA had expected and were over budget, the report concluded that the transit system was more secure than it was before September 11, 2001. One capital security project had been completed, and the MTA had implemented—often with the cooperation of other stakeholders—a number of operational and other initiatives that mitigated inherent security risks.

Findings

This report focuses on the progress of the 15 construction projects of Phase 1 that have yet to be completed. Based on MTA projections as of July 15, 2006, we made the following findings.

- Eleven of the 15 projects lost time since our last report. Nine projects fell further behind their scheduled completion dates, and two other projects, which were on or ahead of schedule, also lost time.
- Ten projects (two thirds of the total) were one year or more behind schedule, including six projects that were 20 months or more behind schedule. (In our last review, five projects were one year or more behind schedule.)
- The MTA had planned to complete a total of eight projects by the end of 2006, but only two were expected to be finished by then based on the July 15, 2006 forecasts.
- While projects were taking longer than the MTA had anticipated, there was progress. Nine were in the construction stage—four more than when we last reported.
- In total, 15 of 34 planned construction tasks were in progress, and 11 of those were on or ahead of the schedule established at the time the construction contract was awarded.
- The cost of Phase 1, as of July 15, 2006, was projected to total \$735.6 million—\$145 million more than planned and an increase of \$14.1 million since our last review.
- The MTA subsequently advised us that the cost of Phase 1 had been reduced, as of September 7, 2006, to \$719.8 million—by the deferral (until Phase 2) of construction work on two facilities. Even though the design work for these projects has been completed, the

MTA has not yet allocated resources so that these “high-priority” projects can proceed.

Our review also found that the New York City metropolitan area has received less than its fair share of federal grants from the Department of Homeland Security. Moreover, while New York’s allocation was the largest made to any city in each of the past two years, it represented only \$0.02 per rider, which was lower than the rate per rider that most other cities received.

Scope and Methodology

The findings in this report 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 MTA documents provided to us include construction schedules and budget information by asset class (e.g., bridge or station) and by type of mitigation (e.g., hardening or electronic surveillance), as of July 15, 2006. All of the information provided to us by the MTA met MTA security protocols regarding the dissemination of confidential security information.

The State Comptroller believes that 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, our report does not discuss the status of individual security projects or the status of a particular asset class or mitigation. Instead, it focuses on the overall progress of the capital security program.

Federal Funding

In federal fiscal years 2003 and 2004, \$8.9 billion in federal funds was spent on aviation security, while only \$115 million was allocated to transit security. This funding trend continued in FFY 2005, when the Department of Homeland Security (DHS) allocated \$130 million to mass transit security and \$5 billion to aviation security; and again in FFY 2006, when the DHS allocated \$131 million for transit security and \$5.8 billion for aviation security—even though passenger rail systems carry 16 times more passengers than

commercial airlines. Despite the efforts of U.S. Senators Charles Schumer and Hillary Clinton of New York to obtain a large increase in funding for mass transit security, Congress agreed on September 29, 2006, to spend only \$175 million on transit security funding in FFY 2007. In contrast, Congress recommends spending \$6 billion on aviation security in FFY 2007.

The New York City metropolitan area received \$37.6 million for rail security in FFY 2005 and another \$47 million in FFY 2006. These amounts represent 35 percent and 43 percent, respectively, of the total federal funding for those years. The New York City area, however, accounts for 59 percent of all rail passenger trips in the nation. Even though the allocations were the largest made to any city, they represented a rate of only \$0.02 per New York City rider. In FFY 2005, the rate for the New York City area was lower than the rate that other cities received, and the FFY 2006 rate was among the lowest (see Figure 1).

Figure 1
DHS Rail Transit Grants for FFY 2006
Share Per Rider

Detroit	\$.55	Sacramento	\$.04
Seattle	.20	Boston	.04
Denver	.12	Miami	.03
Houston	.09	St. Louis	.03
Cleveland	.09	Pittsburgh	.03
Los Angeles	.05	Buffalo	.03
Philadelphia	.05	Atlanta	.03
SF Bay Area	.05	NYC Metro	.02
Washington, DC	.05	San Diego	.02
Chicago	.04	Portland, OR	.02

Sources: Department of Homeland Security; Federal Transit Administration; OSD analysis

The MTA received a total of \$41.9 million during federal fiscal years 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 FFY 2005, which it is using to install some 1,500 closed-circuit television cameras in the transit system (about half have been installed). The MTA anticipates \$34 million in FFY 2006, which would be used to help fund unplanned costs in Phase 1.

Adherence to Project Schedules

Phase 1 of the MTA’s capital security program, as it is presently planned, encompasses 16 construction projects. In our report of March 2006,¹ we measured each project’s progress toward its scheduled completion date by comparing the MTA’s latest projected 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 to include both start and completion dates.

Our last report found that Phase 1 was substantially behind schedule and that, at the time the report was released, only one project had been completed (ten months behind its scheduled completion date), instead of the six projects that were scheduled to be finished. We also found that ten projects were still in the design stage and only five had progressed to the construction phase.

Nevertheless, we concluded that although the capital security program had encountered serious problems, the transit system was more secure than before September 11, 2001, because of other steps taken by the MTA to improve security. These included the expansion of the MTA police force, improved coordination with federal, State, and local law enforcement, and the implementation of a successful public awareness program.

Project Status

This review is based on project and schedule data as of July 15, 2006. Since our last report, no additional projects were completed, although four more had progressed to the construction stage. In total, nine of 15 remaining projects were in some phase of construction—but six projects (38 percent of the total) were still in the design stage (see Figure 2).

¹ Report 9-2006, *Status Report: The Progress of the Metropolitan Transportation Authority’s Capital Security Program*, March 2006.

Figure 2
Construction Projects by Phase

	December 2005	July 2006
Completed	1	1
Construction	5	9
Design Phase	<u>10</u>	<u>6</u>
Total	16	16

Sources: Metropolitan Transportation Authority; OSDC analysis

Progress toward Completion Dates

Our current review finds that nine projects have fallen further behind their scheduled completion dates. Two projects that were on or ahead of schedule have also lost time, including one project that was on schedule in our prior review but is now 14 months behind schedule.² In total, 11 projects have lost time since our last report. Only four projects have not lost time, and none have made up for lost time (see Figure 3).

Figure 3
Number of Projects That Have Lost Time Since Our Last Review

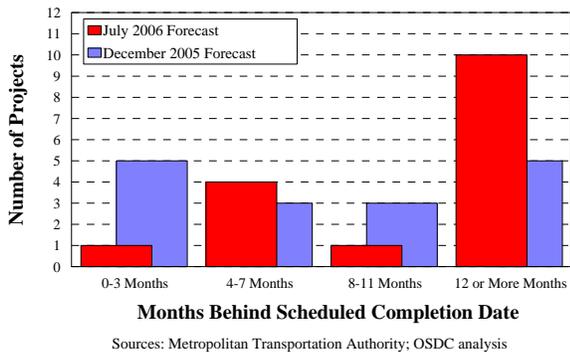
No Further Delay	Time Lost in Months		
	1 to 3	4 to 6	7 or More
4 Projects	2 Projects	7 Projects	2 Projects

Sources: Metropolitan Transportation Authority; OSDC analysis

Figure 4 highlights the impact of the additional delays compared with the status of the program during our last review. Ten projects are now one year or more behind schedule, including six that are 20 months or more behind schedule. In our last review, only five projects were one year or more behind schedule. Only one project is currently within three months of its scheduled completion date, compared with five in our previous review.

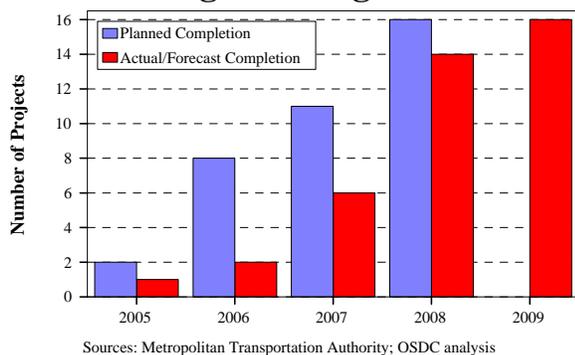
² Rather than separately contract the work on this project, the MTA amended an existing construction contract to include it. Under this contract, the work is not expected to be completed until August 2008, which is 14 months later than originally planned.

Figure 4
The Capital Security Program Has
Fallen Further Behind Schedule



During our prior review we were encouraged that the two projects that represent the MTA’s highest priorities, though five months behind schedule at the time, were expected to be completed by the end of August 2006. Both projects, however, have since experienced additional delays. One project is now expected to be completed in mid-October 2006, while the other is now scheduled to be completed in December 2007—22 months later than originally planned. Most of the delay in the latter project comes from the reinstatement of a mitigation that previously had been abandoned.³

Figure 5
Program Progress



As shown in Figure 5, the MTA had planned to complete a total of eight projects by the end of 2006, but only two are now expected to be finished by that time. If the MTA keeps to the current schedule, Phase 1 will be completed by

³ Excluding the reinstatement, the scheduled completion date for this project slipped by an additional three months to November 2006.

November 2009, which is 14 months later than originally planned.

The MTA believes that the 2003-2004 timeline is not an appropriate measure of its efforts because the timeline “was developed before any of the extensive preliminary design and engineering work had been completed.” The timeline, however, is the best available representation of the MTA’s expectations two and a half years after the attacks on the World Trade Center, and we believe it is a valid measure of the delays the MTA has encountered. We also note that in just the past year, ten of the 15 projects fell four or more months behind the MTA’s projected completion schedule as of August 2005, including five projects that fell eight or more months behind schedule. By any measure, the capital security program is taking longer than the MTA expected.

Reasons for Delay

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

Seven of the 16 projects—almost half—were delayed by four months or more during the design stage, including three projects that were delayed by seven months or more. In response to our prior report, 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.

Also, we have found that for a number of projects it has taken longer than expected to obtain the approval of the MTA’s operating agencies and other stakeholders for proposed mitigations. 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 the agencies have expedited the process due to the importance of these projects, it is still taking 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. In some cases, more than one year has elapsed and the permits are still pending. The adverse impact on the start of construction, however, was significantly reduced—to about three months—because the MTA accelerated the procurement process.

Construction Phase

As projects have progressed through the design process, the MTA has revised the construction schedules for several projects to reflect the expectation that tasks will now take longer to finish. For six projects, the MTA has expanded the construction phase by more than eight months compared to original expectations. Only one project is now expected to take less time to construct than initially planned.

Now that nine projects have progressed to the construction phase, we can begin to draw some conclusions regarding their progress compared to the schedules that were planned at the time the construction contracts were awarded.

Some projects entail one security improvement (i.e., task), while others encompass multiple tasks. Only four projects have begun construction on all planned construction tasks, and five additional projects have begun construction on at least one task. In total, 15 of 34 planned construction tasks are now in progress.

Our review finds that 11 of the 15 construction tasks now in progress are on or ahead of schedule. Some of these projects, however, are in the very early stages of construction. We also examined those tasks for which at least one third of the work has been completed—a total of eight tasks. We found that one task was completed six months ahead of schedule; four tasks were on schedule; two tasks had slipped by almost two months; and another task was eight months behind schedule. In two cases, progress had been delayed because site conditions differed significantly from original expectations.

Although it is too early to reach a definitive conclusion, it appears that projects are generally

adhering to the construction schedules that existed at the time the contracts were awarded. Nevertheless, there is some cause for concern. Where slippage occurred, construction was, on average, 36 percent behind schedule. This raises the concern that the larger, more complicated projects, which are expected to take longer to complete, could experience lengthy delays.

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 of the security budget 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 committed represented only 59 percent of the expected cost of Phase 1 at that time, because cost expectations had increased. While the MTA should take care to commit its resources wisely, such a significant shortfall was indicative of the overall delay in the program. Six months later, the MTA still had not committed the full amount planned for Phase 1: As of July 15, 2006, it had committed \$557 million—76 percent of the current expected cost of Phase 1.

In September 2005, 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 additional design work was still needed to further define the projects. In addition, these officials 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 mitigations were broadened.

The MTA reported to us that the estimated cost of Phase 1 had grown to \$735.6 million as of July 15, 2006, which is \$144.6 million more than originally budgeted. This estimate, however, reflects the cancellation of one entire project, which had an estimated cost of \$33 million, and four additional security improvements. If these were still intact, the growth in the cost of the program would have been even higher.

In response to a draft of this report, the MTA advised us that, as of September 7, 2006, the cost of Phase 1 had been reduced to \$719.8 million. The reduction was due to the deferral (until Phase 2) of construction work on two facilities that have an estimated value of \$24.6 million, partly offset by higher costs in other areas. We were also told that the design work for these two facilities was complete, but that the MTA had not yet allocated resources for these “high-priority” projects to proceed.

Although the projected cost of Phase 1 has been reduced by deferring planned construction work, it is still \$128 million over budget. To help fund these unplanned costs, the MTA has had to allocate \$94 million that could have benefited its operating budget. The MTA is counting on the receipt of federal grants to cover the remaining \$34 million in unplanned costs.

Figure 6
Security Project Cost
By Type of Remediation
(in millions)

Remediation	Original Estimate	July 2006 Estimate	Change Inc./(Dec.)
Electronic Security	\$ 265.0	\$ 420.8	\$ 155.8
Structural Hardening	221.0	175.9	(45.1)
Fire/Life/Safety	80.0	89.3	9.3
Perimeter Protection	25.0	39.5	14.1
Other	---	10.0	10.0
Total	\$ 591.0	\$ 735.6	\$ 144.6

Sources: Metropolitan Transportation Authority; OSDC analysis

Electronic Security: The electronic security program is now expected to cost \$421 million, which is \$155.8 million or 59 percent more than originally planned (see Figure 6). Costs are higher than expected because the scope of the program has been expanded and because the proposed

mitigation is more costly than first envisioned. The project calls for the installation of 1,750 closed-circuit television cameras, motion detectors, and “intelligent video” software that can automatically determine if a package has been left on a train or if a person is in a restricted area.

The electronic security program accounts for 57 percent of the cost of the capital security program and most of the growth in the cost of the program. The MTA’s heavy reliance on this strategy is an area of concern because a portion of the technology is unproven for application in a transit system such as New York City’s.

Structural Hardening: The MTA intends to spend \$176 million to harden structures so they will be better able to withstand the impact of explosive devices. This amount represents a reduction of \$45 million in planned spending because the MTA cancelled a number of planned structural improvements.

Fire, Life, and Safety Improvements: The MTA plans to spend \$89 million, or 11.6 percent more than originally planned, 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 almost \$40 million, which is 58 percent more than originally planned.

Phase 2

Phase 2 of the capital security program was expected to cover the remaining 33 projects on the original list of 57 security projects, and to cost \$495 million. According to MTA officials, the program has not advanced because the MTA has not been successful in its efforts to obtain federal funding. In addition, the program has been under review—for more than one year—in response to the July 2005 terrorist attacks on the London transit system.

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. Changes could include narrowing or altering the scope of projects, or abandoning them entirely. The MTA received a draft report in July 2006, and MTA officials are still considering Kroll's recommendations.

We were recently informed that construction work on two facilities that had been planned as part of Phase 1 will be deferred until Phase 2. As previously mentioned, the MTA has not yet allocated resources so these "high-priority" projects can proceed. The MTA also has not yet determined the other priorities that will comprise Phase 2.

Other Initiatives

As we discussed in our prior report, the MTA has implemented, often with the cooperation of other stakeholders, a number of operational and other initiatives that have mitigated inherent security risks. These initiatives include, but are not limited to, the following.

- The MTA has increased the number of uniformed personnel in the MTA Police Department (MTAPD) by 201, an increase of 42 percent. It has assigned 75 officers to counterterrorism operations, including a ten-person Emergency Services Unit and a Canine Unit with 35 bomb-sniffing dogs.⁴ It also hired 261 additional Bridge and Tunnel officers for security operations.
- 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 MTAPD patrols transit hubs, commuter rail facilities, and key access points, and the New York City Police Department patrols the entire transit system and stations police officers at the

⁴ The MTAPD has a goal to expand the number of bomb detection dogs to 50 by the end of 2006.

entrances to underwater subway tunnels. In addition, New York State Troopers and National Guardsmen are stationed at key transit hubs during security alerts.

- 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 with and used by approximately 350 transit and security agencies worldwide.
- 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'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 agencies have implemented a number of interim security improvements pending 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 closed-circuit television cameras.

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