Chapter 12

National Security

Introduction

The Department of Transportation's 2000-2005 Strategic Plan includes a National Security Strategic Goal, to "ensure the security of the transportation system for the movement of people and goods, and support the National Security Strategy." The terrorist attacks on the United States on September 11, 2001, highlighted the need to improve the understanding of transportation security needs across all modes, including highways and transit systems.

The analyses in Parts I and II of this report do not specifically address security aspects of the highway and transit networks. While some investments included in the Cost to Maintain and Cost to Improve scenarios presented in Chapter 7 would result in some security-related benefits, such benefits were not directly considered in evaluating potential investments. The development of new data reporting requirements and new analytical approaches that would be necessary to estimate security-related investment needs are under consideration for future editions of this report.

This chapter broadly examines the role of highways and transit systems in enhancing the Nation's security, looking at both traditional activities of the Department in this area, and new activities that have been recently initiated.

Recovery Operations

Immediately after the terrorist attacks, FHWA and FTA officials focused on restoring the infrastructure damaged in New York City and Washington, D.C. Some of the most serious damage involved the loss of New York City's Port Authority Trans Hudson (PATH) line to the World Trade Center and two PATH stations; the temporary loss of two Manhattan subway lines; and the loss of several Manhattan subway stations. In addition, the loss of street capacity in Lower Manhattan forced restrictions and prohibitions on single occupant vehicle traffic on bridge and tunnel crossings, including the Holland Tunnel, the Lincoln Tunnel, and the Brooklyn-Battery Tunnel.

The Department of Transportation dedicated $242 million to restore highways in the State of New York. The Department also dedicated over $1.8 billion to repair and upgrade the State's transit systems.

Departmental Review of Transportation Security

With recovery operations under way, U.S. Secretary of Transportation Norman Mineta established a National Infrastructure Security Committee (NISC) to comprehensively evaluate security improvements to the surface transportation network. The NISC met with State and local officials, labor representatives, planners, industry leaders, and other transportation partners and stakeholders.

Each operating administration within the Department also sought input from major constituencies. The American Association of State Highway and Transportation Officials (AASHTO), for example, established a security task force that included FHWA representation. The task force produced two handbooks for AASHTO's members. One described "best practices" for identifying critical infrastructure, and the other dealt with emergency response. Similarly, soon after the terrorist attacks, the American Public Transportation Association (APTA) established an Executive Committee Security Task Force. The Task Force worked closely with FTA and developed recommendations for enhancing the security of the Nation's transit systems.

The Department of Transportation also contributed to the Administration's broad homeland security program. Departmental staff, for example, shared information with the Office of Homeland Security. The Federal Highway Administration continued to work closely with the Military Traffic Management Command (MTMC) within the Department of Defense's U.S. Transportation Command (USTRANSCOM). FTA strengthened its ties with such agencies as the Federal Bureau of Investigation and the Department of Energy.

Military Mobilization

MTMC is a longtime FHWA partner. Through contracts and other arrangements, MTMC provides the means by which the military services, the Defense Logistics Agency, and other military components move tanks, fuel, ammunition, vehicles, repair parts, food, and other commodities. Once the freight leaves the United States, MTMC also coordinates its unloading at worldwide ports. MTMC is the manager for numerous ports worldwide. This is an extensive operation, making MTMC a major player in freight transportation. In FY 2001, MTMC contracted for the loading and unloading of over 3.1 million tons of cargo.

MTMC executes the Highways for National Defense program on behalf of USTRANSCOM. This program is designed to ensure that the American road network can support military deployments. This program recognizes that, first and foremost, highways are a key part of the strategic military transportation system. One of the original purposes of the Interstate System was to improve the Nation's readiness during the Cold War, and highways still provide that same function.

The Strategic Highway Network (STRAHNET) is critical to the Defense Department's domestic operations. STRAHNET is a 61,044-mile system of roads deemed necessary for emergency mobilization and peacetime movement. Even though the U.S. Department of Defense primarily deploys heavy equipment by rail, highways play a critical role.

Exhibit 12-1

Strategic Highway Corridor Network (STRAHNET) Mileage, 2000

Interstate	45,376
Non-Interstate	15,668
Total	**61,044**

Source: Military Traffic Management Command.

Exhibit 12-2

Strategic Highway Corridor Network (STRAHNET) Condition, 2000

(Percent STRAHNET Miles with Measured Pavement Roughness <=170)

Interstate	96.6
Non-Interstate	95.6
Total	96.3

Source: Military Traffic Management Command.

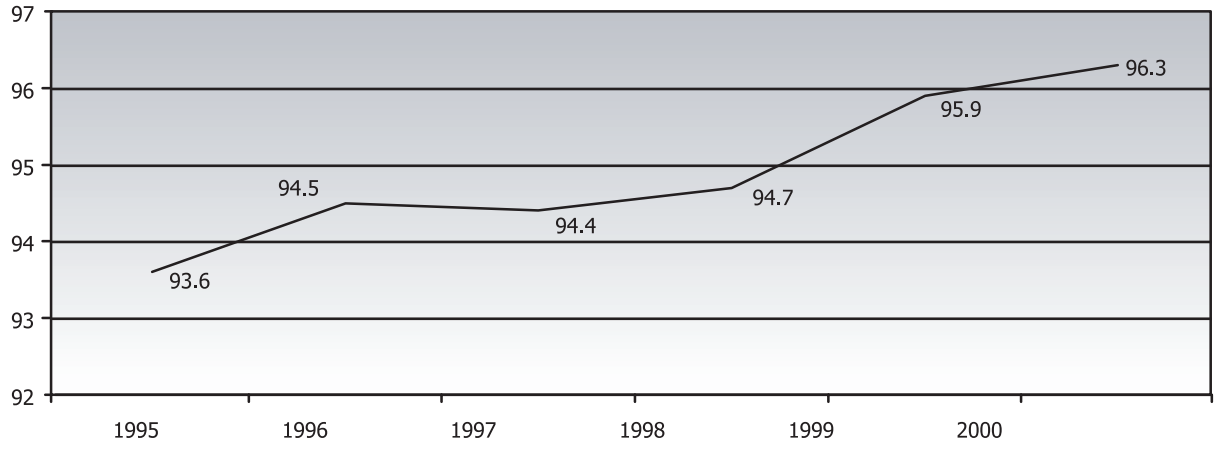
Exhibit 12-1 describes the extent of the Strategic Highway Network. Most of the STRAHNET miles in 2000 were on Interstate highway routes.

Exhibit 12-2 describes the condition of the Strategic Highway Network. In 2000, 96.3 percent of all the mileage in the Strategic Highway Network had a measured pavement roughness (using the International Roughness Index [IRI]) less than or equal to 170 inches per mile. Pavement with an IRI less than or equal to 170 is considered acceptable in the FY 2003 FHWA Performance Plan.

The FY 2003 FHWA Performance Plan identifies the condition of the Strategic Highway Network as a national security performance measure. The percent of STRAHNET miles with acceptable ride quality has steadily increased since 1995. This improvement is described in Exhibit 12-3.

Exhibit 12-3

Percent of STRAHNET Mileage Rated Acceptable, 1995-2000



Source: FY 2003 FHWA Performance Plan.

Q. Are most STRAHNET routes on rural or urban highways?

A. In 2000, 72.8 percent of STRAHNET mileage was in rural communities. Rural Interstates comprised more than 53.5 percent of total STRAHNET mileage.

Additionally, there were 102,859 bridges on the Strategic Highway Network in 2000. The next section of this chapter describes bridge quality using indicators from Chapter 3 and performance measures from the FY 2003 FHWA Performance Plan.

Exhibit 12-4 describes the condition of STRAHNET by the percent of deficient bridges on STRAHNET routes. About 21.5 percent of STRAHNET bridges were deficient in 2000. About 6 percent were structurally deficient, and 15.5 percent were functionally obsolete. By comparison, about 28.5 percent of all bridges nationwide were deficient in 2000, while roughly 14.8 percent were structurally deficient and 13.8 percent were functionally obsolete. Exhibit 12-5 shows how the percent of deficient STRAHNET bridges has dropped since 1995. This is a performance measure in the FY 2003 FHWA Performance Plan.

Exhibit 12-4

Number of Deficient STRAHNET Bridges, 2000

	Number of Deficient Bridges	
	NUMBER	PERCENT
STRAHNET Bridges	102,859	
Deficient Bridges	22,132	21.5%
Structurally Deficient Bridges	6,215	6.0%
Functionally Obsolete Bridges	15,917	15.5%

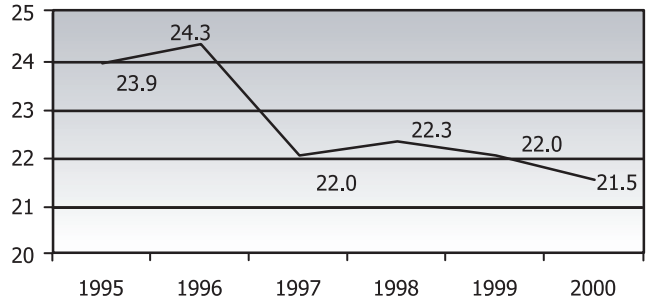
Source: National Bridge Inventory.

Exhibit 12-6 describes the percent of deficient deck area for STRAHNET bridges. In 2000, 26.7 percent of the deck area on STRAHNET bridges was deficient. By comparison, about 27.9 percent of bridge deck area nationwide was considered deficient.

Finally, Exhibit 12-7 describes the percent of STRAHNET routes under bridges with vertical clearance greater than 16 feet. This is a performance measure from the FY 2003 FHWA Performance Plan. In 2000, about 70.8 percent of STRAHNET routes under bridges met this threshold, an indicator that has steadily improved since 1995. This is an important measure because military convoys and emergency response vehicles need to be able to clear structures on the STRAHNET system.

Exhibit 12-5

Percent of STRAHNET Bridges Rated Deficient, 1995-2000



Source: FY 2003 FHWA Performance Plan.

Exhibit 12-6

Percentage of Deficient Deck Area on STRAHNET Bridges, 2000

All STRAHNET Bridges	26.7%
Structurally Deficient Bridges	8.0%
Functionally Obsolete Bridges	18.7%

Source: National Bridge Inventory.

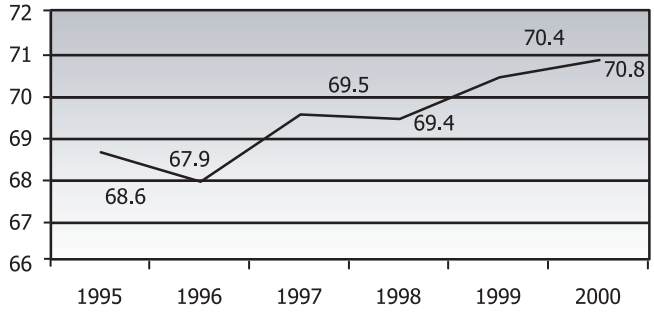
Another important element of the STRAHNET system is the network of STRAHNET connectors. There are 1,700 miles of STRAHNET connectors that link over 200 military installations and ports to the network. There are 17 key power projection platforms (PPPs) in the continental United States that are essential to rapid military deployment, and the condition of STRAHNET connectors is as important as the quality of the main STRAHNET routes. Recently, the Federal Highway Administration has encouraged States to use their apportioned funds to upgrade "fort to port" connections, especially those STRAHNET routes that link to power projection platforms.

Emergency Response Activities

The new security environment makes *redundancy* even more important. In this context, redundancy refers to a transportation system's ability to accommodate increased demands through excess capacity. The highway system needs redundancy to accommodate a sudden flow of vehicles in one direction and to simultaneously allow the quick movement of emergency vehicles in the opposite direction. Transit systems must develop and test operational plans to quickly move people and have alternative operational plans

Exhibit 12-7

Percent of STRAHNET Routes Under Bridges with Clearance Greater Than 16 Feet, 1995-2000



Source: FY 2003 FHWA Performance Plan.

prepared to deal with the potential loss of key components of the system. Effective emergency response, however, also depends on operations strategies to better manage traffic flow. FHWA and FTA recognize these challenges and are working with other Federal, State, and local agencies to improve emergency response capabilities, as described below.

Many States and localities are redesigning their emergency response plans, some of which were designed during the Cold War. In 2002, for example, the Federal Highway Administration sponsored a series of regional emergency management workshops that attracted officials from around the country. These workshops brought together Federal, State, and local transportation agencies from all surface modes with their partners from public safety, emergency management, public health, ports, intelligence, and defense to jointly work on strategies and tactics for dealing with transportation aspects of a major terrorist event.

In May 2002, the Federal Transit Administration launched its "Connecting Communities: Emergency Preparedness and Security Forums." Forums were scheduled for 17 cities around the Nation through January 2003. The two-day forums were intended to help metropolitan areas and their surrounding communities become better prepared to respond to emergency situations in the coordination, communication, planning, and practice of safety and security measures. The forums were designed for transit agency management and security personnel; police and fire personnel responsible for emergency management coordination; emergency medical services and hospital disaster relief coordinators; and State and local government emergency management coordinators.

Emergency plans are being modified to address traffic control, interagency communications, hurricane evacuation routes and destinations, and public information. Intelligent Transportation Systems (ITS) are increasingly included in these plans. The ITS unit within the Florida Department of Transportation, for example, is involved in all types of transportation planning. ITS technologies such as variable message signs, ramp and access controls, and radio broadcasting play an important role in evacuation plans for the Florida coast during natural disasters, and these can also be used during manmade disasters.

ITS surveillance resources can be an important tool in monitoring highway and transit bridges and tunnels. Real-time ITS data on traffic conditions and the location of transit vehicles can assist agencies in conducting rapid, orderly evacuation along all available routes and modes in a threatened area. Some trucking firms and automobiles can now receive traffic conditions and navigation information, making it possible that ITS operations centers could one day guide millions of vehicles away from dangerous areas. Intelligent Transportation Systems are described more fully in Chapter 21.

Since the terrorist attacks, FTA has accelerated the implementation of the Project PROTECT chemical detection system, which is being prototyped in the Washington, D.C. subway system. FTA has also devoted funding to test this system in an older subway environment. In order to assist all systems in the near term, FTA has issued guidelines for the handling of chemical and biological incidents in a subway environment and will soon issue guidance for all transit modes, including buses and light rail.

Truck and Container Security

Although the terrorists who orchestrated the September 11 attacks used airplanes as weapons, attention is now being focused on the openness of the entire U.S. transportation system and its relationship to systems in Canada and Mexico. Every year, for example, an estimated 19 million cargo containers enter the United States through land borders, seaports, and airports. Those same containers move throughout the United States with little attention to their movement. In some cases, containers entering the U.S. are processed

through Customs stations without inspection and can spend more than a month getting to a final destination. Additionally, there are several million domestic containers that travel on the same transportation system with international containers. Altogether, these international and domestic containers represent more than 700,000 intermodal movements each day as freight managers move the containers by trucks, rail lines, or barges to their final destinations.

The U.S. Department of Transportation is exploring how to create a system to track containers and identify the custodians of the cargo as it moves from origin to destination. Partners in this effort include the Transportation Security Administration and the U.S. Customs Service.

Highways and Transit Systems as Strategic Assets

Highways and transit systems are essential strategic assets. An attack on a highway or transit system would not only have human costs, but it could paralyze regional or national economies. The 1995 chemical gas terrorist incident in the Japan subway system illustrated the openness of transit systems to chemical and biological attacks. The U.S. Department of Transportation is focusing on strengthening highway and transit assets across the Nation.

FHWA is taking steps to harden the most sensitive elements of the national highway system—bridges and tunnels. Strengthening these structures could reduce the potential damage of any terrorist attacks much as facilities in earthquake-prone areas have been modified to improve their survival of seismic events. FHWA has issued guidance that clarifies the eligibility of Federal-aid funding should States wish to strengthen these structures.

A bridge or tunnel can be physically hardened in several ways. Piers, cables, and cable anchorages could be strengthened. Redundant configurations could increase a structure's mass, and high-performance materials could increase its durability. Additionally, technology could be added to better monitor the structure's critical components.

For transit structures, FTA security assessments have confirmed that there is no substitute for effective security awareness training. To assist in this regard, FTA and the National Transit Institute have launched comprehensive security awareness courses targeted to front-line transit employees and supervisors. These courses and the accompanying materials are available to transit organizations free of charge. The practices help transit systems harden the target relative to terrorism, but will also improve transit organization's overall security—helping to reduce all levels of crime.

FHWA and FTA are continuing to explore new ways to "harden" transportation assets through research. Coordination between FHWA, FTA, the Transportation Security Administration, and the Office of Homeland Security will help identify important parts of a security research agenda.

Conclusion

The September 11 attacks prompted an assessment of security across all transportation modes. While much attention has been focused on aviation security, equally important steps have been taken to reduce the openness of highways and transit systems. Some of these improvements may not be widely publicized, but they are essential parts of an improved security network across the United States.