Highway Security and Terrorism

Mary A. Field

Abstract

This article presents an overview of highway transportation security before and after the terrorist attacks on September 11, 2001, in the context of hazardous materials (hazmat) transportation. It is primarily focused on the Federal Motor Carrier Safety Administration (FMCSA) regulation of motor carrier transportation of hazmat and post-9/11 efforts to prevent acquisition by terrorists of certain classes of hazmat. In the context of homeland security, motor carrier transportation of hazmat is receiving heightened attention. It should be cautioned, the article highlights a limited number of activities at the federal level only to provide the reader with a sense of ongoing government and industry activities to improve transportation security.

Highway Security Pre-September 11, 2001

Introduction

The highway security discussion in the context of this symposium includes a general overview of the physical infrastructure (bridges, roads, tunnels) aspects, and a more extensive discussion of traffic operations and hazardous materials in commercial vehicles. On one hand, the public aspect of our 3.9 million miles of highway system is an inherent problem that challenges our national security. On the other hand, highway transportation and the access and mobility the highway system provides for all citizens and industries in the United States are essential to the nation’s well-being.

The planning and development for a national network of highways commenced in 1916 and has evolved in stages to the present federal, state, and local system. The financial investment required to bring us to our present system going into the twenty-first century was significant and was obtained primarily from public sources. In the early part of the twentieth-century federal aid funds for the states were appropriated from the general fund. Growing interest in a national system of interstate and defense highways linking all states culminated in the creation of a Highway Trust Fund by Congress in 1956. The underlying philosophy, simply stated, was that public funds collected from users (referred to as “highway user fees”) should be pooled in a trust fund and dedicated to building and maintaining the public highway system.

The Physical Infrastructure: Pre-September 11, 2001

The end-result of eighty-six years of public investment (federal, state, and local) in the national system of highways is a multitiered public highway system with open access for all would-be users and all types of vehicles. In this regard, the driving public has made an assumption, justified or not, that the system (highways and bridges) is infallible. It is not until a component of the system fails that the public trust is shaken, but not destroyed.

An example of this human phenomenon can be seen in the June 28, 1983, collapse of a suspended span of the Interstate 95 bridge across the Mianus River.
in Greenwich, Connecticut. The 1:30 a.m. collapse resulted in two tractor-semitrailers and two automobiles plunging into the river 70 feet below. Three vehicle occupants died and three were seriously injured. If the collapse had occurred during the morning or evening rush hours the death toll would have been significantly higher. The National Transportation Safety Board concluded that the root probable cause was deficiencies in the state of Connecticut’s bridge safety inspections and maintenance program. Nationally, the collapse, though horrible to imagine, did not appear to have a long-term effect on the driving public’s trust as annual vehicle miles of travel continued to climb, increasing by 4.1 percent from 1983 to 1984 (US Department of Transportation [USDOT], 1984, 1985).

Of course, little or no thought was given to the security risks from terrorist attacks to the system at that time. The idea that terrorists might intentionally destroy a bridge or commit suicidal acts of mass destruction with airplanes was inconceivable to the American public—that is, until September 11, 2001. The Mianus Bridge failure is only one example of the vulnerability of the major high-traffic highway corridors to intentional acts of terrorism. The new reality we live with must be, if it can happen in the air, it can happen on the land.

**Highway Infrastructure Security**

In the years since its inception in 1956 and virtual completion in 1991, the Interstate System and those state highways included in the National Highway System designation have been constructed and maintained following engineering guidelines and codes to assure a higher quality and life cycle for bridges and pavement. While structures may be built to standards that consider natural disasters such as floods and earthquakes, construction that includes security against intentional terrorist acts has not been considered.

A recent study summarized in *Civil Engineering Magazine* (Dissecting the Collapses, 2002) evaluated the structural components of the twin towers of the World Trade Center to develop an understanding of the performance of each structure after the attacks and the causes of the behavior, and to identify any need for additional studies. The study produced a “laundry list” of future research related to building structures but concluded with a statement that “resources should be directed to airplane security rather than to hardening buildings against airplane impact” (Dissecting the Collapses, 2002). Extending this to the critical highway infrastructure it can be said that construction standards and codes are fallible and resources need to be directed toward preventing or curtailing terrorist access to the vulnerable structures.

**Highway Operations: Pre-September 11, 2001**

Freedom of access and use of the highway system is consistent with the underlying principles of democracy in the United States. It is one reason why we have vehicles of disparate sizes operating, and often colliding, on highways designed and built for traffic and vehicles in the 1960s and 1970s. However, the size of personal vehicles (automobiles, pick-up trucks, etc.) has decreased since the 1980s, while the overall size of commercial vehicles in traffic (trucks and tractor-trailers) has
increased—a point noted in the Summary Report of the Comprehensive Truck Size and Weight Study (USDOT, 2000).

On a daily basis, large trucks (including tractor-trailers) are loaded with hazardous materials (hazmat) and transported over the land (approximately 800,000 truck shipments per day). Public awareness that trucks transport hazmat is assumed since placarded vehicles are a daily occurrence in most locations. Placarding vehicles that transport hazmat is only one of the multitude of federal hazmat regulations implemented since the 1970s. Over the years it seems the public has come to accept the presence of hazmat on the highways, considering the number of shipments.

The highway environment in 2001, prior to the events of September 11, was a highway system with mixed traffic (automobiles, pick-up trucks, and commercial vehicles), an increasing number of vehicles and drivers, and an increasing number of shipments of freight of all kinds in interstate and intrastate operations. Commercial vehicles transporting general commodities and goods in box trailers or containers are interspersed with automobiles and commercial vehicles transporting hazardous materials commodities in bulk containers or cargo tank trailers.

In general, vehicles and drivers of all kinds had access to the system and operated freely. Provided the shippers and carriers of hazardous materials (hazmat) complied with the federal regulations governing hazardous materials shipments by highway and the federal motor carrier safety regulations, there was no additional control over the commercial vehicles, with limited exception for special classes of radioactive materials.

**Federal Regulation of Highway Transportation of Hazmat**

In 2001, hazardous materials transportation by all modes was regulated by the US Department of Transportation (USDOT), Research and Special Programs Administration (RSPA). Motor carriers that transported hazmat in specified quantities in commerce (both interstate and intrastate) were required to register with RSPA and obtain a registration number. In 2001 there were 41,527 active hazmat motor carriers (primarily interstate) nationwide registered with the USDOT, Federal Motor Carrier Safety Administration, with a total fleet size between 995,000 (minimum) and 1,473,000 (maximum) powered units.

In the early 1990s there were an estimated 800,000 daily shipments of hazardous materials by all modes, with approximately 94% transported by trucks, according to a 1998 study conducted for RSPA by the Office of Hazardous Materials Safety. The two primary hazmat commodity groups were identified as chemicals and allied commodities, and petroleum products as shown in Table 1.

The federal hazmat regulations (HMRs) require carriers to report incidents (including accidents) involving their commercial vehicles transporting hazmat. The total number of accidents/derailments reported annually to RSPA for all modes has increased since 1992 by 73 percent, from 283 in 1992 to 388 in 2001 (approximately 86 percent in the highway mode) as shown in Table 2.

There were 93 deaths and 288 injuries as the result of accidents involving hazmat carriers on the highway system during this same ten-year period and damages amounted to $213 million. From 1992 through 2001 there were a total of 128,486
Table 1. Estimated Hazmat Shipments, Movements, and Tons

<table>
<thead>
<tr>
<th>Product Group</th>
<th>Daily Shipments</th>
<th>Daily Movements</th>
<th>Annual Tons Shipped</th>
<th>Annual Tons Moved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemicals and Allied</td>
<td>500,000</td>
<td>900,000</td>
<td>0.53 billion</td>
<td>0.85 billion</td>
</tr>
<tr>
<td>Petroleum Products</td>
<td>300,000</td>
<td>300,000</td>
<td>2.60 billion</td>
<td>3.03 billion</td>
</tr>
<tr>
<td>Other</td>
<td>10,000</td>
<td>10,000</td>
<td>0.01 billion</td>
<td>0.02 billion</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>&gt;800,000</strong></td>
<td><strong>&gt;1,200,000</strong></td>
<td><strong>&gt;3.1 billion</strong></td>
<td><strong>&gt;3.9 billion</strong></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th></th>
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<tr>
<td>Air</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td></td>
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<tr>
<td>Highway</td>
<td>245</td>
<td>215</td>
<td>244</td>
<td>245</td>
<td>290</td>
<td>259</td>
<td>265</td>
<td>303</td>
<td>322</td>
<td>333</td>
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<td>Railway</td>
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<td>49</td>
<td>52</td>
<td>50</td>
<td>43</td>
<td>53</td>
<td>51</td>
<td>64</td>
<td>63</td>
<td>54</td>
</tr>
<tr>
<td>Water</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>283</strong></td>
<td><strong>264</strong></td>
<td><strong>296</strong></td>
<td><strong>295</strong></td>
<td><strong>333</strong></td>
<td><strong>313</strong></td>
<td><strong>318</strong></td>
<td><strong>367</strong></td>
<td><strong>386</strong></td>
<td><strong>388</strong></td>
</tr>
</tbody>
</table>


 hazmat incidents in the highway mode (20,788 in bulk containers such as cargo tanks). In 2001 there were 15,771 hazmat incidents in the highway mode (332 involving a vehicular accident, 13,749 involving an incident resulting from human error).

State Enforcement of Highway Transportation of Hazmat

The states enforce the federal motor carrier safety regulations (and HMRs) when they conduct roadside inspections under the federal Motor Carrier Safety Assistance Program (MCSAP), a grant program that has been available to the states since the early 1980s. Beyond this safety oversight, most states do not regulate, or require, hazmat carriers to register or obtain permits to operate on state highways—with the exception of those carrying radioactive waste.

If a state wished to require hazmat carriers and vehicles to register it must now comply with the Uniform Hazardous Materials Transportation procedures developed following passage of the Hazardous Materials Transportation Uniform Safety Act (HMTUSA) of 1990. An initiative that resulted from the HMTUSA was the development of uniform procedures for a state permitting program and a Federal Highway Administration (FHWA) pilot project initiative, the Alliance for Uniform Hazmat Transportation Procedures (the Alliance). Seven states currently participate in the Alliance and require hazmat carriers to obtain a permit for each Alliance state its vehicles operate in: Illinois, Michigan, Minnesota, Nevada, Ohio, Oklahoma, and West Virginia.

A state permit program of hazmat carriers would provide the state with some control over hazmat carrier operations and information on the hazmat shipments
moving into and through a state. If available, this data could be used in the planning of highway improvements, enforcement activities, and emergency response efforts if collected in a central database. Available data on the type and quantity of hazmat transported over the US highways is virtually nonexistent. The RSPA and MCMIS databases provide counts on carriers, and Motor Carrier Management Information System (MCMIS) includes carrier vehicle groupings from (1–5,000+ vehicles) of carrier fleets but not a total count of vehicles. Lack of data is a major impediment to identifying needs and planning for improvements to address security.

Highway Security: Post-September 11, 2001

In the hours immediately following the terrorist attacks of 9/11, after the denial phase of the event, emergency response and control of highway traffic was directed at containment. The New York City highway system was restricted to prevent further mishaps and to allow for emergency equipment and personnel to move into the disaster area. A potential threat of additional terrorist acts with commercial vehicles transporting hazmat as a weapon of mass destruction resulted in a blanket prohibition on the major bridges around the city for all commercial vehicles.

At the national level, a month later the US General Accounting Office (GAO) provided testimony on the continued vulnerability of the United States to terrorist threats and identified key elements of a risk management approach to homeland security (GAO, 2001). The GAO cited the vulnerability of the citizenship or military as easy targets for terrorist acts and laid out steps that could be taken to manage the risk of threats to homeland security. Risk and vulnerability assessments of critical assets include the highway system and key bridges and facilities.

Physical Infrastructure Security

The magnitude of the four terrorist acts of September 11 was a wake-up call to transportation officials nationwide. The use of a vehicle as a delivery mechanism for mass destruction was not new in the United States—the bombings of the World Trade Center and Oklahoma City in the 1990s both involved highway vehicles. What 9/11 demonstrated for highway officials is that the potential exists for well-orchestrated multiple terrorist attacks nationwide and we need to reassess the risk to the highway infrastructure, a point noted in the GAO report.

A coordinated effort by the state transportation officials was initiated with the creation of an American Association of State Highway and Transportation Officials (AASHTO) Transportation Security Task Force (TSTF). The task force identified three key security planning program areas: protecting critical mobility assets, enhancing traffic management capabilities, and improving state DOT emergency response capabilities. The TSTF identified explosive attacks on key links (bridges, interchanges, and tunnels) as the principal threat to the highway physical infrastructure. An infrastructure vulnerability and needs assessment was initiated nationwide. The assessment was completed in 2002 and is discussed in the next section.
**Hazmat Transportation Security**

In the first weeks that followed 9/11 the US DOT and FMCSA issued security alerts to motor carriers that transport hazmat to increase their awareness of the potential for terrorist acts (i.e., hazmat theft and hijacking). Also during these first weeks FMCSA initiated security sensitivity visits (SSVs) to motor carriers whose operations might be particularly vulnerable to attack by terrorists—hazmat carriers. The SSVs were intended to increase the level of awareness to terrorist threats, identify potential weaknesses in carrier security, and identify and report potentially serious security issues to appropriate authorities (the Federal Bureau of Investigation [FBI]) for follow-up.

The initial SSVs were targeted at carriers transporting hazmat of the type and quantity terrorists could use as a weapon. The classes of hazmat identified as meeting these criteria are listed in Table 3.

In the four months immediately following 9/11 the FMCSA inspectors completed over 36,000 SSVs, including those of 35,344 hazmat carriers identified based on roadside inspection information and companies that train truck drivers, lease trucks and drivers (U-Haul, Ryder, etc.), high-risk facilities (chemical plants, refineries, etc.), and hazmat shippers. Of the 280 findings of suspicious activity that resulted from the SSVs, 126 were referred to the FBI for such activity as: false personnel information, citizenship irregularities, false names, previous employment irregularities, and unexplained disappearances.

In October 2001 Congress passed the USA Patriot Act of 2001 and the president signed it. Included in the act was a revision to the state process for the issuance of commercial driver licenses for the transportation of hazardous materials. The act prohibits states from issuing or renewing licenses to operate commercial vehicles transporting hazardous materials unless the Department of Justice has first conducted a background check on the applicant and the USDOT has determined the applicant does not pose a security risk warranting denial of the license. Rule-making will be required for implementation.

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrosive Liquids (e.g. Hydrochloric Acid)</td>
<td>Bulk</td>
</tr>
<tr>
<td>Explosives</td>
<td>Any Quantity</td>
</tr>
<tr>
<td>Flammable Liquids (e.g. Gasoline)</td>
<td>Bulk</td>
</tr>
<tr>
<td>Flammable Gases (e.g. Propane)</td>
<td>Bulk</td>
</tr>
<tr>
<td>Flammable Solids</td>
<td>Bulk</td>
</tr>
<tr>
<td>Hazardous Wastes and Substances</td>
<td>Bulk</td>
</tr>
<tr>
<td>Infectious Substances (e.g. Anthrax)</td>
<td>Any Quantity</td>
</tr>
<tr>
<td>Non-Flammable Gases (e.g. Anhydrous Ammonia)</td>
<td>Bulk</td>
</tr>
<tr>
<td>Organic Peroxides</td>
<td>Any Quantity</td>
</tr>
<tr>
<td>Oxidizers (e.g. Oxygen Generators)</td>
<td>Any Quantity</td>
</tr>
<tr>
<td>Pesticides</td>
<td>Bulk</td>
</tr>
<tr>
<td>Poisonous Gases (e.g. Chlorine)</td>
<td>Any Quantity</td>
</tr>
<tr>
<td>Poisonous Liquids</td>
<td>Any Quantity</td>
</tr>
<tr>
<td>Radioactive Materials</td>
<td>Any Quantity</td>
</tr>
</tbody>
</table>

1Material transported in packages with a capacity greater than 119 gallons (450 liters)

Additionally, the FMCSA expanded the new security program to include security sensitivity outreach to hazmat carriers during compliance reviews, and institutionalized periodic SSVs to carriers transporting certain explosives, radioactive materials, and highly toxic substances that will include an inspection of the carrier facilities and a written report of recommendations for improved security.

The FMCSA also implemented outreach efforts on security directed at the state law enforcement community, and at truck drivers to educate on how to avoid becoming a victim of hijacking (in conjunction with the Teamsters, Commercial Vehicle Safety Alliance, International Association of Chiefs of Police, and Maryland State Police).

**Hazmat Industry Efforts**

The hazardous materials industry includes manufacturers, shippers, and carriers. The hazmat industry associations that represent specifically targeted materials recognized the importance of identifying weaknesses in the industry and implementing security measures to avoid terrorist activities aimed at using highways to deliver another attack on America. For example, the National Association of Chemical Distributors (NACD) has instituted a quality-control program for members, the Responsible Distribution Process. The NACD membership is contingent on pre-qualifying under the RDP, which is intended to provide clientele with a reliable screening tool for selecting distributors. In the weeks following 9/11 the NACD issued a security alert to members and guidelines for assessing the vulnerability of their facilities.

The importance of improving the hazmat industry awareness of terrorist threats and strengthening security was driven home on 9/11 and various segments of the hazmat industry responded initially by implementing new procedures and checks, and providing security training to drivers.

**Institutionalizing Highway Security Post-9/11**

Creating the Transportation Security Administration (TSA) within the USDOT was the initial activity to institutionalize homeland security. Logically, the initial focus of the TSA was aviation security within the Federal Aviation Administration (FAA) in response to the use of commercial aircraft in the 9/11 attack. The integration of security into the other DOT administrations was begun almost immediately, though not receiving as much media attention.

In this regard, the significance of highway security to the homeland security effort cannot be overemphasized. Highways are perhaps the most difficult to secure against terrorist activities. There are over 590,000 bridges and over 3.9 million miles of public roads in the United States including 32,808 miles of rural interstate and 13,276 miles of urban interstate. The highway system connects all modes, it provides a readily available and affordable means for would-be terrorists to gain access to the country through Canada and Mexico, and commercial vehicles move thousands of shipments of hazmat over the system daily in containers and trailers of all sizes and combinations.
**Physical Infrastructure Security**

Securing the nations highways and bridges against terrorist attacks is being addressed within the USDOT, FHWA, and at the state and local levels, which have jurisdiction over the majority of the bridges and highways in the nation. The Transportation Security Task Force established by AASHTO developed guidelines to assist the state DOTs in assessing the vulnerability of their highway infrastructure assets, to develop security plans, emergency response plans, and the capacity for handling traffic from major incidents, and to respond to military mobilization needs.

Three areas were identified for AASHTO to establish guidance for the states: the physical highway system, information systems to manage traffic operations, and commercial vehicle operations on the highway system. The TSTF final report, *National Needs Assessment for Ensuring Transportation Infrastructure Security* (AASHTO, 2002), indicated approximately 450 existing bridges and 50 tunnels were considered vulnerable as critical mobility assets.

In October 2002, the FBI issued an alert to the public and transportation officials of a potential attack against critical infrastructure. The warning cited information received from Al Qaeda targeting the US railway sector and giving attack strategies that included targeting hazmat containers and destroying key railway bridges and crossings. This alert serves to highlight the continued need for vigilance by the transportation community and for a commitment to improving security.

**Hazmat Transportation Security**

The implementation of new hazardous materials regulations resulting from legislative initiatives and directed at security were started by RSPA and FMCSA. In May 2002 the RSPA issued a Notice of Proposed Rulemaking (NPRM), *Hazardous Materials: Security Requirements for Offerors and Transporters of Hazardous Materials*, that included a requirement for shippers and carriers of certain hazmat “to plan for and implement procedures to prevent unauthorized persons from taking control of or attacking hazardous materials shipments” (Docket No. RSPA-02-1264 [HM-232], May 2002). The final rule was published in March 2003 and included a requirement that “Shippers and carriers of certain highly hazardous materials must develop and implement security plans. In addition, all shippers and carriers of hazardous materials must assure that their employee training includes a security component” (Docket No. RSPA-02-1264 [HM-232], March 2003).

The FMCSA agenda of rulemaking for 2003 identified an open rulemaking from 1993 that would require carriers to obtain a permit for certain high-hazard classes of hazmat, such as highway route controlled quantities of radioactive materials. From a security perspective, a permitted carrier would have to meet set standards to qualify and this requirement would give the FMCSA some control over the movements. The NPRM docket received over fifty comments and was continued to 1997 and remains open. A supplemental notice of proposed rulemaking was published on August 19, 2003, with a January 1, 2005, implementation date. Given the events of 9/11 and the concerns for improving security for highway transportation of hazmat, tightening the regulation of certain high-risk hazmat seems prudent.
It would be incorrect to assume that there has been no control or regulation over high-risk hazmat. Some of the more hazardous materials shipments have been transported under the currently proposed higher standards and route controlled for many years. The US Department of Energy and the Nuclear Regulatory Commission have developed standards and conditions to control the movement of radioactive materials (RAM), including low-level radioactive waste. Following the terrorist attacks of 9/11, security reviews and plan revisions to enhance the current restrictions were made to “beef up” security. Associations in segments of the hazmat carrier industry (i.e., chemical manufacturers and chemical distributors) have initiated risk assessments and provided guidelines to their members in developing strategies to address vulnerabilities to attack. Awareness to the potential threat has certainly increased since 9/11 and this is a beginning.

Summary and Conclusions

This article attempted to present a succinct summary of security as it relates to the highway system in the United States and is not all-inclusive. Prior to September 11, 2001, security as it relates to terrorist acts was not a primary concern of the highway mode. The 9/11 terrorist attacks demonstrated the unthinkable and highlighted a weakness in the transportation system that transcends modes. The question is, what more can the USDOT do to secure our open highway system and prevent future terrorist acts against our infrastructure, or the commandeering of hazmat transported by motor carriers?

Beyond the first year of the homeland security effort there is a danger that time will lead to complacency and a settling in for much of the public, back to the “it can’t happen here” sentiment and business as usual. The creation of the Department of Homeland Security in November 2002 will help to assure that a national effort to prevent or ameliorate future terrorist acts will continue to be on the national agenda.

Physical Infrastructure Security Program

State transportation agencies will continue to provide the public with bridges and highways constructed to high standards. New procedures and practices that improve the safety and security of the infrastructure will be required and the states have begun the process to implement necessary changes. Through AASHTO in the immediate months following 9/11 the states created a task force and initiated a national needs assessment of transportation infrastructure security.

The AASHTO TSTF report on the vulnerability and needs assessment of the national transportation infrastructure not only identified needs, but also proposed three security programs to be included in the reauthorization of TEA-21 (the Transportation Equity Act for the 21st Century) in 2003. The total cost to implement these programs is quite significant, totaling $10,534 million over six years as the summary in Table 4 indicates.

The USDOT submitted its reauthorization legislation for TEA-21 (which expired September 30, 2003) on May 14, 2003. House and Senate bills are winding their way through the quagmire but the final legislation is far from passage, and this will
require congressional action to extend the current programs and allow state projects to continue. The public concern for security will likely move Congress to authorize the three new security programs and appropriate funds for the states to implement them. Whether or not the funding is sufficient to meet the needs identified in the AASHTO report is yet to be seen.

### Hazmat Transportation Security Program

The FMCSA national hazmat safety permit program has been “in the works” for many years at the request of Congress to enhance motor carrier safety. Since 1997 there had been no movement forward until after 9/11, when homeland security became the issue of the day and the Transportation Security Administration was created.

Congressional action following 9/11 led to heightened security efforts affecting the operation of commercial vehicles transporting hazmat. The requirements for obtaining a hazmat certification on a commercial driver license (CDL) have been increased and require background checks of applicants by enforcement. The FMCSA completed over 34,000 security sensitivity visits to motor carriers of hazmat and is implementing a national safety permit program for specific types of hazmat deemed high-hazard and likely to be on the terrorist list of desirable material.

There are, of course, problems that have surfaced with implementing the additional requirements on the CDL—demand is high, but state and federal resources low. Problems with implementation are also an issue with the safety permit and industry phase, in that it is two years, which makes it difficult to reconcile it as a security program. However, once fully implemented the permit requirements for qualifying, obtaining, and retaining a permit should improve both safety and

<table>
<thead>
<tr>
<th>Program</th>
<th>Program Elements</th>
<th>6-Year Costs (in Millions)</th>
<th>Average Annual Operating Costs</th>
<th>Operations &amp; Maintenance Costs (in Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection of Critical Mobility</td>
<td>Bridge retrofit</td>
<td>$980</td>
<td>$660</td>
<td>$110 per year</td>
</tr>
<tr>
<td></td>
<td>Bridge reconstruction</td>
<td>$420</td>
<td>$222</td>
<td>$37 per year</td>
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<tr>
<td></td>
<td>Tunnels</td>
<td>$60</td>
<td>NA</td>
<td>NA</td>
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<tr>
<td></td>
<td>Transportation management centers</td>
<td>$50</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Enhancement of Traffic Management Capabilities</td>
<td>Detection, surveillance, message signing and dynamic routing</td>
<td>$3,654</td>
<td>$1,914</td>
<td>$319 per year</td>
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<tr>
<td>Improve state DOT Emergency Response</td>
<td>Planning, training, communications</td>
<td>$956</td>
<td>$1,638</td>
<td>$273 per year</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$6,100</td>
<td>$4,434</td>
<td>$739 per year</td>
</tr>
</tbody>
</table>

NA = costs not attributable directly to security
Source: AASHTO (2002).
security. Other aspects of the FMCSA security efforts that are more immediate include the RSPA required-carrier Security Plan in the carrier compliance review process as an educational outreach tool.

Another program that involves a partnership between the FMCSA (which provides funding) and American Trucking Associations (ATA) received supplemental funding from the Department of Defense in 2003 because of its perceived potential to increase significantly the “eyes and ears” of America and homeland security agencies. The *Highway Watch* program was originally initiated to improve safety through real-time reporting of accidents, incidents, and weather conditions by truck drivers, but its benefit to preventing terrorist acts can be significant. The program is voluntary for truck drivers but requires acceptance and endorsement of state trucking associations, and completion of specialized training to assist the driver in recognizing when and what to report, and who to report to, utilizing onboard communications equipment. This program has the potential to make a significant contribution to national security and should be continued and expanded to all fifty states.

**Conclusion**

The public has a significant role to play in protecting against terrorist acts on our highways. Maintaining vigilance and awareness of surroundings, reporting suspicious activities near or around bridges, tunnels, and other facilities are essential components for a national security plan to be effective. There are over 190 million licensed drivers in the United States and over 217,000 registered vehicles, indicating there is an opportunity for expanding the counterterrorism network in the future through education and awareness. State driver licensing programs could be explored as an outreach program to educate the driving public on how it can help the state and national effort to prevent another terrorist act from occurring. We are not without options, and we need to think “outside the box” and better use the tools we have. How many more wake-up calls do we need?

**About the Author**

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**References**


