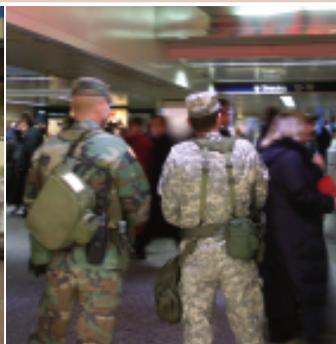




# HARD WON LESSONS: TRANSIT SECURITY

BY CHARLES SAHM



MARCH 2006

## Safe Cities Editors

**Tim Connors** is Director of the Center for Policing Terrorism at the Manhattan Institute.

**R.P. Eddy** is a Senior Fellow for Counterterrorism at the Manhattan Institute.

**Mark Riebling** is Editorial Director at the Manhattan Institute.

**Charles Sahm** is an Analyst for the Center for Policing Terrorism at the Manhattan Institute.

## The Safe Cities Initiative

The tragedy of 9/11 demonstrated that globalization has changed our security as much as it has changed our economy. In this new threat-environment, all of our domestic-security institutions must be transformed. It is especially vital that this transformation occur in America's cities, which are high-value targets for terrorists.

The Manhattan Institute, reflecting its longstanding and unique policy focus on urban issues, is committed to developing and disseminating ideas which will make our cities more secure in this dangerous new world. Accordingly, the Institute's Safe Cities Initiative assists state and local law-enforcement in:

- Learning and applying the hard-won lessons of 9/11 and the war on terrorism, in order to deter, detect, and prevent future attacks.
- Assessing the current, evolving, and future dynamics of the threat posed by international terrorist groups in particular police jurisdictions.
- Sharing intelligence between jurisdictions.
- Enhancing and refining existing intelligence capabilities, and creating new ones.
- Integrating private-sector capabilities, including industrial and corporate security assets.
- Operating with and in local communities, especially immigrant communities, both to effectively root out terrorists in this country, and to defend high-risk immigrant communities from crimes of bias.
- Administering the Counterterrorism Information Sharing Consortium, which includes representatives of over twenty northeast law enforcement agencies.

The findings of the Initiative are published periodically in variety of media. Working-group white-papers, and published conference-proceedings, provide policymakers, analysts, and security professionals with usable, durable knowledge.

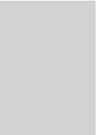
The Manhattan Institute would like to thank the Alfred P. Sloan and Bodman Foundations for their continued support of the Safe Cities Initiative.

### Images Copyright Information:

Front Cover, Clockwise - © Reuters/CORBIS, © Manhattan Institute

## Table of Contents

|   |    |
|---|----|
| Introduction: Transit Security .....                              | 3  |
| Summary of July 2005 London Bombings and "Hard Won Lessons" ..... | 5  |
| Other Recent Transit Terror Attacks .....                         | 6  |
| The Layered Security Approach .....                               | 6  |
| The 3 Ps: Partnerships, Planning, and Patrols .....               | 7  |
| Physical Modifications and Technology .....                       | 9  |
| Screening of Passengers and Bags .....                            | 10 |
| <i>Constitutionality Questions</i> .....                          | 12 |
| Public Awareness .....  | 13 |
| Transit Employee Awareness .....                                  | 14 |
| Mitigation and Emergency Response .....                           | 15 |
| Rail Transport of Hazmat and Dangerous Cargos .....               | 17 |
| Conclusion .....  | 18 |
| Endnotes .....  | 19 |
| Appendix A .....  | 21 |



## Introduction: Transit Security

As Tom Friedman has highlighted in his bestselling book *The World Is Flat*, the world is much smaller and, consequently, much more dangerous than it used to be. One of the fundamental public policy issues of our time is how to police against terrorism in this new environment while still allowing for the free movement of people and commerce.

The terrorist attacks of September 11, 2001, transformed the way in which government, law enforcement, and the private sector approach airline security. In the wake of the July 2005 bombing of the London transit system and the Madrid bombings of March 2004, it is clear that al Qaeda regards mass transit as a primary target and that more attention must be paid to the threat posed to mass transit systems. As the 9/11 Commission noted in its final report, while many resources have been devoted to airport security, “opportunities to do harm are as great, or greater, in maritime or surface transportation.”<sup>1</sup>

Protecting mass transit from terrorism is an even more challenging task than protecting the nation’s air traffic network. Unlike an airplane, a bus, subway, or commuter train is in a constant state of flux, with passengers boarding and departing from numerous entry and exit points; and transit facilities rely on open architecture and the rapid and easy movement of patrons. In addition, the sheer volume of riders also makes it impractical to subject users of mass transit to the same intensive screening that airline passengers undergo. In 2003, it is estimated that Americans took 9.4 billion trips using public transportation, which includes buses, subways, rail, trolleys, and ferryboats.<sup>2</sup> On an average weekday, 14 million riders use public transportation 31 million times.<sup>3</sup> In contrast, on the busiest of travel days, some 2 million passengers pass through U.S. airports.<sup>4</sup>

Given the fact that local law enforcement historically has been responsible for providing security to transit systems, it is especially important that America’s 710,000 local law enforcement officers<sup>5</sup>—as well as the 350,000 public transportation employees<sup>6</sup>—are effectively trained and engaged in protecting the country’s vast mass transportation network. Homeland Security secretary Michael Chertoff acknowledged the essential role of local law enforcement in protecting mass transit when he testified before the Senate Homeland Security Committee on July 14, 2005. His remarks are worth quoting at length:

The aviation system is a closed system, and basically, federal authority is the only government authority that operates in the area of air travel. When it comes to, for example, subways—and here, I’m speaking from my own personal experience riding subways—a lot of the boots on the ground are local boots on the ground. They’re transit police and local police and conductors and things of that sort. Although we have, for example, screeners at the airport who are federally employed, I don’t think anybody would suggest that we should federally employ all subway transit police or subway conductors. The way in which we work with protecting our transit systems is to work in partnership with state and local authorities, and the boots on the ground largely are owned by those state and local authorities; they’re not federal police.

Recognizing the vulnerability of the nation’s public transportation system and the essential role of state and local law enforcement, the Manhattan Institute and the Police Institute organized a

conference on October 13, 2005, in Princeton, New Jersey, that brought together law enforcement officials from across the eastern United States to share best practices on the subject of transit security.

We were pleased to have Sir Ian Johnston, Chief Constable of the British Transport Police, and Jeroen Weimar, Director of Policing and Enforcement for the London Transport System, travel from across the pond to share their thoughts on the July 2005 London bombings and the “hard won lessons” that public safety officers in the United States can learn from their experience.

Other presenters at the daylong conference included: Peter C. Harvey, Attorney General of the State of New Jersey; Leslie Kennedy, Dean of Rutgers School of Criminal Justice; Robert Wasserman, Chairman of Strategic Policy Partnership; Joseph Bober, Chief of the New Jersey Transit Police; Thomas O’Reilly, Administrator of the New Jersey Office of the Attorney General; John Cohen, Homeland Security Policy Advisor for Massachusetts Executive Office of Public Safety; Tim Connors of the Center for Policing Terrorism at the Manhattan Institute; and Mia Bloom, Ph.D., assistant professor at the University of Cincinnati and author of *Dying to Kill: The Allure of Suicide Terror*.<sup>7</sup>

In addition to the formal presentations, valuable discussion took place among all the gathered law enforcement officials about the measures that they have taken to heighten transit security, both before and after the London bombings. We were honored to have brought together numerous state and local police chiefs from up and down the I-95 corridor, as well as representatives from the NY/NJ Port Authority, the Department of Homeland Security, the New Jersey Transit Police, and Amtrak.

This publication summarizes some of the information shared and lessons learned from that conference. We hope you find this publication useful, and we encourage you to view our other resources at: [www.cpt-mi.org](http://www.cpt-mi.org) and [www.policeinstitute.org](http://www.policeinstitute.org).

Charles Sahn  
Manhattan Institute

## Summary of July 2005 London Bombings and “Hard Won Lessons”<sup>8</sup>

On July 7, 2005, a series of four suicide bombings struck London’s public transport system during the morning rush hour. At 8:50 A.M., three bombs exploded within fifty seconds of one another on three London Underground trains. A fourth bomb exploded on a bus at 9:47 A.M. in Tavistock Square.

Fifty-six people were killed in the attacks, including the four suspected bombers, with 700 injured. The incident was the deadliest single act of terrorism in the United Kingdom since the 1988 bombing of Pan Am Flight 103 (which killed 270) and the deadliest bombing in London since the Second World War. Police investigators later identified four men between the ages of eighteen and thirty whom they believed to be the suicide bombers.

On July 21, 2005, a second series of four explosions took place on the London Underground and a London bus. However, this time only the detonators of the bombs exploded, and the four bombs themselves remained undetonated. There were no serious injuries. All suspected bombers from this failed attack have been arrested by police.

These attacks are believed to have been planned by an al Qaeda-affiliated group. Within hours after the attack, someone using the name “Nur al-Iman” and identified as a “new guest” posted a statement on an al Qaeda website that claimed responsibility on behalf of “The Secret Organization Group of Al Qaeda of Jihad Organization in Europe.” On September 1, 2005, al Qaeda officially claimed responsibility for both the July 7 and July 21 attacks in a videotape aired on the Arab television network al Jazeera.

In their presentations at the transit security conference of October 13, 2005, Sir Ian Johnston, Chief Constable of the British Transport Police, and Jeroen Weimar, Director of Policing and Enforcement for the London Transport System, discussed the difficulties involved in policing vast transit systems that have hundreds of thousands or even millions of passengers each day and underscored the need for law enforcement agencies to overcome their traditional reluctance to partner and share information and expertise.

Johnston and Weimar also noted that all the bombers and potential bombers were in the country legally, had no criminal records, and were not under suspicion by British law enforcement. They were of several different ethnic backgrounds. Three of the four suicide bombers in the July 7 attack were natural-born British citizens of Pakistani descent, and the fourth moved to Britain from Jamaica. Three of the four suspected attackers in the failed July 21 attacks were originally from East Africa but were living legally in Britain.

The fact that all the terrorists were living in Britain legally and were largely unknown to police highlights the threat of “homegrown terrorists,” who are more difficult for law enforcement to detect or prevent from doing harm. The London bombings and attempted bombings are especially notable for the fact that they were suicide attacks, which – while prevalent in the Middle East – are a relatively new threat facing Europe and the United States.

## Other Recent Transit Terror Attacks

In recent years, half of all terrorist attacks have been against transit system targets.<sup>9</sup> Attacks have occurred in all areas of the globe, including Venezuela, Colombia, India, Pakistan, Sri Lanka, Russia, Spain, and the United Kingdom.<sup>10</sup> Bombs were the most common weapons, although firearms and arson were used as well.<sup>11</sup> The 1995 Sarin nerve-gas attack in the Tokyo subway by the fanatical group Aum Shinrikyo, which killed twelve people and injured 1,000, highlights the chemical/biological threat. The bombing of buses in Israel has, unfortunately, become an almost commonplace occurrence. In addition to the July 2005 London bombings, two other recent attacks, in Madrid (March 2004) and Moscow (February 2004), signify a new level of threat facing passenger rail trains.

The March 11, 2004, Madrid train bombings were a series of coordinated terrorist bombings against the commuter train system of Madrid, which killed 191 people and wounded 1,460. The attacks consisted of a series of ten explosions that occurred at the height of the Madrid morning rush hour aboard four commuter trains. Thirteen timed-detonation explosive devices were planted, three of which failed to detonate. According to experts, the bombs aboard two of the trains were designed to bring down the glass roof of the large Atocha station, which possibly could have resulted in thousands of casualties.<sup>12</sup> Fortunately, one of the trains was delayed, and the bombs detonated while the train was outside the station.

In recent years, Russia has been hit numerous times by al Qaeda-affiliated Chechen terrorists, resulting in hundreds of deaths and thousands of casualties. Some of the deadliest and most horrific attacks include the Beslan school massacre in September 2004, the simultaneous downing of two Russian passenger jets in August 2004, and the Moscow theater siege in October 2002. Transit has also been a primary target of Chechen terrorists. A December 2003 attack on a commuter train in southern Russia killed forty-four people and injured two hundred. A February 2004 attack on the Number Two line of the sprawling Moscow metro system killed forty-two and wounded 250. An August 2004 explosion outside the entrance to a Moscow subway station killed ten people and injured fifty more. These attacks were mostly suicide bombings and many of the perpetrators were women, which highlights the new emerging threat of female suicide bombers.<sup>13</sup>

It is clear that transit systems have become a primary target for al Qaeda, and these new attacks represent new levels of sophistication and lethality. The Department of Homeland Security has stated that al Qaeda is known to be targeting the U.S. transit system.<sup>14</sup> In addition, the Spanish newspaper *El Mundo* reported that a rudimentary drawing of New York's Grand Central Station and other data on U.S. transit targets were seized from the homes of the Madrid bombers.<sup>15</sup>

## The Layered Security Approach

Hundreds of thousands of people pass through bus stops and subway stations in America every hour. Unlike an airport or an office building, public transit systems cannot simply be closed off or tightly controlled without compromising their fundamental character. However, just because an absolute envelope of security may not be possible, that should not be an excuse to do nothing. As David Cohen, the NYPD's Deputy Commissioner for Intelligence, has said, "Unpredictability is the

enemy of terrorists,” and, when it comes to transit security, “More is better than some; some is better than none; and none helps the terrorists.”<sup>16</sup> A layered security approach that is well integrated between various law enforcement and transit agencies is the key to deterring, disrupting, or mitigating the impact of terrorist acts against transit.

This layered security approach can be broken down into seven basic components:

- The 3 Ps: Partnerships, Planning, and Patrols
- Physical Modifications and Technology
- Screening of Passengers and Bags
- Public Awareness
- Transit Employee Awareness
- Mitigation and Emergency Response
- Rail Transport of Hazmat and Dangerous Cargos

### The 3 Ps: Partnerships, Planning, and Patrols

As has been stated numerous times, in the post–September 11 world it is critical that federal, state, and local law enforcement agencies—and the intelligence community—overcome their traditional reluctance to partner and share information and expertise. Nowhere is this more true than with transit security. The fundamental interconnectivity of public transit systems that are linked together physically through multiple jurisdictions and through an intricate network of technology, law, and regulation, makes advance planning and the forming of partnerships between various law enforcement and transit agencies absolutely essential.

The responsibility of securing our nation’s transit system is a shared one. The Department of Homeland Security (DHS) and its Transportation Security Administration (TSA), as well as the federal Department of Transportation (DOT) and its Federal Transit Administration (FTA), have taken significant steps to enhance rail and transit security in partnership with local authorities. Efforts have focused mostly on providing technical assistance and resources to state and locals whom they see as the primary line of defense in protecting the nation’s transit system. In particular, the FTA is facilitating training and regional forums to foster collaboration between fire, police, medical-emergency responders, and transit agencies. Its website has an enormous amount of material available on security issues, including numerous employee training tools, public awareness campaign tools, research, briefing papers, and recommended practices. It can be accessed at: <http://transit-safety.volpe.dot.gov> (see Appendix A to this report for sample information).

The continued readiness and vigilance of state and local law enforcement and transit agencies is the key to keeping America’s transit network safe. Security-sensitive intelligence information sharing can be improved by joining the FBI Joint Terrorism Task Force (JTTF) or other regional antiterrorism task forces and fusion centers. The FBI has also developed a secure website, [www.infraguard.net](http://www.infraguard.net), to foster information sharing regarding security of the nation’s critical infrastructure. The FTA has entered into a cooperative relationship with the FBI to use the Infraguard system as a means of allowing transit systems to share sensitive information in a secure environment.<sup>17</sup> The Surface Transportation

Intelligence Sharing & Analysis Center (ISAC), which is jointly operated by the FTA and the American Public Transportation Association, is another good resource.<sup>18</sup> Transit security information is also reported through the National Transit Database (NTD).<sup>19</sup>

All these agencies work to share information between the federal government and local law enforcement and transit officials with the overall goal of creating a genuine homeland security partnership, based on better communication, coordination, and action. Toward that end, three concrete steps that U.S. law enforcement and transit officials should consider implementing are:

- **Assign Clear Responsibility for Counterterrorist Security Systems:** In transit agencies and law enforcement organizations, an organizational unit and a specific person within that unit should be in charge of security systems to counter terrorist activity and establish lines of authority and communication between transit agencies and law enforcement. Contributing agencies should meet regularly to discuss prevention and have specific plans at the ready to respond to a terrorist attack.
- **Include Security on Every Agency Agenda:** An assessment of relevant security concerns should be a major component of all policymaking activities in law enforcement and transit agencies. Also, security plans and strategies should not be considered static. They should be reassessed and reevaluated on a regular basis as awareness of threats and countermeasures grows or as new technology becomes available.
- **Create In-House Knowledge of Terrorist Threats and Counterterrorism Capabilities:** While the news media is not a bad source of information in the initial aftermath of an attack somewhere around the globe—it was interesting to note that nearly every U.S. law enforcement official attending our October conference learned of the London attacks via radio or television—in order to gain real firsthand insight, police forces and transit agencies should look to create in-house knowledge of terrorist threats and counterterrorism strategies. The NYPD, with its extensive counterterrorism division that monitors foreign news services and actually has officers stationed overseas, is widely recognized as the gold standard in this regard.

London law enforcement officials noted that the important lessons learned from the July bombings include the usefulness that advance planning played in enabling a swift emergency response to the attacks and the need to keep the lines of communication open among all the various law enforcement, transit, and emergency response agencies to share information and expertise. London officials also stress the importance of investing in radio technology (networks that rely on cell phone technology tend to get shut down or overwhelmed in times of crisis) and coordinating communication systems so that various law enforcement agencies and emergency response teams can speak with one another in times of crisis.

After the London bombings, law enforcement agencies in most U.S. cities put their transit systems on high alert, called in extra officers, and increased overtime by putting police on twelve-hour shifts. There has been much discussion among U.S. law enforcement about the efficacy of using extra officers to patrol transit systems. However, most officials agree on the need to increase police patrols

to prevent attacks and also to provide a reassuring police presence to the public in the days after an attack. In order to make the best use of the extra patrol officers, advance planning should be utilized to station specific numbers of police in specific places rather than have hundreds of extra officers simply wander through the system or stand together in large groups.

Key policy issues include: striking the appropriate balance between security and efficient operation of the rails; and the cost of these security efforts versus other priorities. Important related questions include: When it is appropriate to downsize the response to a threat or terrorist attack? Who should make that decision? Should that decision be announced publicly or not? Again, these questions highlight the need to establish effective partnerships, conduct planning and training exercises, and work out police patrol issues in advance of any terrorist incident.

## Physical Modifications and Technology

In the wake of the London bombings, one of the most discussed technological devices has been the use of security cameras or closed-circuit television (CCTV) to provide law enforcement, stationmasters, and security personnel with better visibility throughout their facilities. After a wave of IRA bombings in the 1980s and early 1990s, British law enforcement constructed what they call the “Ring of Steel” around Central London, which refers to the extensive CCTV network and the limited number of narrow, camera-monitored roads that permit access. New York City is currently considering constructing a similar “ring of steel” around the financial district in Lower Manhattan.<sup>20</sup>

CCTV cameras have become omnipresent in London as both government and private businesses have bought them by the thousands. It is estimated that there are at least 500,000 live CCTV cameras in Britain today, and a person walking the streets of London can expect to be filmed dozens of times each day.<sup>21</sup> While the cameras were very useful in identifying the perpetrators after the recent London bombings, they obviously failed in preventing the attacks. A lot of money has been invested in camera installation in London, but not enough spent on the back end of monitoring the cameras and making the video easily accessible. In the days following the first attack, British law enforcement looked at 17,000 videos from the London Underground and another 35,000 from the national network.<sup>22</sup> Ironically, the more modern the video equipment was, the more difficult it was to work with. Some trains recorded high-quality digital video on hard drives that took weeks to download.

The London bombings highlight the fact that typical cameras are of little use in preventing suicide attacks and, in fact, increase the bombers’ notoriety. However, cameras could serve a function in potentially detecting terrorist surveillance or suspicious behavior, such as occurred when the Madrid bombers left unattended packages on the trains. New technology can also improve the utility of CCTV systems. Modern, high-definition color cameras can focus to resolve minute detail. The latest development in imaging technology is computerized monitoring programs that track behavior by looking for particular types of movement or particular types of clothing or baggage. The computer can identify suspicious movements and alert operators if something seems out of the ordinary. There are also continued developments in the use of facial-recognition software that matches faces to databases of known terrorists; however, these technologies are still in their infancy, and there is great debate over their utility as well as privacy concerns.

Another way to use existing technology effectively is to use intrusion-detection equipment such as motion detectors or infrared light beams at the exit or entrance to tunnels or other technologically sensitive areas such as electronic switching boxes. These devices would sound an alarm and alert security if someone tries to gain unauthorized access, and the devices would be linked to high-quality surveillance cameras. The use of this type of intrusion-detection equipment provides another layer of security to augment the limited ability of police to patrol vast transit systems.

Sensor systems can also be installed to detect dangerous substances, such as radioactive or biohazardous material, and alert operators when the system has been contaminated. The FTA is currently working on a prototype of a stationary detection system under PROTECT (Program for Response Options and Technology Enhancements for Chemical/Biological Terrorism). PROTECT is intended to provide timely and accurate information about airborne chemical attacks in a station or tunnel. Adapting such systems to operate in vehicles presents significant technological challenges, and the cost of these systems is currently too high for most transit agencies. New technologies that detect CBRN (Chemical, Biological, Radiological, Nuclear) weapons are also being tested and deployed by the Department of Homeland Security in certain transit systems.

Many transit authorities across the United States are attempting to add increased technology to their layered security mix. Some examples include: the New York MTA spending \$250 million to install cameras throughout the system; Chicago installing surveillance cameras on 700 new El train cars; Washington, D.C., tracking buses with a satellite-based system; and the Houston transit authority testing on-board cameras that can wirelessly transmit live color images.<sup>23</sup>

In addition to these technological solutions, there are a number of more “low-tech” solutions that can be utilized, such as the increased use of bomb-sniffing dogs. The TSA is expanding its National Explosive Detection Canine Team Program to partner with local law enforcement to help train hundreds of new dog teams that will be deployed to patrol the nation’s ten largest mass transit and commuter rail systems. Finally, there are a number of simple physical modifications that can be made to transit systems in order to improve security, such as improving fencing around the perimeter of rail facilities, improving lighting to deter terrorists and improve observation, and restricting access to sensitive areas.

## Screening of Passengers and Bags

While the open nature of mass transit and the sheer volume of riders make it difficult to subject users to the same intensive screening that airline passengers undergo, random screening of passengers and bags is an idea that merits serious consideration by law enforcement and transit authorities. In addition, some bus, ferry, and rail systems where advance tickets are purchased could look to employ some facets of airport security screening. For example, Amtrak personnel in New York’s Penn Station and Washington’s Union Station now check tickets and require identification before allowing passengers to board trains.

Entry-point screening is already being used to deter terrorist attacks on a wide variety of other targets, both in the United States and abroad. For example, citizens of Israel are now used to having bags checked at most public spaces, including bus stops and shopping malls. Meanwhile, post-

September 11, Americans themselves have become accustomed to being screened at office buildings, sporting events, government facilities, and so on. Available screening tactics can include visually inspecting bags and parcels, operating metal detectors and X-ray machines, and utilizing bomb-sniffing dogs or new technologies that can detect minute traces of explosives.

The Department of Homeland Security and the TSA have implemented a pilot program called TRIP (Transit Rail Inspection Pilot) to test the feasibility of screening luggage and carry-on bags for explosives at rail stations and aboard trains. They have conducted a three-phase test at venues across the country to assess new technologies and screening concepts. Another test will take place at the PATH train station in Jersey City, New Jersey, during February 2006, during which time the 15,000 passengers who pass through the station each day will encounter baggage X-ray machines, walk-through metal detectors, and chemical-weapons screening technology.<sup>24</sup> Another phase of this DHS program will take place later this year and possibly involve using infrared scanners that can scan passengers from a distance.<sup>25</sup> The DHS hopes that the lessons learned from these tests will allow transit operators to deploy targeted screening in high-threat areas or in response to specific intelligence.

On July 22, 2005, after terrorists attempted to attack London's subway system for a second time that month, the New York City Police Department began a random bag-screening program for the New York transit system. Under the program, police officers are stationed at the entrance to transit stations (mostly subway). The program is not comprehensive but designed to create uncertainty as to when and where inspection will occur and to be flexible to account for changes in threat level. Passengers are given notice of the program by signs and public announcements, and police are instructed to physically inspect any backpack, container, and other carry-on item. NYPD training materials for the program state that, "Inspection shall be limited to what is minimally necessary to ensure that the backpack, container, or carry-item does not contain an explosive device. The inspection shall not be longer than necessary to ensure that the individual is not carrying an explosive device. During the physical inspection, officers may open the container and physically inspect and manipulate the contents to ensure it does not contain an explosive device."<sup>26</sup> Police are instructed not to "inspect wallets, purses or other containers that are too small to contain an explosive device; intentionally look for other contraband or read or attempt to read any written or printed material."<sup>27</sup> The training material also instructs officers that "the preferred method for inspection is to ask the individual to show the officer what is in their bag and allow them to manipulate their own belongings."<sup>28</sup>

Under the NYPD program, searches are voluntary and those riders who refuse inspection are allowed to leave the system if they do not wish to have their bags searched. Critics of the program argue that terrorists could simply detonate a device at the entrance to a subway station before they are searched or walk to another of the city's 468 subway stations where searches are not being conducted. NYPD counterterrorism officials, however, insist that that random bag searches serve the dual purpose of keeping potential terrorists off balance and heightening public awareness. The program has been enforced at varying levels of intensity since July 22, according to threat assessment. For example, in October 2005, when a captured al Qaeda figure in Iraq led federal officials to believe that a bombing of the New York subways was imminent, Mayor Mike Bloomberg and Police Commissioner Ray Kelly made the decision to warn the public and increase the frequency of the random bag searches. A Quinnipiac University poll taken in the summer of 2005 showed that New Yorkers approved of the random searches by a three-to-one margin.<sup>29</sup>

Other New York–based transit agencies, such as New Jersey Transit, the NY/NJ Port Authority’s PATH trains, and the Long Island Rail Road and Metro-North commuter trains, have implemented similar random programs in coordination with the NYPD and other state and local law enforcement agencies. London has now implemented a random passenger/bag search program, and U.S. cities such as Boston and Atlanta have used search programs in their transit systems during times of heightened alert or surrounding large public events. Local government officials in Washington, D.C., are considering implementing such a program on Washington’s Metro.

In November 2005, the NYPD began a pilot program in which equipment to detect explosives was added to the random bag searches at certain subway stations. Similar to the larger “puff portal” explosive-detection machines that are being installed at many airports, these portable detection devices are designed to chemically analyze swabs taken from the outside of bags and are programmed to detect traces of homemade ammonium nitrate or hydrogen peroxide bombs (the type used in London) as well as TNT and military-grade explosives (the type used in Madrid). Various portable explosion-detection devices by several manufacturers are now being used by the NYPD in a test phase of undetermined length. One of those being tested is the SABRE 4000 from Smiths Detection. It is the size of a handheld vacuum cleaner, weighs just seven pounds, and can



test for more than forty different threat substances in just fifteen seconds.<sup>30</sup> NYPD officials are hopeful that this new technology, similar to that in use at some airports, would make searches faster and less intrusive.

### Constitutionality Questions<sup>31</sup>

The New York Civil Liberties Union filed suit against the NYPD in August 2005 on grounds that the random bag searches violated the Fourth Amendment’s guarantee against illegal searches and seizures. NYPD Deputy Commissioner for Counterterrorism Michael Sheehan, NYPD Deputy Commissioner for Intelligence David Cohen, and the former chief of counterterrorism for the National Security Council Richard Clarke, who served as a technical adviser to the NYPD random bag search program, all testified in the case. They convinced U.S. District Court Judge Richard Berman that the NYPD’s random searches served the dual purpose of heightening public awareness and keeping potential terrorists off balance. As Judge Berman wrote in his forty-one-page ruling upholding the constitutionality of the inspection program, the random searches fit within the “special needs” exception to the usual Fourth Amendment rule requiring reasonable suspicion before performing a search. Applying that exception, the court ruled that the bag inspections address a “real and substantial threat” to the transit system and “add uncertainty and unpredictability to the planning and implementation of a terrorist attack which, in turn, increases the risk of failure and helps to deter an attack.” Judge Berman also wrote that the random searches constituted a “minimal invasion of privacy” and that they were not “impermissibly intrusive.” The New York Civil Liberties Union is now appealing the decision.

## Public Awareness

Public awareness is a key component of a multifaceted approach to making transit systems more secure. Having the 14 million people who ride mass transit in the United States think of themselves as “the eyes and ears of the system” is an important layer of extra security that cannot be overlooked

### GOOD CALL.

The vigilance of all New Yorkers has kept our transportation system safe.

Please remain alert to objects such as unattended packages or luggage. Be wary of suspicious behavior, like someone nervously checking belongings or clothing.

Take notice of inappropriate attire, such as people wearing bulky clothing in warm weather.

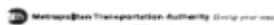
Keep an eye out for exposed wiring or other irregularities, which may be evidence of dangerous devices.

And report anyone tampering with surveillance cameras or entering unauthorized areas.

We also suggest you learn the basics of safe train evacuation by visiting [www.mta.info](http://www.mta.info).

And remember, if you see something, say something. Alert a police officer, train or bus operator, station personnel, or call 1-888-NYC-SAFE.

**IF YOU SEE SOMETHING, SAY SOMETHING.**



© 2005 Metropolitan Transportation Authority



by local authorities. In fact, in the days after the Madrid bombing, it was discovered that a doorman had seen three of the terrorists acting suspiciously near a white van, carrying suspicious packages and wearing suspicious clothing that covered most of their faces, but he did not alert law enforcement until after the attack.<sup>32</sup> Several train passengers interviewed after the Madrid bombings also remembered seeing the unattended knapsacks that turned out to contain the bombs, but did not alert anyone.<sup>33</sup>

There is often a reluctance among the general public to “get involved,” and the more time that elapses after a major terrorist attack, the more likely it is that complacency and a desire to “get back to normal” will set in. Local law enforcement and transit agencies must overcome this complacency by constantly reminding passengers of the critical security role that they play and giving them explicit and easy-to-remember instructions on what to look for and what they should do if they see something suspicious.

One of the best public awareness security campaigns has been the New York Metropolitan Transit Authority’s “If You See Something—Say Something” campaign, which urges riders to tell a police officer or transit employee if they see anything suspicious. The police and the MTA provide an easy-to-remember toll-free antiterrorism hotline telephone number, 1-800-NYC-SAFE, for riders to call. Advertisement posters, in both English and Spanish, are now omnipresent on subways, commuter rails, and buses throughout the New York metropolitan region. Radio and television advertisements have also been aired from time to time.

After the London bombings, the MTA reworked the campaign to reinforce the “See Something, Say Something” message and remind customers to remain vigilant. The advertisements contain photographs of various types of suspicious bags and packages and offer specific instructions on what to look for, such as:

- Unattended packages or luggage
- Suspicious behavior, such as someone nervously checking belongings
- The wearing of inappropriate attire, such as bulky clothing in warm weather
- Exposed wiring or other irregularities protruding from clothing, bags, or packages
- Anyone tampering with surveillance cameras or entering unauthorized zones

## Transit Employee Awareness

Transit employees such as train conductors and bus drivers have an important role to play in preventing a terrorist attack. They have close, regular interaction with passengers and will probably be the first to notice any suspicious activity. As a result, our nation's 350,000 public transportation employees need to be effectively trained and enlisted as another crucial layer of security.

Given their new role in the post-9/11 world, the selection and training of transit employees becomes even more important. Criteria for background investigations should be established, and thorough background checks should be conducted on all new frontline operations and maintenance employees. In addition, training programs on security and emergency procedures should be provided to all transit employees and, where possible, tailored to their specific duties.

Employees must be encouraged to report anything that they find suspicious and should be given explicit instructions on what action to take. Training should also be used to reassure employees that they will not face any type of sanction or discrimination charges in the likely event that their suspicions turn out to be unfounded. Transit employees must be encouraged to report any suspicious persons or activity without worrying about their jobs or being reprimanded by a supervisor for delaying service. Employee awareness of the terrorist threat is a perishable skill and must be reinforced and refreshed from time to time according to the latest intelligence, threat assessments, and advances in technology.

The National Transit Institute (NTI) at Rutgers University in New Jersey provides training, education, and clearinghouse services in support of public transportation. The Federal Transportation Administration has worked with the institute to develop several training tools for transit employees. For example, the NTI provides a "Security Awareness for Transit Employees" course. The course "covers skill sets for observing, determining, and reporting activities, packages and substances that are suspicious or out of place. It encourages employees to use common sense when faced with various circumstances so operations can run safely, smoothly, and efficiently. A focus is also placed upon an employee's initial priorities at the scene of a threat or incident."<sup>34</sup> The NTI provides materials to the instructor and students free of charge. The requesting organization must provide the location and audiovisual equipment. The four-hour course can be offered directly by NTI instructors, or instructors can conduct a train-the-trainer course, which includes an instructor's package that contains everything that is needed to implement the training.

The FTA has a number of other employee training resources available at no charge via its website, including a fifteen-minute downloadable video presentation entitled "Warning Signs: System Security Awareness for Transit Employees." The video is designed to increase transit personnel's awareness of what to look for and what to do regarding suspicious activity, packages, devices, and substances. The FTA website also provides a *Transit Watch* tool kit containing a downloadable CD with the campaign logo and tag line, a brochure, signage and posters, a template press release and fact sheet, and a one-page guide entitled "5 Easy Steps to Launching Transit Watch." It is critically important that all transit agency employees know what to do, if and when passengers bring safety and security concerns to their attention.

## Mitigation and Emergency Response

Another layer of security that transit agencies and public safety officials should consider is how to design facilities and vehicles to mitigate the effects of a terrorist attack and help emergency responders gain quick access to the injured.

While it may be unrealistic to think that a bus or train station can be made “bomb-proof” or “bomb-resistant,” several design elements can reduce the damage that may result from an explosion. Explosive materials vary in their efficiency (energy released per pound of material). In calculating blast loads, current practice expresses all explosives in terms of an equivalent weight of TNT, regardless of the actual explosive material used.

A bomb or other explosive device produces a blast that creates a blast load. Explosions cause damage by the generation of heat, pressure, and flying debris (shrapnel). The rapid release of gases compresses the air immediately around the bomb, creating a shock wave. This shock wave moves through the air outward from the explosion, and when it encounters an object it exerts force on that object. The magnitude of these forces can be tremendous: a hurricane-force wind produces a pressure of less than 1 psi (pounds per square inch); in contrast, the blast pressures exerted on the building façade in the Oklahoma City bombing were on the order of 4,000 psi.<sup>35</sup> A briefcase, backpack, or suitcase bomb is typically equivalent to 50 pounds of TNT, which can produce an immediate blast force equivalent to over 100 psi.<sup>36</sup> Below is a chart that describes the blast damage caused at different levels of psi.

| Pressure(PSI) | Damage                                    |
|---------------|---|
| .05–1         | Window breakage                           |
| > 1           | Knock down person                         |
| 1–2           | Damage to corrugated panels / wood siding |
| 2–3           | Collapse of non-reinforced cinder blocks  |
| 5–6           | Push over wooden telephone poles          |
| > 5           | Rupture eardrums                          |
| > 15          | Lung damage                               |
| > 35          | Threshold for fatal injuries              |
| > 50          | About 50% fatality rate                   |
| > 65          | About 99% fatality rate                   |

**Source:** “Transit Security Design Considerations,” U.S. Dept. of Transportation/Federal Transit Administration, November 2004.

While the direct pressure of an explosive blast is capable of causing numerous casualties (often by breaking the neck), transit security must also be concerned with secondary injuries (caused by flying debris), tertiary injuries (when people are thrown by the blast and strike other objects), and quaternary

injuries (all other injuries caused by explosions—for example, burns, smoke inhalation, or crush injuries). Reinforcing key elements of vehicles such as buses and trains is a logical first step in improving blast resistance. Stronger elements may enable a vehicle to maintain structural integrity and prevent catastrophic collapse of the vehicle body. Stronger body components are less likely to fragment in an explosion and can shield occupants from flying debris. Selection of structural materials such as stainless steel may increase strength and flame retardancy.

In a document entitled “Transit Security Design Considerations” prepared by the Department of Transportation and the Federal Transit Administration (and available via the FTA website), several recommendations are made for the physical construction of trains and buses to prevent or mitigate the effects of a terrorist attack, including:<sup>37</sup>

- Limit the ability to place or hide explosives on or under vehicle
- Improve the ability to see into and out of vehicle
- Reduce the damage that would result from an explosion
- Reduce the damage that would result from a fire
- Reduce the damage that would result from contaminants
- Enhance emergency egress through doors and windows
- Protect the driver from physical threat
- Network the vehicle with the Operations Control Center (OCC)
- Enable communications between the vehicle operator and passengers
- Secure the vehicle from theft or unauthorized operations

Other special physical design considerations for transit and public safety officials to be concerned with include:

**Station Construction:** In the Madrid bombing, al Qaeda attempted to bring the large glass ceiling of the Atocha station crashing down on passengers. Transit agencies should be sure to physically harden stations against the threat of collapse and also restrict vehicle access to protect against the threat of car and truck bombs.

**Garbage Cans:** Trash receptacles present a tempting place for terrorists to hide bombs, and the metal cans themselves can add to the destruction potential of a bomb by becoming shrapnel. (A foiled terrorist attack in New York included placing bombs in the garbage cans of the Herald Square subway station).<sup>38</sup> Transit authorities should remove any heavy metal garbage cans and replace them with light plastic or blast-resistant containers.

**Windows:** One of the biggest concerns in an explosion is windows, because glass shatters more easily than other materials, and shards can injure nearby people. Transit agencies should consider selecting windows constructed of safer materials that are more resilient and shatter into fewer pieces.

**Modular Seating:** Modular seating can also offer safety benefits; it is constructed of larger components, with fewer small pieces to become potential shrapnel in a blast.

**Communication:** Transit agencies should support improvements in communication within and between train cars and for communication between transit employees and fire and emergency service responders.

**Fuel Tanks:** Gasoline fuel tanks on buses can be strengthened beyond current standards; however, that process adds weight and represents an increased cost for transit agencies. Fuel tanks for natural gas are usually placed on top of vehicles, where they are less vulnerable; pressure-release devices have been designed to release the fuel at the top of the vehicle to direct it away from possible ignition sources on the bus.

Lives may be saved in an emergency if physical systems are designed to facilitate rapid evacuation and quick entry by responders. Technical solutions include planning independent energy sources for emergency lighting and communications systems; and installing detection alarm systems that promptly signal an emergency situation. Improving evacuation procedures and emergency exits from tunnels should be a major focus. For example, the Department of Homeland Security has awarded several major grants to Amtrak to improve emergency evacuation routes and access points for emergency responders to the tunnels under the Hudson and East Rivers in New York.<sup>39</sup> Because tunnels are enclosed spaces that have few access points and depend on ventilation systems, they are particularly vulnerable to attacks that might trap people in the tunnel while exposed to fire, smoke, chemicals, flooding, or air deprivation. Tracks in tunnels should be well lit and kept clear of debris that could catch fire or obstruct access or egress in the event of an emergency. Planners may also consider using floodgates, water pumps, and drainage systems. These water management devices should be alarmed and connected to a central control station.

## Rail Transport of Hazmat and Dangerous Cargos

Another threat that law enforcement and transit agencies must be concerned with is the transportation of hazardous materials. An estimated 40 percent of intercity freight, including half of the nation's hazardous materials, moves by rail.<sup>40</sup> Transport of hazardous materials by rail is a particular concern because serious incidents involving these materials have the potential to cause widespread disruption and injury. For example, a January 2005 train crash in South Carolina caused a deadly release of chlorine: nine people were killed, fifty-eight were hospitalized, and hundreds more sought treatment. Thousands of people were kept from their homes for days. A July 2004 train derailment in Texas caused a steel tank car to break open, spewing clouds of chlorine gas that killed three people. In January 2002, a train carrying liquid fertilizer derailed in North Dakota, killing one person, injuring more than three hundred, and causing residents within a three-mile radius to be evacuated. In July 2001, a railcar caught fire in a tunnel under downtown Baltimore. The chemical fire took five days to extinguish and interrupted train traffic and vehicle traffic on nearby I-95, causing major disruptions along the East Coast.

Federal officials say that they have intelligence that terrorists are focused on ultra-hazardous cargo carried in accessible and slow-moving railcars that travel through major metropolitan areas. In a warning in 2002 about possible rail transport attacks, the FBI stated, "Recently captured al-Qaeda photographs of U.S. railroad engines, cars and crossings heighten the intelligence community's concern about this threat."<sup>41</sup> In January 2005, the *New York Times* featured an exposé in which it

quoted a former associate administrator of the Federal Railroad Administration who spoke about the “virtually nonexistent” security that he and his inspectors found at many different rail yards where trains filled with deadly chemicals and gases sat near hotels, offices, and populated areas.<sup>42</sup>

The District of Columbia has approved legislation that restricts hazmat trains and trucks from entering the heart of Washington, D.C. and requires railroads and truckers to obtain a permit from the D.C. Department of Transportation before they can move through a 2.2 mile exclusion zone surrounding the U.S. Capitol.<sup>43</sup> Enforcement of the law is currently stayed pending the outcome of a lawsuit challenging the constitutionality of this program. Other state and local governments are also considering creating truck and rail hazardous-material exclusion zones that would reroute the transportation of hazardous materials away from urban centers.<sup>44</sup> The truck and rail industries are strongly opposed to exclusion zones. The federal government is now working to improve communication and coordination between the truck and rail industries and local authorities. The Department of Homeland Security, in partnership with the Department of Transportation and the Transportation Security Administration, is working to identify high threat urban areas and exploring rerouting options, as well as developing such ideas as a hazmat tracking center that could provide a single point of contact for analyzing alerts and coordinating responses to potential threats.<sup>45</sup>

Possible measures to lessen the vulnerability of hazmat cargo transport include<sup>46</sup>:

- Increase police patrols and security surveillance of freight trains, improve fencing and other security measures at rail storage yards, and install video surveillance equipment and intrusion-detection devices.
- Retire older pressurized rail tank cars with newer cars made from specially treated steel and integrate protective housings, valves, and fittings to prevent tampering and facilitate emergency response.
- Improve operations by monitoring for signal tampering, require dispatchers to verify communications, and lock locomotive doors to prevent hijackings.
- Secure the information infrastructure that terrorists could use to enhance attacks or cause systemic shutdowns.

## Conclusion

Protecting the vast transit network of the United States will clearly not be an easy task. As Homeland Security secretary Michael Chertoff has acknowledged, the federal government is relying heavily on “state and locals” to do the job. It will require that all relevant parties—federal, state, and local law enforcement agencies, the intelligence community, transit authorities and employees, emergency responders, and the general public—remain vigilant and engaged.

By implementing the general layered security approach and many of the explicit recommendations contained in this report, together we can begin to build a safer and more secure environment for the 14 million Americans who ride mass transit on a daily basis. Toward that end, we appreciate your attention to this report and look forward to working with you to meet this challenge.

## Endnotes

- <sup>1</sup> 9/11 Commission Report, p. 391.
- <sup>2</sup> American Public Transportation Association website: [www.apta.com](http://www.apta.com).
- <sup>3</sup> Ibid.
- <sup>4</sup> Air Transport Association website: [www.airlines.org](http://www.airlines.org).
- <sup>5</sup> Department of Justice, Bureau of Statistics.
- <sup>6</sup> American Public Transportation Association website: [www.apta.com](http://www.apta.com).
- <sup>7</sup> *Dying to Kill: The Allure of Suicide Terror*, Mia Bloom, Columbia University Press, April 2005.
- <sup>8</sup> All information in this section is from the transcript of the transit security conference, Princeton, New Jersey, October 13, 2005, organized by the Manhattan Institute and the Police Institute.
- <sup>9</sup> *MacWade v. Kelly* decision and order by Judge Richard Berman, U.S. District Court, Southern District of New York, December 2, 2005.
- <sup>10</sup> "Terrorism and Rail Security," RAND Corporation Testimony of Jack Riley Presented to Senate Transportation Committee, March 23, 2004.
- <sup>11</sup> Ibid.
- <sup>12</sup> *Al Qaeda in Europe*, Lorenzo Vidino, Prometheus Books, November 2005, p. 293.
- <sup>13</sup> "Women of al Qaeda," *Newsweek*, December 12, 2005.
- <sup>14</sup> "DHS Advisory to Security Personnel," September 4, 2003, [www.dhs.gov](http://www.dhs.gov).
- <sup>15</sup> "Police Play Down Sketch of Grand Central," *New York Times*, March 3, 2005.
- <sup>16</sup> *MacWade v. Kelly* decision and order by Judge Richard Berman, U.S. District Court, Southern District of New York, December 2, 2005.
- <sup>17</sup> [http://transit-safety.volpe.dot.gov/Security/Security Initiatives](http://transit-safety.volpe.dot.gov/Security/Security%20Initiatives).
- <sup>18</sup> <http://www.surfacetransportationisac.org>.
- <sup>19</sup> <http://www.ntdprogram.com>.
- <sup>20</sup> "Ring of Steel for New York?" *Wall Street Journal*, January 25, 2006.
- <sup>21</sup> CNN Presents, December 21, 2005, "Winning the War on Terror." Transcript available at: [www.cnn.com](http://www.cnn.com).
- <sup>22</sup> Remarks of Sir Ian Johnston, transit security conference, October 13, 2005.
- <sup>23</sup> ABC News, July 22, 2005, "Can Unused Funds Help Keep Public Transportation Safer?" Transcript available at: [www.abcnews.go.com](http://www.abcnews.go.com).
- <sup>24</sup> "Feds to Screen PATH Passengers," *Star-Ledger*, Newark, January 25, 2006.
- <sup>25</sup> "U.S. Tests Its Bomb Checks on PATH Riders and Bags," *New York Times*, February 8, 2005.
- <sup>26</sup> *MacWade v. Kelly* decision and order by Judge Richard Berman, U.S. District Court, Southern District of New York, December 2, 2005.
- <sup>27</sup> Ibid.
- <sup>28</sup> Ibid.
- <sup>29</sup> "Bag Searches Backed 3-to-1," *New York Daily News*, August 20, 2005.
- <sup>30</sup> Smiths Detection website: [www.smithsdetection.com](http://www.smithsdetection.com).
- <sup>31</sup> All information in this section is from *MacWade v. Kelly* decision and order by Judge Richard Berman, U.S. District Court, Southern District of New York, December 2, 2005.
- <sup>32</sup> "Who's to Blame?" *Guardian*, March 13, 2004.
- <sup>33</sup> "MTA Sharpens a Get-Suspicious Campaign," *New York Times*, June 24, 2004.
- <sup>34</sup> National Transit Institute website: [www.ntionline.com](http://www.ntionline.com).

<sup>35</sup> "Transit Security Design Considerations," U.S. Dept. of Transportation/Federal Transit Administration, November 2004, chap. 6, p. 14. <http://transit-safety.volpe.dot.gov/security/SecurityInitiatives>.

<sup>36</sup> Ibid.

<sup>37</sup> Ibid., chap. 7, p. 13.

<sup>38</sup> "Anatomy of a Foiled Plot," *New York Magazine*, December 6, 2004.

<sup>39</sup> "Fact Sheet: Rail and Transit Security Initiatives," Dept. of Homeland Security website: [www.dhs.gov](http://www.dhs.gov).

<sup>40</sup> "Freight Railroad Security Plan," Association of American Railroads website: [www.aar.org](http://www.aar.org).

<sup>41</sup> "Deadly Leak Underscores Concerns About Rail Safety," *New York Times*, January 9, 2005.

<sup>42</sup> Ibid.

<sup>43</sup> "D.C. Passes Hazmat Ban," *Traffic World*, January 16, 2006.

<sup>44</sup> "Hazmat Hazards: U.S. Cities May Not Wait For Washington," *Journal of Commerce*, December 12, 2005.

<sup>45</sup> "TSA Launches Project to Track Hazmat Trucks," States News Service, September 26, 2005 and "DHS Freight Rail Security Program," available at DHS website: [www.dhs.gov](http://www.dhs.gov).

<sup>46</sup> "Deadly Leak Underscores Concerns About Rail Safety," *New York Times*, January 9, 2005 and "Terrorism and Rail Security," RAND Corporation Testimony of Jack Riley Presented to Senate Transportation Committee, March 23, 2004.

## Appendix A

### Federal Transit Administration's Top 20 Security Program Action Items for Transit Agencies

#### Management and Accountability

1. Written security program and emergency management plans are established.
2. The security and emergency management plans are updated to reflect anti-terrorist measures and any current threat conditions.
3. The security and emergency management plans are an integrated system program, including regional coordination with other agencies, security design criteria in procurements and organizational charts for incident command and management systems.
4. The security and emergency management plans are signed, endorsed and approved by top management.
5. The security and emergency management programs are assigned to a senior level manager.
6. Security responsibilities are defined and delegated from management through to the front line employees.
7. All operations and maintenance supervisors, forepersons, and managers are held accountable for security and emergency management issues under their control.

#### Security Problem Identification

8. A threat and vulnerability assessment resolution process is established and used.
9. Security sensitive intelligence information sharing is improved by joining the FBI Joint Terrorism Task Force (JTTF) or other regional anti-terrorism task force; the Surface Transportation Intelligence Sharing & Analysis Center (ISAC); and security information is reported through the National Transit Database (NTD).

#### Employee Selection

10. Background investigations are conducted on all new front-line operations and maintenance employees.
11. Criteria for background investigations are established.

#### Training

12. Security orientation or awareness materials are provided to all front-line employees.
13. Ongoing training programs on safety, security and emergency procedures by work area are provided.
14. Public awareness materials are developed and distributed on a system wide basis.

### Audits and Drills

15. Periodic audits of security and emergency management policies and procedures are conducted.
16. Tabletop and functional drills are conducted at least once every six months and full-scale exercises, coordinated with regional emergency response providers, are performed at least annually.

### Document Control

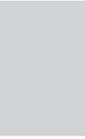
17. Access to documents of security critical systems and facilities are controlled.
18. Access to security sensitive documents is controlled.

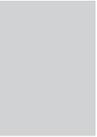
### Access Control

19. Background investigations are conducted of contractors or others who require access to security critical facilities, and ID badges are used for all visitors, employees and contractors to control access to key critical facilities.

### Homeland Security

20. Protocols have been established to respond to the Office of Homeland Security Threat Advisory Levels.









---

MANHATTAN INSTITUTE FOR POLICY RESEARCH

52 Vanderbilt Avenue • New York, NY 10017  
212.599.7000 • [www.manhattan-institute.org](http://www.manhattan-institute.org)